Understanding personal recovery experiences in bipolar disorder

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Declaration by Student

I, Barbara Mezes, declare that this thesis is my own work, and has not been submitted in substantially the same form for the award of a higher degree elsewhere.

No sections of this thesis have been submitted for publication in an academic journal at this time. Sections of this thesis will be submitted for publication in the future.

The Statement of Authorship outlines my contributions towards the research and writing of this thesis, as well as confirmation from other authors regarding their contributions.

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Statement of authorship

A full statement of authorship is provided for each multi-authored manuscript in the present thesis, accompanied by written certification by the other authors of each chapter. The principal author of all these chapters is the PhD candidate, Barbara Mezes (BM). The project's primary supervisor was Professor Steven H. Jones (SJ) and the student was also supervised by Professor Fiona Lobban (FL), Dr Deborah Costain (DC) and Professor Damien Longson (DL). Laura Hillier (LH) and Dr Filippo Varese (FV) provided input to the systematic review chapter.

Title of chapter: Systematic literature review of personal recovery in bipolar disorder (BD): operationalisation and predictors

Authors, BM, SJ, FL, DC, DL, LH and FV had substantial contribution to the conception and design of the study. BM undertook the main tasks in this systematic review (designing the protocol, conducting the literature search, data extraction and analysis), as well as writing up the manuscript. The protocol and the manuscript were critically revised for important intellectual content by SJ, DC, DL, FV and FL. FV provided practical advice on conducting the literature searches. BM and LH provided summaries and assessed the quality of previous research studies. DC provided her statistical expertise to support BM and LH in reviewing the quality of the identified literature. LH acted as the second researcher in screening the search results and double-checking data extraction.

Title of chapter: Cross-sectional and longitudinal predictors of personal recovery and comparison to clinical outcomes in bipolar disorder (BD)

Authors, BM, SJ, FL, DC and DL had substantial contribution to the conception and design of the study. The principal author (BM) primarily undertook the tasks involved in conducting this prospective quantitative study, including designing the protocol, applying for ethical approval, recruitment, data collection, analysis and writing up the manuscript. The protocol and the manuscript were critically revised for important intellectual content by SJ, FL, DC, and DL. DL provided support with the recruitment for this study and advised on questions related to clinical issues. DC guided BM in her decisions about the statistical aspects of the

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Summary

Background: Personal recovery is a user-defined recovery concept, which has resulted from the recovery movement since the 1980s. This movement signifies a change in the conceptualisation of recovery, moving away from solely focusing on clinical recovery (symptomatic remission) to concentrating on the idiosyncratic experiences of service users with mental health problems. The concept of personal recovery has been recognised internationally and mental health policies foster the delivery of recovery-oriented services. There is increasing evidence for the role of bipolar-relevant psychological processes in influencing clinical outcomes; despite this research on potential psychological underpinning mechanisms of personal recovery in bipolar disorder (BD) is limited.

O*bjective*: To explore factors influencing personal recovery in BD, with special focus on BD-relevant psychological processes.

Methods: A systematic review and narrative synthesis was undertaken, which included 26 quantitative studies, to explore the operational definition of recovery (excluding clinical recovery) and factors assessed for associations. A quantitative study was conducted examining a cohort of individuals with BD. Backward stepwise multiple linear regression was used to determine whether the examined psychological processes (dysfunctional attitudes, self-dispositional appraisals, impulsivity, response styles, and Behavioural Activation System [BAS] processes) contributed to the Bipolar Recovery Questionnaire (BRQ) scores at baseline, and to changes in BRQ scores (6 months follow-up), after allowing for adjustment for the effects of clinical and demographic factors. Backward stepwise ordinal regression was used to determine predictors of clinical outcomes (operationalised as factors created from the number of depressive and manic episodes) in order to compare the factors found to be associated with clinical and personal recovery outcomes in the baseline sample. A qualitative study and a thematic analysis were also conducted, using semi-structured interviews to explore 21 purposively selected (based upon self-reported recovery scores) participants' views on personal recovery and experiences regarding factors influencing their day-to-day and longer-term recovery.

Results: The concept of recovery is complex and operational definitions were often arbitrary and showed significant diversity. As a result of this, findings of

previous research are controversial, with limited consensus on best predictors. Research on underpinning psychological mechanisms were limited and lacked prospective examinations. In the present cohort, depressive symptoms, negative self-dispositional appraisal and dysfunctional attitudes were negative predictors of baseline personal recovery, while adaptive coping, risk taking, being in a relationship, and being female positively predicted personal recovery at baseline. Rumination and being in employment positively predicted changes in personal recovery at 6 months. In comparison, depressive episodes were positively predicted by depressive symptoms and negative self-dispositional appraisals; whilst (hypo)manic episodes were negatively predicted by BAS processes, adaptive coping, and recent depression relevant experiences; and positively predicted by impulsivity, education level and dysfunctional attitudes and both types of episodes were predicted by the time since first episode. Participants' recovery experiences seemed to be on a spectrum, with participants with lower self-rated personal recovery identifying more strongly with the clinical recovery concept, whilst participants with higher recovery scores, who found the personal recovery concept more applicable. Behavioural self-management strategies, emotion and problem-focused coping strategies, along with spirituality, normalisation and self-acceptance seem to be important factors supporting recovery, with the latter primarily appearing in the narratives of individuals who self-reported higher rates of personal recovery.

Conclusion: Psychological processes seem to play an important role in both clinical and personal recovery outcomes; and the present study identified both overlaps and differences in the underpinning processes. Considering the diverse experiences of individuals, psychological interventions and mental health services should be flexible to address personal differences and concentrate on a broader spectrum of experiences when assessing outcomes in individuals with BD.

Table of Contents

Word count ii
Acknowledgements iii
Declaration by Student iv
Statement of authorship v
Summary vii
List of figures and tables xv
List of abbreviations xvi
Chapter 1: Introduction 1
1.1 Overview 1
1.2 Bipolar disorder 2
1.2.1 Diagnosis 2
1.2.2 Epidemiology and course of BD 4
1.2.3 Aetiology: biological and biopsychosocial models of BD 5
1.2.3.1 Core psychological models and processes in BD 9
1.2.4 Treatment 16
1.2.4.1 Pharmacological treatments 16
1.2.4.2 Psychological approaches 19
Psychoeducation 19
Family therapies 21
Interpersonal social rhythm therapy (ISRT) 21
Cognitive-behavioural therapy 22
New Developments- third wave cognitive behavioural interventions 23
1.3 Measuring outcomes in bipolar disorder (BD) - moving from traditional objective outcomes towards capturing subjective experiences 27
1.4 Recovery in mental health 31
1.4.1 Recovery- two meanings for one word 32
1.4.2 The conceptual framework of recovery in mental health 34
1.4.3 Recovery focused interventions and services 36
1.4.3.1 Interventions focusing on individuals 36
1.4.3.2 Interventions focusing on mental health services and professionals 39

1.4.3.3 Measuring the impact of interventions- personal recovery assessment 42
1.5 Aims of the thesis 43
Chapter 2: Methodology 46
2.1 Epistemological and ontological considerations- breaking down the quantitative/qualitative divide 46
2.2 Major mixed methods designs 50
2.3 Advantages and challenges using mixed methods in this study 55
2.3.1 Practical considerations 57
Chapter 3: Systematic literature review of personal recovery in bipolar disorder (BD): operationalisation and predictors 60
3.1 Abstract 60
3.2 Introduction 62
3.3 Method 64
3.3.1 Search procedure 64
3.3.2 Eligibility criteria 64
3.3.2.1 Inclusion and exclusion criteria 64
3.3.3 Data extraction and quality assessment 65
3.3.4 Data analysis 66
3.4 Results 66
3.4.1 Study selection and quality assessment 66
3.4.2 Overall summary of the studies 68
3.4.2.1 Design characteristics 69
3.4.3 Definition and operationalisation of recovery in BD 69
3.4.4 Predictors of recovery experiences in BD 79
3.4.4.1 Social-functional recovery 79
Demographic factors 82
Clinical factors 83
Neurocognitive and other predictors 86
3.4.4.2 Occupational and residential recovery 87
Demographic factors 90
Clinical factors 90

Neurocognitive and other predictors 92
3.4.4.3 Personal recovery 92
Demographic factors 95
Clinical factors 95
Other factors 96
3.5 Discussion 97
3.5.1 Strengths and limitations of the review 99
3.5.2 Future research 101
3.5.3 Clinical implications 101
3.5.4 Conclusion 102
3.6 References 103
Chapter 4: Cross-sectional and longitudinal predictors of personal recovery and comparison to clinical outcomes in bipolar disorder (BD) 111
4.1 Abstract 111
4.2 Introduction 113
4.3 Method 117
4.3.1 Design 117
4.3.2 Participants 117
4.3.3 Measures 118
4.3.3.1 Personal recovery 118
4.3.3.2 Demographic and clinical factors 119
4.3.3.3 Psychological factors 121
4.3.4 Procedure 123
4.3.5 Data analysis 123
4.4 Results 125
4.4.1 Participant attrition and missing data 125
4.4.2 Descriptive statistics 126
4.4.2.1 Demographic characteristics 126
4.4.2.2 Clinical and psychological factors 127
4.4.3 Data exploration 128
4.4.3.1 Bivariate associations between independent variables 128
4.4.3.2 Bivariate associations between independent and dependent factors 131

4.4.4 Predictors of personal recovery at baseline and change at 6 months follow-up 134
4.4.4.1 Model diagnostic 137
4.4.5 Comparison of predictors of personal and clinical recovery at baseline 137
4.5 Discussion 141
4.5.1 Predictors of personal recovery 143
4.5.2 Comparison of clinical outcomes and personal recovery 146
4.5.3 Strengths and limitations 148
4.5.4 Clinical implications 149
4.5.5 Future research directions 150
4.5.6 Conclusion 150
4.6 References 151
Chapter 5: A qualitative investigation of personal recovery experiences in bipolar disorder (BD)-intrapersonal factors 159
5.1 Abstract 159
5.2 Introduction 160
5.3 Method 161
5.3.1 Design 161
5.3.2 Sampling and recruitment 161
5.3.3 Measures 162
5.3.3.1 Personal recovery 162
5.3.3.2 Demographic and clinical history 163
5.3.3.3 Qualitative interview schedule 163
5.3.4 Procedure 164
5.3.5 Data analysis 164
5.3.6 Reflexivity 165
5.4 Results 166
5.4.1 Data collection and participant characteristics 166
5.4.2 Participants view on the recovery definition 169
5.4.3 Thematic analysis- intrapersonal factors supporting or hindering personal recovery 171
5.4.3.1 Theme 1: Behavioural self-monitoring and self-management techniques 173

Subtheme 1: Holistic self-management approaches 173
Subtheme 2: Activities supporting recovery 175
Subtheme 3: Medication for mood-management 178
5.4.3.2 Theme 2: Cognitive coping strategies 180
Subtheme 1: Response style and challenging negative thoughts 181
Subtheme 2: Psychotherapy and counselling for cognitive strategies 183
5.4.3.3 Theme 3: Philosophical stances and recovery 185
Subtheme 1: Normalisation and self-acceptance 185
Subtheme 2: Religion and spirituality 186
5.4.4 Participants views on links between day-to-day and long term recovery 189
5.5 Discussion 189
5.5.1 Overview of key findings and related clinical implications 189
5.5.2 Strengths and limitations 198
5.5.3 Future research directions 199
5.5.4 Conclusion 200
5.6 References 201
Chapter 6: General discussion 205
6.1 Rationale of the thesis 205
6.2 Review of the key findings 205
6.3 Integration of findings concerning psychological processes and personal recovery 210
6.3.1 Response styles to negative experiences 210
6.3.2 Dysfunctional attitudes and appraisals of hypomanic and depressive experiences 215
6.3.3 Impulsivity and Behavioural Activation System 217
6.3.4 Other potential factors in personal recovery 217
6.4 Implication for theory 218
6.4.1 Recovery paradigm in mental health 218
6.4.2 Implications for the conceptual framework of personal recovery 221
6.5 Clinical and service implications 223
6.5.1 Mental health services 223
6.5.2 Psychological interventions 225

6.6 Strengths and limitations 227
6.6.1 Methodology 228
6.6.2 Sample and researcher related biases 229
6.6.3 Patient and public involvement 231
6.7 Future research 231
6.8 Conclusion 233
Consolidated reference list 234
Appendices 283
Appendix A: Systematic Review 283
Table A.1 Hierarchical exclusion criteria 283
Table A.2 Data extraction table: study characteristics, methods and analysis 284
Table A.3 Demographic characteristics 319
Appendix B: Supporting documentation 330
Study Flyer/Advert 330
Participant Information Sheet 331
Participant Consent Forms 338
Appendix C: Data collection materials 343
Demographic Questionnaire 343
Bipolar Recovery Questionnaire (BRQ) 345
Qualitative interview schedule 349
Appendix D: Regression models supplementary materials 352
Table D.1 Personal recovery baseline and follow-up saturated main effects models (prior to backwards elimination) 352
Table D.2 Saturated main effects models for comparing the predictors of personal and clinical recovery (prior to backwards elimination) 354
Table D.3. Parameter estimates of the follow-up models using BRQ change score and BRQ follow-up total score as outcomes while adjusting for baseline BRQ 356
Follow-up model 356
Change model 356

List of figures and tables

Table 1. Summary of the core psychological models in BD.....10

Table 2. Characteristics of the main mixed methods designs- table based upon the categorisation and work of Creswell and Clark (2011) 51

Table 3. Inclusion and exclusion criteria 65

Figure 1. Flowchart illustrating the search and screening process.....67

Table 4. Studies eligible for inclusion.....72

Table 5. Factors examined in association with social-functional recovery 80

Table 6. Factors examined in association with occupational and residential recovery 88

Table 7. Factors examined in association with personal recovery.....93

Table 8. Variables assessed for association with personal recovery in the baseline and follow-up modelling.....119

Figure 2. Recruitment and screening process 125

Table 9. Frequencies and percentages of categorical variables 126

Table 10. Descriptive statistics of continuous variables 127

Table 11. Pearson's correlation between symptom and psychological measures....130

Table 12. Bivariate association between demographic, clinical and psychological measures and personal recovery and clinical outcomes.....132

Table 13. Personal recovery baseline and follow-up models.....136

Table 14. Models for comparing the predictors of personal and clinical recovery .138

Figure 3. Factors predicting personal recovery and clinical outcome (solid lines represent positive, while dashed lines negative associations).....142

Table 15. Demographic and clinical characteristics of the sample.....168

Figure 4. Diagram representing main themes and subthemes.....172

Table 16. Summary of key findings and relevant clinical implications.....190

Table 17. Summary of aims and key findings of the thesis 206

List of abbreviations

ACT: Acceptance and Commitment Therapy

ADHD: Attention deficit hyperactivity disorder

Alc.: alcohol use

AMRS: Altman Mania Rating Scale

BAS: Behavioural Activation System

BD: Bipolar Disorder

BDI/BD-I: Bipolar Disorder Type-I,

BDII/BD-II: Bipolar Disorder Type-II

BD-NOS: Bipolar Disorder not otherwise specified

BIS: Behavioural Inhibition System

BL: Baseline Assessment

BMI: Body Mass Index

BPRS: Brief Psychiatric Rating Scale

BRQ: Bipolar Recovery Questionnaire

Can.: cannabis use

Cau: Caucasian

CBT: Cognitive Behavioural Therapy

CES-D: Center for Epidemiologic Studies: Depression Scale

CFT: Compassion-focused therapy (CFT)

CG: Control Group

CHIME: Connectedness, Hope, Identity, Meaning and Purpose and Empowerment

DAS: Dysfunctional Attitudes Scale

DBT: Dialectical Behaviour Therapy

DSM: Diagnostic and Statistical Manual of Mental Disorders

EG: Experimental Group

ES: Effect Size

F: Female

FAST: Functioning Assessment Short Test

FET: Fisher's exact test

FU: Follow-up assessment

GAF: Global Assessment of Functioning

HAM-D/HDRS: Hamilton Depression Rating Scale

HIQ: Hypomania Interpretation Questionnaire

HIQ-E: Hypomania Interpretation Questionnaire- Experience Subscale

HIQ-H: Hypomania Interpretation Questionnaire- Positive Self-dispositional Appraisals Subscale

HIQ-N: Hypomania Interpretation Questionnaire- Normalising Appraisals Subscale

HPA: Hypothalamic–pituitary–adrenal endocrine gland system

HPT: Hypothalamic–pituitary–thyroid endocrine gland systems

ICD-10: International Classification of Diseases-10

IDQ: Interpretation of Depression Questionnaire

IDQ-E: Interpretation of Depression Questionnaire-Experience Subscale

IDQ-D: Interpretation of Depression Questionnaire-Negative Self-dispositional Appraisals Subscale

IDQ-N: Interpretation of Depression Questionnaire- Normalising Subscale

IMP: Impulsivity

IRQ-FAST: Interpersonal Relationship Questionnaire of the Functioning Assessment Short Test

ISRT: Interpersonal Social Rhythm Therapy

LFQ: Life Functioning Questionnaire

LIFE: Longitudinal Interval Follow-up Evaluation

LIFE-RIFT: Longitudinal Interval Follow-Up Evaluation-Range Impaired Functioning Tool

M: Moderate quality rating (in Chapter 3)

M: Mean (in Chapter 4)

M: Male (Chapter 5)

MADRS: Montgomery-Asberg Depression Rating Scale

Mar.: Married

MARS: Maryland Assessment of Recovery

MBCT: Mindfulness-based cognitive therapy

M.I.N.I: The Mini-International Neuropsychiatric Interview

Mdn: Median

MLCI: Modified Location Coded Index

MRS: Mania Rating Scale

MSIF: Multidimensional Scale of Independent Functioning

MVCI: Modified Vocational Coded Index

MVSI: Modified Vocational Status Index

N: total sample sizes/ n: subsample

NICE: National Institute for Health and Clinical Excellence

PAS: Premorbid Adjustment Scale

PD: Personality Disorder

PG: postgraduate

QLS: Quality of Life Scale

QOL: Quality of Life

QOLI: Quality of Life Interview

QPR: Questionnaire about the Process of Recovery

QR: Quality Rating,

R: Range

RAS: Recovery Assessment Scale

RCT: Randomised Clinical Trial

RPMIP: Royal Park Multidiagnostic Instrument for Psychosis

RSI: Residential Status Index

RSQ: Response Style Questionnaire

RSQ-A: Response Style Questionnaire- Adaptive Coping Subscale

RSQ-R: Response Style Questionnaire- Rumination Subscale

RSQ-RT: Response Style Questionnaire-Risk Taking Subscale

S: Strong quality rating

SAS: The Social Adjustment Scale Self Report

SATS: Substance Abuse Treatment Scale

SCID: Structured Clinical Interview for DSM

SD: Standard Deviation

SRS: Stages of Recovery Scale

STORI: Stages of Recovery Instrument

TAU: Treatment as usual

UG: Undergraduate

UK: United Kingdom

US: United States of America

VSI: Vocational Status Index

W: Weak quality rating

WHOQOL-BREF: Quality of Life Scale of the World Health Organisation Quality of Life Assessment- shorter version

WRS: Wilcoxon Rank Sum

YMRS: Young Mania Rating Scale

Chapter 1: Introduction

1.1 Overview

Bipolar disorder (BD) has traditionally been attributed to biological and genetic factors (Scott, 1995). However, the last two decades brought increased interest and research regarding the impact of environmental and psychological factors in the onset and prognosis of BD (Jones & Bentall, 2006). This change in understanding of BD generated debates about the definition and treatment of BD and the types of assessments needed to understand the outcomes of treatments and experiences of individuals with BD. In parallel with this, the traditional concept and understanding of recovery in mental health has also been challenged in the past two decades. Traditionally, recovery was understood as a clinical outcome and assessed by absence of clinical episodes and/or symptom recurrence (Slade, Oades, & Jarden, 2017). However, individuals with lived experiences of mental health problems have increasingly highlighted what is important to them in terms of moving beyond the effect of the illness and patient role (Slade et al., 2017).

Personal recovery as a new interpretation of the recovery concept has emerged as a result of this movement and has been defined as 'a deeply personal and unique process of changing ones attitudes, values, feelings, goals, skills and/or roles' and as 'a way of living a satisfying, hopeful and contributing life even with the limitations caused by the illness' (Anthony, 1993). The purpose of this thesis is to examine psychosocial factors that may impact on the unique recovery experiences of individuals with BD, with the aim to inform psychological understanding of BD and future psychological interventions and services. This chapter provides an introduction to BD with an emphasis on relevant psychological processes and will review the current state of the personal recovery literature.

1.2 Bipolar disorder

1.2.1 Diagnosis

BD was formerly known as manic-depression, and was first described by Kraepelin (1921). Manic-depression was documented as a fluctuating condition, which includes periodic normality interspersed with periods of illness (Kraepelin, 1921). However, the emphasis on bipolarity and the distinction between bipolar and monopolar forms of the disorder are relatively modern and originate from the 1960s (Angst, 1966; Leonhard, 1957; Perris & d'Elia, 1966). Karl Leonhard introduced the term 'bipolar' and divided manic-depression into bipolar and unipolar disorders, the former identified individuals with the experience of mania, while the latter individuals with depression only (Leonhard, 1957). The term BD allows for more clarity in a diagnosis and is considered less emotionally loaded and stigmatising compared to manic-depressive illness by both service users and health professionals (Purse & Gans, 2017). The new terminology was adapted by the American Diagnostic and Statistical Manual in 1980 (American Psychiatric Association, 1980) and it is currently in use.

The term BD refers to a mood disorder, incorporating a pattern of intense disruption to mood, thoughts and behaviour (Jones, Lobban, & Cooke, 2010). The disturbances of mood in BDs can result in both depression and elation. Four subgroups have been identified based upon the severity of elevated mood symptoms: BD type I, type II, Cyclothymia and BD-NOS (American Psychiatric Association, 2013). A diagnosis of BD not otherwise specified (NOS) is given for individuals who show bipolar symptomatology that does not meet criteria for any of these three bipolar diagnoses. BD-I is diagnosed on the grounds of experiencing a manic episode, while history of depressive episodes is not a requirement. The criteria for manic episodes include 'abnormally and persistently elevated, expansive or irritable mood' with the presence of three or four (if mood only irritable) additional symptoms, such as increased self-esteem, decreased sleep, increased activity levels (being more talkative, engaging in risky behaviour), experiencing racing thoughts and distractibility. The symptoms must be severe enough to cause impairment in normal functioning and have been present for at least a week (American Psychiatric Association, 2000).

In contrast, BD-II refers to patients with a history of recurrent depression interspersed with periods of hypomania, without meeting diagnostic criteria for manic

episodes (American Psychiatric Association, 2000). Similarly, Cyclothymia (DSM-IV or Cyclothymic Disorder in DSM-V) is characterised by the presence of intermittent depressive and hypomanic periods, but in the absence of a history of a full major depressive episode (American Psychiatric Association, 2013). Hypomanic episodes last a minimum of four days and comprise similar symptoms to manic episodes with the exception of experiencing delusions, hallucinations and functional impairment (American Psychiatric Association, 2013; Goodwin & Sachs, 2010; Lam, Jones, & Hayward, 2010). Hypomania can be a positive experience and individuals with BD-II typically seek help when they experience depressive symptoms. This makes diagnosis of BD-II and Cyclothymia difficult, and the former is often misdiagnosed as depressive disorder (Goodwin & Sachs, 2010). This is especially the case as major depressive episodes in BD are similar in nature to depressive episodes in unipolar depression (Goodwin & Sachs, 2010). The diagnostic criteria for a major depressive episode in DSM-IV require that five or more of the key symptoms, including depressed mood or loss of interest or pleasure (essential criterion), diminished concentration and ability to make decisions, reduced energy, psychomotor agitation or slowed activation, feelings of guilt and suicidal thoughts, are present for more than 2 weeks and are severe enough to cause clinically significant distress (American Psychiatric Association, 2000). However, the diagnostic criteria have been criticised and proposed to underestimate the number of individuals for whom bipolar features are a relevant part of their presentation (Akiskal et al., 2000).

Diagnosis of BD is further complicated by the fact that depressive and manic symptoms can coexist in so-called mixed episodes. Based on DSM-IV, mixed episodes are diagnosed when the individual presents symptoms sufficient for a manic and depressive episode at the same time. The symptoms must be severe enough to cause impairment in normal functioning and present for at least a week (American Psychiatric Association, 2000). However, this criterion was changed in DSM-V by the introduction of a mixed features specifier, which requires the presence of at least three symptoms from the opposite pole (American Psychiatric Association, 2013).

Furthermore, there is a debate about how helpful mental health diagnoses (including BD) are. Diagnoses are generally considered helpful when they are reliable and valid, and therefore can inform treatment and help the individual to understand and predict future experiences (Jones et al., 2010). However, diagnostic agreement in

clinical practices has showed variability for individuals with BD (Dubicka, Carlson, Vail, & Harrington, 2008; First, 2012; Zimmerman, Ruggero, Chelminski, & Young, 2008). Moreover, diagnosis of BD is based upon symptoms of depression and (hypo)mania, as discussed above. After receiving a diagnosis, bipolar symptomology is typically targeted by pharmacological treatment; however, individuals with BD respond to treatment very differently (Geddes & Miklowitz, 2013), which undermines the validity of the diagnosis and highlights that individual differences are not captured by diagnostic categories (Jones et al., 2010). See the "Treatment" section of this chapter for further discussion.

The debate about the best definition of BD is still ongoing; however the National Institute For Health and Clinical Excellence National (NICE) recognises that BD is far from being a discrete diagnostic entity (NICE, 2014). Instead, psychological approaches to BD suggest a continuum or spectrum between BD and normal behaviour (Akiskal et al., 2000; Jones & Bentall, 2006). This refers to multiple diagnostic categories differing in their severity, ranging from marked and severe mood disturbance into milder mood variations (NICE, 2014). Research evidence supports the argument that BDs are on a spectrum of severity. For instance, the assessment of hypomanic traits in the normal population has been effective in predicting the future development of BD (Jones & Bentall, 2006; Kwapil et al., 2000; Meyer & Hautzinger, 2003), and research findings show that individuals with milder forms of BD (Cyclothymia, BD-NOS or BD-II) are at increased risk for developing a more severe manifestation of the illness (Alloy et al., 2012; Berk et al., 2007).

1.2.2 Epidemiology and course of BD

Historically community-based epidemiological studies in the 90s and early 2000s in European countries reported lifetime prevalence rates varying from 0.1% to 2.4% for BD (NICE, 2014). More recent international studies of Europe, the United States of America (US) and Asia support the upper end of these estimated prevalence rates, yielding a total prevalence of 2.4% in adults (lifetime prevalence of 0.6% for BD-I disorder, 0.4% for BD type II, 1.4% for subthreshold BDs) (Merikangas et al., 2011; Merikangas & Lamers, 2012). Studies consistently report similar prevalence rates for men and women (Lam et al., 2010).

However, determining accurate incidences of BD is often challenging due to the diagnostic difficulties discussed earlier concerning hypomania and BD-II, and the number of individuals with subclinical symptoms that do not meet diagnostic criteria. National studies in the US, for instance, estimate a prevalence rate of approximately 5% when subthreshold bipolar conditions are included (Grant et al., 2005; Merikangas et al., 2007). These challenges often cause significant delays in presentation to services and establishing accurate diagnosis. A large study found that based upon the recollection of individuals with BD there was an average 8 years' delay from a person's first mood episode to receiving a diagnosis of BD (Mantere et al., 2004).

BD generally develops in early adulthood, but can be present in adolescence; peak onset period is identified between the age of 15 and early twenties (Baldessarini et al., 2012; Goodwin & Sachs, 2010; Nusslock & Frank, 2011). Research indicates that individuals with earlier onset of BD usually experience a more severe course of illness, including increased levels of self-harm, comorbidities and recurrences (Gignac, McGirr, Lam, & Yatham, 2015; Perlis et al., 2004) and poorer functioning (Baldessarini et al., 2012). Other factors identified as precipitants of bipolar episodes include stressful life events (Johnson, Cuellar, et al., 2008), anxiety (Otto et al., 2006), substance abuse (Bauer et al., 2005), and negative family relationships (Miklowitz, Wisniewski, Miyahara, Otto, & Sachs, 2005). Furthermore, while research generally focuses on mood episodes, many individuals with BD experience subsyndromal, predominantly depressive, symptoms between episodes. A 20-year long follow-up study showed that individuals on average experienced mood symptoms for half of the weeks assessed (Judd et al., 2003). Additionally, the risk of relapse for individuals with subsyndromal symptoms are significantly increased (Judd et al., 2008). The course of BD with a focus on clinical outcomes will be further discussed under the "Measuring outcomes in BD" section of this chapter.

1.2.3 Aetiology: biological and biopsychosocial models of BD

BD was first described in the 19th Century and research has so far failed to provide a definitive explanation of its causes. The different presentations of the illness indicate that multiple factors in interaction may play a role in BD (NICE, 2014). The next paragraph will summarise the key foci of recent aetiology research.

Traditionally, mental health problems were explained by biomedical models, suggesting that there is a single underlying biological cause for the illness (Slade, 2009). Recently, biomedical models have focused on identifying biological factors in BD, including genetic underpinnings, endocrinological abnormalities and differences in brain structure and/or functioning. Genetic studies indicate a high heritability rate for BD, estimated at 60% (Baldessarini et al., 2012). Moreover, the risk of developing BD is approximately ten-times higher in families with a first-degree relative with BD (Smoller & Finn, 2003) and there is a 40-70% risk in identical twins (Craddock & Jones, 2001). The fact that the concordance rate for monozygotic twins is not 100% indicates the importance of other factors in BD (NICE, 2014). Indeed, as Joseph argues, while the concept of heritability is useful and relevant in agricultural breeding programmes, its application for mental health problems is misleading. Firstly, heritability is applicable only to a specific population in a specific environment and time, and it does not describe the importance of genetic factors relating to individuals (Joseph, 2004). Furthermore, high heritability does not mean that environmental factors have limited impact or that traits are fixed and unchangeable (Joseph, 2004). The importance of psychosocial factors in the development and course of BD are further evidenced by the fact that genetic models cannot account for the variability in the expression of the disorder (O'Connell, 1986).

Furthermore, attempts to identify a single gene implicated in BD have not been fruitful. It is more likely that a combination of multiple genes with small effects contribute to the vulnerability to a spectrum of psychiatric illnesses, including BD, major depression and other psychiatric disorders (NICE, 2014). Family studies support this and provide evidence that relatives of individuals with BD are at higher risk for developing not only other affective disorders, but also other psychiatric illnesses, including anxiety disorders, alcohol and substance use disorders and schizophrenia compared to general population (Smaller & Finn, 2003; Weissman et al., 1984). More recently large scale studies identified genetic overlap between BD and schizophrenia (Lichtenstein et al., 2009) and BD and autism, Attention deficit hyperactivity disorder (ADHD), schizophrenia and major depression (Cross-Disorder Group of the Psychiatric Genomics Consortium, 2013), indicating that psychiatric disorders lie on a continuum with shared underpinning of genetic and environmental factors (Owen, 2012). Moreover, these genetic results merely identify vulnerability factors in

populations, which do not necessarily mean that the individual will develop a BD (Goodwin & Sachs, 2010), and service users can find the medicalised conceptual framework of BD stigmatizing and unhelpful as it sees BD as a purely medical issue with the problem primarily in the individual (Beresford, Perring, Nettle, & Wallcraft, 2016). This highlights the importance of understanding psychosocial factors in the development of the illness.

Biological studies have also investigated abnormalities in the hormonal system and in the structure and functioning of the brain of individuals with BD. Firstly, research on hormonal abnormalities focused on the hypothalamic–pituitary–adrenal (HPA) and the hypothalamic–pituitary–thyroid (HPT) endocrine gland systems. It is suggested that the dysregulation of cortisol (elevated levels) or thyroid hormone production (subclinical hypothyroidism), respectively, play important roles in the aetiology of BD. While there is research evidence showing higher levels of cortisol (Rybakowski & Twardowska, 1999) and subclinical hypothyroidism in individuals with BD (Müller-Oerlinghausen, Berghöfer, & Bauer, 2002), future prospective studies are required to investigate whether these are symptoms of BD, consequences of treatment or living with BD, or vulnerability factors (NICE, 2014). Indeed, a more recent meta-analysis found that variants of HPA axis-related genes were not associated directly with the development of BD and that the HPA axis dysregulation is not an endophenotype of the disorder, but seems related to environmental risk factors, such as childhood trauma (Belvederi Murri et al., 2016).

Secondly, there has been an increased interest in identifying structural and functional brain anomalies in individuals with BD. A meta-analysis of structural neuroimaging studies found that the brain structure of individuals with BD differed in lateral ventricle enlargement and increased rates of deep white matter hyperintensities, but not periventricular hyperintensities, compared to typical brain structures (Kempton et al., 2011). Moreover, compared with bipolar individuals, those with major depressive disorder had reduced rates of deep white matter hyperintensities, increased corpus callosum cross-sectional area, and smaller hippocampus and basal ganglia, indicating that brain abnormalities differ across the two disorders (Kempton et al., 2011). Studying individuals at high risk of BD can provide information about whether brain anomalies precede or are consequences of the disorder. A recent review of neuroimaging studies did not identify differences between high risk individuals and

general population controls in striatum, amygdala, hippocampus, pituitary and frontal lobe (Fusar-Poli, Howes, Bechdolf, & Borgwardt, 2012), indicating that changes to these areas may be consequences of BD.

With regard to functional brain anomalies, a recent review identified abnormalities in the activation of the prefrontal cortex and the limbic system, suggesting that manic and depressed episodes might be associated with a disruption of the normal regulatory control that the prefrontal cortex has over the limbic system (Townsend & Altshuler, 2012). While structural and functional neuroimaging studies provide important information, they primarily use cross-sectional designs and focus on individuals with BD rather than individuals at risk of developing the disorder. Prospective studies of individuals at risk of and diagnosed with BD will be required to determine whether brain anomalies precede or are consequences of adverse life experiences (early or BD-related) and/or pharmacological treatment of BD (NICE, 2014). A recent review provides evidence for the latter by finding that early life adversity can embed and cause biological and physiological changes, including anomalies in the brain structure and activity (Berens, Jensen, & Nelson, 2017). Moreover, the sample sizes of neuroimaging studies are often small, and there is tendency to research novelty as opposed to reproducing previous findings. For these reasons, replication of neuroimaging studies is often overlooked, impacting negatively on the reliability and validity of results and highlighting the need for large-scale studies and meta-analyses in this field (Fletcher & Grafton, 2013).

More recently, the importance of psychosocial factors in the development and progression of BD have been recognised. The biopsychosocial model of BD proposes that there is no single biological factor underpinning the illness and emphasizes the importance of interpersonal, contextual and societal factors in the development and course of illness (Goodwin & Jamison, 2007). The biopsychosocial model is based on the stress-vulnerability diathesis, which states that there is an existing susceptibility for mental health problems, which in interaction with negative environmental factors can develop and impact on the illness course (Nuechterlein & Dawson, 1984). Childhood psychosocial stressors (such as neglect, traumas, and abuse) have been identified as contributing factors to the development of the disorder and are associated with worse prognosis, including: earlier onset age; increased rate of psychiatric comorbidities and depressive episodes; poorer functioning; and increased risk of

suicide attempts (Aas et al., 2016). It is evidenced in the literature that early traumas can also impact on the HPA system, causing emotional dysregulations and difficulties in coping with later stressors in adulthood (Aas et al., 2016; Belvederi Murri et al., 2016). Similarly, psychosocial factors in adulthood such as stressful life events (Lex, Bäzner, & Meyer, 2017), lack of social support or negative social environment (Miklowitz et al., 2005), self-esteem (Pavlickova, Varese, Turnbull, et al., 2013), and dysfunctional cognitive styles (Lam, Wright, & Smith, 2004) have been found to impact on the course of illness and are associated with an increase in symptomology and episodes (NICE, 2014). Psychological theories of BD are important in understanding potential underpinning psychological processes, and have impacted on the development of effective psychological interventions. The core psychological models of BD are discussed in more detail in the next section of this chapter.

1.2.3.1 Core psychological models and processes in BD

Numerous psychological models have emerged over the past thirty years that aim to explain the development, expression and course of BD. As discussed above, most of the psychological models are based upon the diathesis-stress model, which emphasizes that stressful life events and biological predispositions interact and induce the disorder (Nuechterlein & Dawson, 1984). The importance of psychosocial factors in the development and course of BD is highlighted by the fact that biological and genetic models cannot account for variability in the disorder's expression in terms of polarity, symptomology, response to treatment, or timing, development and frequency of episodes (O'Connell, 1986). Individual differences in experiences and cognitive processes therefore are likely to play an important role in the manifestation of the disorder. There is insufficient space to provide a comprehensive review of all the research conducted in this area. However, it is important to review some of the key psychological processes implicated in BD, as such processes directed the focus of the quantitative investigation in Chapter 4. Therefore, this section will provide a brief overview of the main psychological models of BD (summarised in Table 1), which informed the selection of process measures for the quantitative investigation in Chapter 4, focusing on their assumptions, strengths and limitations.

Table 1. Summary of the core psychological models in BD

	Cognitive vulnerability	Response style theory	The behavioural activation system (BAS) dysregulation model	Circadian rhythm disruptions and attributions
Conceptualisation of BD	Extended from theories of unipolar depression. Maladaptive and dysfunctional cognitive styles and information processing (dysfunctional attitudes and negative appraisals) contribute to bipolar vulnerability. (Abramson, Metalsky, & Alloy, 1989; Alloy, Abramson, Walshaw, & Neeren, 2005; Beck, 1967; Reilly-Harrington, Alloy, Fresco, & Whitehouse, 1999).	Extended theory from unipolar depression. Response style (rumination, dangerous activities, problem solving and distraction) to depressive mood impacts on the course of unipolar depression (and bipolar depression in this context). (Nolen-Hoeksema, 1991; Nolen-Hoeksema, 2000; Roberts, Gilboa, & Gotlib, 1998). Revised factors structure: risk taking, adaptive coping and rumination (Knowles, Tai, Christensen, & Bentall, 2005).	Biological basis for the theory: two complementary systems the behavioural activation system (BAS) activated by rewards and incentives and behavioural inhibition system (BIS) activated by punishment or threat. Dysregulation of the BAS system contributes to BD (Alloy & Abramson, 2010; Alloy, Abramson, Urosevic, Bender, & Wagner, 2009; Corr, 2001; Depue & Collins, 1999; Depue & Iacono, 1989; Gray, 1982).	Life events cause circadian rhythm (patterns of biological activity over a 24-hour period, special focus on sleep patterns) disturbances that impact on the onset and recurrence of BD (McClung, 2007; Murray & Harvey, 2010). Interpretation of such disturbances leads to behaviours that further disrupt rhythms and feed into cycle of escalating symptoms (Jones, 2001).
Explanation for depressive episodes	Maladaptive negative cognitive styles are activated by negative and stressful life events.	Rumination contributes to depressive symptoms and episodes.	Low BAS activation results in low energy, anhedonia, disengagement and leads to depression.	Circadian rhythm disruption causes reduced activity level and it is attributed to self rather than external factors (Jones, 2001).

Table 1 (continued)

	Cognitive vulnerability	Response style theory	The behavioural activation system (BAS) dysregulation model	Circadian rhythm disruptions and attributions
Explanation for manic episodes	1) Positive life events activate positive cognitive styles. 2) Negative cognitive styles contribute to both episode polarities. Manic defence hypothesis: mania arises as a defence mechanism, dysfunctional attempt to avoid depression and negative cognitive styles. (Abraham, 1911/1927; Neale, 1988).	1) Depression avoidance hypothesis: risk taking and extreme distractive behaviour as attempts to avoid negative mood, result in (hypo)mania (Thomas & Bentall, 2002). 2) Rumination as response to positive affect intensifies mood (Johnson, McKenzie, & McMurrich, 2008).	Increased BAS activity (triggered by goal attainment life events) contributes to irritability, goal-directed activity, decreased sleep, increased self-confidence and contributes to manic episodes.	Circadian rhythm disruption causes dysphoria and increased activity level, which is appraised in ways that are positive and self-dispositional rather than situational and external thus leading to behaviours that further disrupt rhythms and symptoms (Jones, 2001).
Evidence and strength	1) Similar cognitive styles in individuals with unipolar depression and current bipolar depression (both more negative than typical population), including low self-esteem, self-referent information processing, dysfunctional attitudes and attributional styles (L. Jones et al., 2005; Lam et al., 2004; Reilly-Harrington et al., 1999).	1) Rumination predicted the onset and severity of depression in unipolar patients and bipolar individuals showed similar ruminative response style to unipolar individuals (Just & Alloy, 1997). 2) Higher rumination was identified in all mood states of bipolar individuals compared to normal controls. High levels of	1) Elevated BAS score on self-reported measures in individuals with BD and high-risk population compared to healthy control (Alloy, Abramson, Walshaw, et al., 2006; Meyer, Johnson, & Carver, 1999; Meyer, Johnson, & Winters, 2001) and unipolar depression (Quilty, Mackew, & Bagby, 2014). Higher BAS sensitivity was found in all mood	1) All phases of BD, including remitted state, are associated with sleep disturbances (Cassidy, Murry, Forest, & Carroll, 1998; Goodwin & Jamison, 2007; Jones, 2001; Jones, Hare, & Evershed, 2005; Millar, Espie, & Scott, 2004). 2) Individuals with bipolar spectrum disorder show lower circadian rhythm regularity

Table 1 (continued)

	Cognitive vulnerability	Response style theory	The behavioural activation system (BAS) dysregulation model	Circadian rhythm disruptions and attributions
	2) Dysfunctional cognitive styles in association with life events predicted both future (hypo)manic and depressive symptoms (Alloy, Reilly-Harrington, Fresco, Whitehouse, & Zechmeister, 1999; Reilly-Harrington et al., 1999).	self-reported adaptive coping and risk-taking found in manic states compared to normal controls (Silveira Jr & Kauer-Sant'Anna, 2015; Thomas, Knowles, Tai, & Bentall, 2007; Van der Gucht, Morriss, Lancaster, Kinderman, & Bentall, 2009). 3) Rumination was associated and prospectively predicted depressive mood, risk taking was associated with both elevated and depressive mood, and adaptive coping with positive mood (Knowles et al., 2005; Pavlickova, Varese, Smith, et al., 2013; Thomas et al., 2007).	states (Alloy et al., 2008; Salavert et al., 2007; Urošević, Abramson, Harmon-Jones, & Alloy, 2008). 2) Support from the cognitive vulnerability models: BAS relevant cognitive styles (dysfunctional attitudes of goal striving, perfectionism and autonomy) identified in individuals within the bipolar spectrum (Alloy, Abramson, Walshaw, et al., 2009; Lam et al., 2004; Scott, Stanton, Garland, & Ferrier, 2000). 3) BAS triggering life events (goal striving or attainment) contribute to increased manic symptomology (Alloy, Abramson, Walshaw, et al., 2006; Johnson, Cuellar, et al., 2008; Nusslock, Abramson, Harmon-Jones, Alloy, & Hogan, 2007).	compared healthy controls (S. H. Jones et al., 2005; Shen, Alloy, Abramson, & Sylvia, 2008) and lower stability was associated with both future depressive and manic symptoms (Chang, Alloy, & Abramson, 2003; Shen et al., 2008; Sylvia et al., 2009). 3) Stressful life events are increasingly associated with sleep disturbances in BD compared to healthy controls (Boland et al., 2012). 4) Provides a single underlying mechanism that explains both poles and mixed states (Alloy et al., 2015; Jones, 2006).

Table 1 (continued)

	Cognitive vulnerability	Response style theory	The behavioural activation system (BAS) dysregulation model	Circadian rhythm disruptions and attributions
			4) Neurophysiological and imagining evidence for BAS relevant brain activity (for reviews, see Alloy, Nusslock, & Boland, 2015; Coan & Allen, 2004). 5) Provides a single underlying mechanism that explains both poles (Alloy et al., 2015).	
Limitations	1) Inconsistent results for explaining (hypo)manic episodes: varied findings for the manic-defence hypothesis (Bentall & Thompson, 1990; Johnson & Fingerhut, 2004; Thompson & Bentall, 1990). 2) Inconsistent results regarding euthymic states: no difference between individuals in remitted state and normal controls in self-esteem, dysfunctional attitudes, attributional styles and self-referent	1) Primary research focus on unipolar depression and rumination. Lack of research on long term effects of response styles in BD. 2) No explanation for mixed episodes.	1) Inconsistent results regarding negative life events reducing BAS activation and in turn leading to depressive episodes (Hammen & Gitlin, 1997; Hunt, Bruce-Jones, & Silverstone, 1992; Johnson, Winett, Meyer, Greenhouse, & Miller, 1999; Malkoff-Schwartz et al., 1998; Swendsen & Gitlin, 1995). 2) No explanation for mixed episodes.	No explanation for switching between mood episodes.

Table 1 (continued)

	Cognitive vulnerability	Response style theory	The behavioural activation system (BAS) dysregulation model	Circadian rhythm disruptions and attributions
	information processing (Pardoen, Bauwens, Tracy, Martin, & Mendlewicz, 1993; Reilly-Harrington et al., 1999) **vs**. finding higher self-esteem, more negative attributional styles and dysfunctional attitudes compared to controls (Lam, Hayward, Watkins, Wright, & Sham, 2005; Scott et al., 2000; Van der Gucht et al., 2009; Winters & Neale, 1985; Wright, Lam, & Newsom-Davis, 2005). 3) Inconsistent results regarding mood state dependence (Alloy et al., 1999; Scott & Pope, 2003). 3) No explanation for mixed episodes.			

The models presented in Table 1 offer plausible explanations of how the potential psychological mechanisms underpin BD. However, there are several shortcomings of these models. Firstly, many of the implicated psychological processes cannot explain the varied symptoms of BD. For example, there is a focus on explaining mechanisms leading to depression or mania without explaining how individuals with BD switch from one mood state to another, or the processes involved in mixed episodes. More recent integrated models propose multilevel information-processing systems that feed into each other, which can result in conflicting interpretations and responses to changes in internal states which are proposed to play important roles in mixed episodes (Jones, 2001; Mansell, Morrison, Reid, Lowens, & Tai, 2007).

Secondly, many of the models have been investigated solely by the researchers who contributed to the development of the model. This may bias the associated research findings, and therefore independent research is required to assess their validity. Moreover, there are some methodological considerations that must be born in mind when assessing psychological risk factors in a disorder. Psychological risk factors must be present prior to the development of episodes or symptom exacerbations and should exhibit relative independence from mood states (Alloy, Abramson, Neeren, et al., 2006). Therefore, cross-sectional studies comparing bipolar population to healthy controls or unipolar depression can only provide information on existing associations, but not about earlier and independent presence of the risk factor. Whilst prospective studies comparing euthymic bipolar individuals to healthy controls or to individuals with current mood episodes can demonstrate independence from mood states, it is difficult to assess euthymic state in BD due to the significant level of subsyndromal symptoms between episodes (Johnson et al., 2011; Judd et al., 2003), which may bias the assessment of psychological factors and therefore must be controlled for (Alloy, Abramson, Neeren, et al., 2006). Moreover, such euthymic designs cannot explain whether the psychological abnormality is a predictor or consequence of episodes. Prospective longitudinal studies that assess the proposed psychological abnormality prior to measures of symptom exacerbation or episodes can overcome this issue (Alloy et al., 2015) and are therefore needed to investigate the proposed psychological models of BD.

1.2.4 Treatment

Past treatment of BD predominantly focused on pharmacological approaches only and, more specifically, on the treatment of acute mania with lithium. There have been changes in the last 15 years, evidenced by growing interest and research into psychological approaches, as well as new drugs for the treatment of acute episodes and for long-term preventative purposes (Lam et al., 2010). The next section will review the most commonly used treatment approaches in BD.

1.2.4.1 Pharmacological treatments

The key aims of pharmacological treatment are stabilization of acute episodes and long-term prevention of relapses. Short-term pharmacological treatment of acute mania traditionally relied on lithium as the first line treatment from the 1950s (Cade, 1949). However, lithium has a slow onset of action, an extensive side-effect profile and is associated with a risk of relapse into mania after withdrawal (NICE, 2014). Therefore, new medications have been applied to treat acute manic episodes, including mood stabilisers, such as valproate, carbamazepine and lamotrigine, and new generation antipsychotics such as olanzapine or aripiprazole. A meta-analysis found that antipsychotics are more effective in the treatment of acute mania compared to mood stabilisers (Cipriani et al., 2011). However, using a single medication is not always effective and often the combination of medications is required; for instance, antipsychotics are especially recommended when psychotic symptoms are present and benzodiazepines can be beneficial as adjunctive treatment to improve sleep, which is often disrupted during manic episodes (Lam et al., 2010).

New generation antipsychotics are preferable as they have less side effects compared to older antipsychotics, such as haloperidol, and can also be beneficial in the treatment of depression (Lam et al., 2010). However, second generation antipsychotics are also associated with some side effects, including weight gain, and are not effective in every case (NICE, 2014). The evidence base for the effectiveness of antipsychotics (including haloperidol, risperidone, olanzapine, quetiapine, aripiprazole, and ziprasidone) and for certain mood stabilisers (such as lithium, carbamazepine, and valproate) indicate that these medications are effective in improving acute manic episodes compared to placebo (NICE, 2014). There is no evidence for the effectiveness of other mood stabilisers, such as gabapentin,

lamotrigine and topiramate (NICE, 2014). Moreover, considering the trade-off between benefits and side effects, olanzapine, risperidone, haloperidol and quetiapine are recommended as the best treatment for acute mania, determined by their combined efficacy and acceptability (NICE, 2014).

It is problematic that the treatment of depression is challenging in BD, as depressive episodes are more common than and at least as disabling as manic episodes (Judd et al., 2005; Judd et al., 2002). These challenges are due to the lack of treatment options with proven efficacy and due to the substantial controversy about the role of antidepressants in the treatment of bipolar depression (Geddes & Miklowitz, 2013). Treatment of bipolar depression often relies on unipolar depression treatment approaches, underestimating the risks of treatment-emergent hypomania or mania (Geddes & Miklowitz, 2013). Furthermore, a recent meta-analysis found that antidepressants were ineffective in the treatment of bipolar depression (Sidor & MacQueen, 2012). However, antidepressants are often examined as a group instead of reviewing their impact separately; this approach may have overlooked the variability in the effectiveness of particular drugs (Geddes & Miklowitz, 2013).

Other treatments used during acute depressive episodes include antipsychotic drugs, such as quetiapine, or mood stabilisers such as lamotrigine or lithium; however, response to these agents both acutely and during maintenance treatment is often partial (NICE, 2014) and the prescribing guidelines are often controversial (Lam et al., 2010). With regard to the current evidence base, olanzapine combined with fluoxetine, and quetiapine alone showed the greatest benefit for treatment of depression, while the benefit was smaller for olanzapine alone and for lamotrigine; there is no current evidence for the efficacy of aripiprazole, moclobemide, or ziprasidone (NICE, 2014).

The second aim of pharmacological treatment is to prevent episodes. Lithium is often a preferred long-term treatment due to evidence for its effectiveness in reducing suicidality (Baldessarini et al., 2006) and depressive and manic relapses (Geddes, Burgess, Hawton, Jamison, & Goodwin, 2004). However, lithium, along with all other long-term pharmacological treatment, has side effects and negative impacts, which are discussed above (NICE, 2014). Long-term pharmacological treatments either focus on preventing mania (with the assumption that this will also prevent depression) using lithium or valproate, or focusing on preventing depression (with the assumption that this will prevent mania too) using lamotrigine, for instance

(Lam et al., 2010). Due to the need to protect against both poles of the illness, polypharmacy is common in relapse prevention, as mood stabilisers are often used in combination with antipsychotic and/or antidepressants. However, the effectiveness of such combinations has not been systematically studied and there is no current evidence that any other pharmacological intervention is superior to lithium for preventing episodes of both poles (NICE, 2014). This is problematic as approximately 40% of service users may not respond adequately to lithium (Geddes & Miklowitz, 2013)

Another problem associated with long-term pharmacological treatment is the risk of reduced medication adherence, partly due to its partial effectiveness. It is known that individuals are more likely to adhere to their medication regimen during acute phases of the illness, and are less likely to maintain their pharmacological treatment when the acute symptoms are reduced (Lam et al., 2010). As previously discussed each medication is associated with side effects to some extent, including weight gain, neurological and cognitive problems (impaired memory and poor concentration), and skin and kidney problems, among others (Lam et al., 2010). Medication side effects are known to reduce treatment adherence (Sajatovic, Valenstein, Blow, Ganoczy, & Ignacio, 2007) and sudden discontinuation of medication, especially lithium, can trigger relapses (NICE, 2014). While psychotherapy is not usually used in acute phases despite the growing evidence of its effectiveness in acute depression, it can be especially important in long-term treatment of BD.

In conclusion, the aim of pharmacological treatment in BD is twofold; treating acute manic and depressive episodes and prevent relapses. While there is an evidence base for the effective treatment of acute episodes, it often requires polypharmacy (NICE, 2014). The preventative treatment is only partially effective and many individuals do not respond adequately (Geddes & Miklowitz, 2013). Furthermore, all pharmacological treatment has side effects, and there is no evidence for improving functioning and quality of life (NICE, 2014); all these factors may contribute to reduced medication adherence. Psychological approaches can be used as an adjunctive treatment to improve medication adherence (Lam et al., 2010). Furthermore, psychotherapy can increase the understanding and target factors that trigger relapses, which is important in long-term treatment. Therefore, the next section of this chapter will review the main psychological approaches in bipolar treatment.

1.2.4.2 Psychological approaches

Along with the cumulative evidence that psychosocial factors are important in BD, there has been an increased awareness of the importance of psychotherapy to target these factors and improve outcomes in BD (NICE, 2014). Treatment guidelines, for long-term BD management, increasingly suggest the integration of pharmacotherapy with targeted psychotherapy (Goodwin et al., 2016). Psychological approaches have diverse theoretical backgrounds, but they are typically built on evidence that psychosocial stressors, such as negative life events, interpersonal conflicts, disruption in sleep and wake rhythms, or goal attainment experiences are associated with increased symptomology and relapses (Geddes & Miklowitz, 2013). The main goals of psychotherapy for BD include the education of service users, and when possible, relatives, about strategies for coping with stress, the identification and management of early warning signs of relapse, and how to keep routine and maintain a healthy lifestyle (focus on sleep and exercise) (Miklowitz & Scott, 2009). Moreover, psychotherapies aim to provide service users with a set of skills to address the challenges of living with BD more effectively long-term (NICE, 2014). Furthermore, considering the high rate of non-adherence to drug treatments, another important role of psychotherapies can be to improve medication adherence (Lam et al., 2010). The main psychotherapy approaches employed for BD incorporate family-focused therapy, individual and group psychoeducation, interpersonal and social rhythm therapy, and cognitive-behavioural therapy (NICE, 2014). The next paragraphs will provide an overview of these treatment approaches and a brief introduction to new developments in psychological treatment of BD.

Psychoeducation

Common elements of the psychoeducational approaches include increasing understanding of BD, medication and side effects, and the obstacles to recovery and education about how to manage risk factors to avoid relapses (Luty, 2006). The effectiveness of psychoeducation for improving outcomes in BD has received significant attention in the last 15 years. Individual psychoeducation was effective in increasing time to manic recurrences and improving social and occupational functioning (Perry, Tarrier, Morriss, McCarthy, & Limb, 1999), as well as reducing depressive and manic symptoms and improving medication adherence (Javadpour, Hedayati, Dehbozorgi, & Azizi, 2013). Similarly, group psychoeducation was

effective in preventing relapses (Colom et al., 2009; D'Souza, Piskulic, & Sundram, 2010; Kessing et al., 2014) for up to five years post-intervention (Colom et al., 2009), reducing manic symptoms (D'Souza et al., 2010) and internalised stigmas (Çuhadar & Çam, 2014).

However, not all RCTs found that psychoeducation was effective. De Barros Pellegrinelli and colleagues reported no group differences in symptomology and functioning after 16 sessions of group psychoeducation (de Barros Pellegrinelli et al., 2013). Similarly, individual psychoeducation did not impact on the regulation of biological rhythms in BD-II disorder (Faria et al., 2014) and did not improve quality of life (de Azevedo Cardoso et al., 2014; Gumus, Buzlu, & Cakir, 2015). In a recent RCT, group psychoeducation was found to be similarly effective as intensive unstructured peer support, but the former was more acceptable for service users and improved outcomes in participants with fewer previous bipolar episodes (Morriss et al., 2016).

More recently, individual technology-based psychoeducation interventions have been developed and assessed with varied results. While some of the RCTs did not identify (or were not powered to identify) significant group differences in symptoms of anxiety and depression, sense of control or quality of life (Proudfoot et al., 2012; Smith et al., 2011), adherence to treatment was higher in the group who used the online intervention with peer support (Proudfoot et al., 2012). Moreover, Depp and colleagues found that mobile psychoeducation was effective in reducing depressive symptoms at 12 weeks, but not at 24 weeks, and did not reduce manic symptoms at 12 or 24 weeks. (Depp et al., 2015).

In summary, group psychoeducation has been reported to have a long lasting impact on relapse prevention and symptom reduction (Chatterton et al., 2017), but the evidence is not robust and individual psychoeducation approaches seem to be more effective (Oud et al., 2016). Preliminary data suggest that the effect of psychoeducation may depend on the doses and population, suggesting that psychoeducation may be less effective for service users with a higher number of previous episodes (Morriss et al., 2016; Reinares, Sanchez-Moreno, & Fountoulakis, 2014) and more effective when administered in higher doses (Salcedo et al., 2016). Furthermore, online individual psychological approaches may be more effective when supplemented with peer-support (Salcedo et al., 2016).

Family therapies

Family-focused interventions are based upon the evidence that family environment (family attitude of expressed emotion and affective styles) is important in predicting bipolar relapses (Miklowitz, George, Richards, Simoneau, & Suddath, 2003). Specific components of the intervention include psychoeducation (discussed above), vulnerability-stress perspective to emphasize medication compliance, identifying early warning signs, developing relapse prevention plan, and promoting communication skills for dealing with intra-familial conflicts (Lam et al., 2010; Miklowitz, 2010; Miklowitz et al., 2003). There is evidence for family-focused interventions reducing relapse rates by 30-35% when applied as adjunctive treatment to a pharmacological regimen (Miklowitz et al., 2003; Rea et al., 2003). Furthermore, family-focused therapies showed promising results in increasing the number of days well, contributing to faster clinical recovery from depressive episodes, reduction in depressive symptoms and intra-familiar conflicts (Salcedo et al., 2016). Family approaches may be particularly helpful for individuals with highly critical and emotionally over-involved families and may be less beneficial for individuals with families with low levels of expressed emotion or with less family involvement (Salcedo et al., 2016). Moreover, supportive findings for this treatment were primarily found by a recent review when the intervention started in remission, and reported discrepant findings in the acute phase, with partial evidence for beneficial effects in acute depression (Reinares et al., 2014). While there is some promise for family therapies, the current state of evidence is very low and future RCTs are required to show its clinical effectiveness (NICE, 2014).

Interpersonal social rhythm therapy (ISRT)

The interpersonal social rhythm therapy (ISRT) is an adaptation of the interpersonal psychotherapy for depression. It utilises a problem-solving approach to target interpersonal problems and stressful life events and encourages individuals with BD to maintain daily routines and regulate circadian (sleep and wake) rhythm disturbance (Frank, Swartz, & Kupfer, 2000). Two randomised clinical trials (RCT) have examined the effectiveness of ISRT with varied results. Frank and colleagues administered ISRT during acute phase and two years after initial stabilisation and found that time to clinical recovery did not differ between the intervention and control groups; however, the intervention was associated with longer time to recurrence

(Frank et al., 2005). More recent randomised studies compared ISRT sessions to quetiapine treatment (Swartz, Frank, & Cheng, 2012) and to specialist supportive care (Inder et al., 2015); while bipolar symptoms improved in both groups in both studies, the groups did not differ in symptomatic or functional outcomes. In general, a recent systematic review and meta-analysis of the current literature found no sufficient evidence of benefit for ISRT (NICE, 2014; Oud et al., 2016).

Cognitive-behavioural therapy

Cognitive-behavioural therapy (CBT) has been originally developed for unipolar depression based on the evidence that recurrences of the illness are determined by negative cognitive styles activated by negative life events and core dysfunctional attitudes and beliefs about the self, the world, and the future (Beck, 1979). A variety of cognitive-behavioural therapies have been developed with the common goals to improve quality of life, psychosocial functioning, pharmacological treatment adherence and reduce the number and impact of mood episodes in individuals with BD. Specific components include teaching cognitive and behavioural skills to cope with triggers and symptoms, psychoeducation, medication compliance, establishing routines and dealing with cognitive vulnerability (Luty, 2006).

Similarly to psychoeducation, CBT can also be administered individually or in groups. RCTs evaluating the effectiveness of CBT found promising results, indicating that both individual and group CBT can be effective in relapse prevention (Castle et al., 2010; Costa, Cheniaux, Rangé, Versiani, & Nardi, 2012; Jones et al., 2015; Lam et al., 2005) and significantly reduce depressive symptoms (Ball, Mitchell, Corry, & Skillecorn, 2006; Costa et al., 2012; González-Isasi, Echeburúa, Limiñana, & González-Pinto, 2012). Furthermore, CBT was associated with improvements in quality of life, occupational and social functioning (González-Isasi et al., 2012).

Not all RCTs found positive results; some identified no group differences in time to relapse when compared to treatment as usual (Gomes et al., 2011; Scott et al., 2006). A third area of research focused on comparing CBT to other psychosocial interventions in BD and found that while both groups showed improvements, there were no significant group differences in functioning (Parikhl & Zaretsky, 2012) or relapse rates (Zaretsky, Lancee, Miller, Harris, & Parikh, 2008) when compared to psychoeducation. Similarly, no group differences in depressive symptom reduction

were found when compared to client-centred supportive therapy (Meyer & Hautzinger, 2012). Other comparative studies found that online CBT combined with psychoeducation compared to online psychoeducation alone did not result in significant group differences in recurrence rates, quality of life, depressive symptoms, medication adherence or functioning (Barnes, Hadzi-Pavlovic, Wilhelm, & Mitchell, 2015; Lauder et al., 2015). However, one study found a superior effect for the combined intervention group for improving manic symptoms (Lauder et al., 2015). It is important to note here, that both groups showed improvements in the examined outcomes, and no significant differences may be due to both intervention providing support in similar ways (Salcedo et al., 2016).

Based on the recent NICE meta-analysis of the existing evidence it can be concluded that psychological interventions are associated with symptomatic improvement, reduced relapse and hospitalisation, and studies that failed to find effects were of poorer quality (NICE, 2014). Furthermore, in contrast to pharmacological interventions, effective and structured psychological interventions might not only have short-term benefits, but also prospective long-term effects on relapse prevention and may improve functioning and quality of life, although the latter requires more rigorous future research (NICE, 2014). However, the quality of evidence for particular psychological interventions varies. There is stronger evidence supporting individual psychological interventions, such as individualised CBT, but group interventions also showed promise (NICE, 2014).

New Developments- third wave cognitive behavioural interventions

During the last two decades a number of new treatments, or extensions from previous CBT treatments, have emerged, which are described as third wave behavioural therapies (Hayes, 2004; Öst, 2008). The new approaches vary in their methods and focus, but all lay greater emphasis on context, subjectivity, experiential aspects of psychological experiences, and address issues less targeted in traditional interventions, such as acceptance of experiences, mindfulness, conflicts, values, spirituality, and relationships (Hacker, Stone, & Macbeth, 2016; Hayes, 2004). The key aim of the third wave therapies is to help individuals to live a satisfying life within the limitations of a serious mental disorder (Murray et al., 2017). The main approaches briefly discussed here include Dialectical Behaviour Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999),

Mindfulness-based cognitive therapy (MBCT; Segal, 2002), Compassion-focused therapy (CFT; Gilbert, 2009) and Recovery-focused CBT (Jones et al., 2015).

DBT was originally developed as a cognitive behavioural approach to treat borderline personality disorder, targeting intense emotional reactions and relationship difficulties (Linehan, 1993). DBT incorporates skill-training and exposure therapy and it aims to increase self-acceptance and reduce avoidance of emotionally challenging situations (Murray et al., 2017). DBT has proven to be effective in the treatment of borderline personality disorder (Panos, Jackson, Hasan, & Panos, 2014) and has shown promising results for the treatment of many mental health concerns including depression, eating disorders, PTSD and substance abuse/dependence (Bohus et al., 2013; Robins & Chapman, 2004). DBT has also been adapted to treat BD and while there has not been extensive research on its effectiveness, preliminary findings indicate that it is effective in reducing depressive symptoms and suicidality in adolescents (Goldstein, Axelson, Birmaher, & Brent, 2007; Goldstein et al., 2015), reducing depressive symptoms and improving self-efficacy in adults (Van Dijk, Jeffrey, & Katz, 2013) and extending periods of being well in both age groups. However, these studies found that intervention groups did not differ significantly from control groups in manic symptoms, emotional dysregulation or affective control (Salcedo et al., 2016).

ACT is another form of the third wave cognitive behaviour therapies, which uses mindfulness and behavioural activation for improving the person's ability to accept, as opposed to avoid or attempt to control, uncomfortable thoughts and feelings in order to allow them to engage in behaviour that contributes to a fuller and more valued life (Hayes et al., 1999). ACT specifically focuses on reducing the negative impact of cognitive and emotional experiences on day-to-day behaviour (Murray et al., 2017) and has shown effectiveness in treating anxiety, depression, psychosis, and physical health issues (Hacker et al., 2016). In contrast, it has been less extensively utilised in BD. One recent study examined the effectiveness of ACT in a non-controlled trial for individuals with BD and anxiety disorder comorbidity, finding that the treatment was effective in reducing depressive and anxiety symptoms and improving quality of life and psychological flexibility to cope with uncomfortable thoughts and feelings (Pankowski, Adler, Andersson, Lindefors, & Svanborg, 2017). However, there is a need for RCTs to provide an evidence base for ACT in BD.

Mindfulness as a concept originates from the Buddhist philosophy and has been utilised in psychotherapy in the last 15 years (Murray et al., 2017). MBCT was originally developed for individuals with recurrent major depression during remission with the aim to reduce risk of relapse (Chiesa & Serretti, 2011; Segal, 2002). MBCT promotes new ways of experiencing and relating to thoughts and feelings, by developing an awareness of experiences in the present moment and a non-judgemental, accepting approach towards these experiences (Kabat-Zinn, 2003). MBCT uses meditation to help people acquire a more mindful approach to challenging thoughts and emotions over time (Kabat-Zinn, 2003). A systematic review and meta-analysis reported promising results and evidence base for MBCT to reduce depressive symptoms in major depression and relapse rates in individuals with major depression, who have experienced more than three depressive episodes (Chiesa & Serretti, 2011). Furthermore, the same review found that MBCT was effective in reducing symptoms of anxiety in BDs (Chiesa & Serretti, 2011).

More recently, RCTs focused on individuals with BD confirmed the findings of the meta-analysis and provided evidence for reduced anxiety in the MBCT groups (Ives-Deliperi, Howells, Stein, Meintjes, & Horn, 2013; Perich, Manicavasagar, Mitchell, Ball, & Hadzi-Pavlovic, 2013). Other studies investigating the impact of MBCT in BD found that MBCT was effective in improving mindfulness, emotional regulation, psychological well-being, neurocognitive and psychosocial functioning and reduced depressive symptoms (Deckersbach et al., 2012; Ives-Deliperi et al., 2013; Miklowitz et al., 2009). In contrast, Perich et al. did not find any impact on manic or depressive symptoms in the MBCT group (2013). Furthermore, there is some evidence to suggest that MBCT is helpful in targeting dysfunctional psychological processes in BD such as dysfunctional attitudes associated with achievement and rumination (Deckersbach et al., 2012; Perich et al., 2013). While these results are promising, unlike in major depression, there is no current evidence for MBCT to reduce relapses or increase time to relapses in BD (Perich et al., 2013).

Compassion-focused therapy (CFT) is an integrated approach that derives from evolutionary, social, developmental and Buddhist psychology, and neuroscience. It uses compassionate mind training to help people to deal with experiences via developing self-compassion (Gilbert, 2009). It was originally developed for individuals who experience high levels of shame and self-criticism and are not

responding well for other psychological treatments (Leaviss & Uttley, 2015), utilising mindfulness to promote self-compassion, understanding and acceptance (Gilbert, 2009). Research on the effectiveness of CFT is limited; however, preliminary empirical studies have demonstrated symptomatic improvement in mood disorders (Leaviss & Uttley, 2015; Murray et al., 2017).

The most recent developments in the psychotherapy arena promote individualised approaches to manage and overcome difficulties attached to mental health problems with the aim of living a more fulfilling and satisfying life. In line with this, Jones et al. developed a recovery-focussed CBT intervention for individuals with BD and conducted a randomised controlled pilot trial to investigate the effectiveness and feasibility of this novel treatment (Jones et al., 2015). The recovery-focused CBT is an adapted CBT intervention, which aims to enhance recovery outcomes in individuals with recent onset (within five years) of BD. The intervention differed from other CBTs in focusing explicitly on eliciting client-focused goals rather than relapse prevention. In addition, it was an idiosyncratic approach as opposed to applying similar models of bipolar experiences across clients. The therapy is flexible in terms of adapting to the needs of the individual for addressing functional and comorbidity problems, in addition to mood-related negative experiences (Jones et al., 2015). The results indicated that the intervention was feasible and effective in improving personal recovery experiences at both 6 and 12 months (Jones et al., 2015), suggesting that such personalised approaches can be beneficial in addressing the diverse needs of service users and improving recovery outcomes.

In summary, novel approaches, such as MBCT and recovery-focused CBT are promising in improving wellbeing outcomes in BD, such as psychosocial functioning, recovery and anxiety (Murray et al., 2017). However, the results in improving clinical outcomes are less conclusive. This may be because the third wave interventions target issues and promote improvements in areas other than clinical outcomes, which have been shown to be important to the individual. The concept of personal recovery is meaningful for service users, and therefore offers a valid alternative for future work to assess outcomes in BDs (Jones, Mulligan, Higginson, Dunn, & Morrison, 2013; NICE, 2014). The next section will address this issue in more detail and review the different approaches to assess outcomes in BD.

1.3 Measuring outcomes in bipolar disorder (BD) - moving from traditional objective outcomes towards capturing subjective experiences

Traditionally measuring outcomes in BD focused on clinical factors, such as the frequency and severity of episodes, relapses, clinical recovery or remission, and/or returning to normal functioning after a period of impairment caused by mood episodes. More recently, the importance of measuring broader and more subjective experiences has been recognised and research in this area has primarily focused on quality of life (Murray et al., 2017). This section will first review the key literature assessing traditional clinical and functional outcomes and, in turn, will focus on more recent approaches to capture broader experiences of individuals with BD.

It has been established that there is a direct association between the severity of BD (as discussed under the diagnosis heading) and clinical outcomes, including number of episodes, chronicity, and symptom severity (Nusslock & Frank, 2011). A number of large-scale prospective studies focused on long-term course and clinical outcomes in BD, including the Zurich Cohort Study (Angst, Gamma, Sellaro, Lavori, & Zhang, 2003; Angst & Preisig, 1995), the National Institute of Mental Health Collaborative Depression Study (CDS) (Katz, Secunda, Hirschfeld, & Koslow, 1979) the McLean-Harvard First Episode Project (Tohen, Waternaux, Tsuang, & Hunt, 1990; Tohen et al., 2003), and the Systematic Treatment Enhancement Program for BD (Perlis et al., 2006), among others. While each research project contributed to the current knowledge of long-term clinical course of BD, integrating findings from these large-scale studies is challenging. This is mainly due to the methodological (length of follow-up, analytical approach) and population cohort differences (inpatient or outpatient and differences in clinical state) and varied availability of treatment information. These studies primarily focused on mood episodes (recurrence and dominance) and symptomology (severity, frequency, and dominance) to measure outcomes in BD and the next paragraphs will review the relevant key findings.

The CDS (Judd et al., 2002; Judd et al., 2003; Katz et al., 1979; Solomon et al., 2010) and the Zurich Cohort Study (Angst et al., 2003; Angst & Preisig, 1995) have been the longest naturalistic follow-up studies in BD. Both focused on monitoring symptomatic status and recurrences in over 200 individuals with bipolar I and II disorder and covered periods of over 20 years. The findings of the CDS study

indicate that individuals with BD-I experienced a median of 2.5 episodes a year during the first 10 year follow-up, while individuals with BD-II experienced a median of 4 episodes (Judd & Schettler, 2010; Judd et al., 2003). This is higher than the findings of Angst and colleagues indicating the recurrence rate of 0.4 episode/year in BD, but reported a similar pattern to the CDS study, of slightly elevated risk of recurrence in BD-II compared to BD-I (Angst et al., 2003).

The CDS study also indicated that participants (both BD-I and BD-II) spent approximately 30% of the follow-up time in mood episodes. Depressive episodes were more prevalent in both types of BD than manic episodes and this dominance was more expressed in BD-II (3:1 and 37:1, respectively) (Judd & Schettler, 2010; Judd et al., 2003). Furthermore, individuals with BD-II spent 51.9% of the follow-up time experiencing depressive symptoms or episodes (30.6% in BD-I), and were asymptomatic for 44% of the time (53% in BD-I). However, manic symptoms and episodes were more common in BD-I 9.8% of the weeks during the follow-up period compared to 1.4% in BD-II (Judd & Schettler, 2010; Judd et al., 2003). Similarly, the Zurich Cohort Study found that individuals with BD-II experienced more episodes than individuals with BD-I (Angst et al., 2003). These findings indicate that BD-II is more chronic than originally anticipated and the high proportion of time spent with depressive mood symptoms is especially important as these periods were found to be strongly associated with psychosocial impairment (Judd & Schettler, 2010).

Defining clinical improvement or recovery in BD has primarily been based upon meeting criteria for syndromic or symptomatic recovery (Harvey, 2006). The former means that individuals no longer meet the criteria for a mood episode, due to the resolution of a symptom group, while the latter refers to the improvement in the severity of the symptoms (Frank et al., 1991). This distinction contributed to standardising clinical recovery outcomes and enabled a more advanced integration of the research findings. In general, prospective studies found that approximately 60-90% of participants achieve syndromic recovery after experiencing a mood episode and 40-60% experience full symptomatic remission (Merikangas, Jameson, & Tohen, 2015). Results on relapse rates showed similar variability, indicating that between 30% and 60% of individuals experienced relapses during the follow-up period (Perlis et al., 2006; Solomon et al., 2010; Tohen et al., 2003). The variation in results can be due to the different lengths of follow-up periods, ranging from 2 to 40 years (Merikangas et

al., 2015). Despite this variation, it can be concluded that there is a gap between the number of individuals achieving syndromic and symptomatic recovery. This difference highlights, and corroborates with results of the symptomatic state research (Judd et al., 2003), that many individuals with BD still experience subsyndromal symptomology, particularly depressive symptoms, over prolonged periods after no longer meeting the criteria for mood episodes (Tohen et al., 2003).

Another source of variety is due to the differences within participants in the same sample in terms of illness onset which (as previously discussed) impacts on the course of illness (Merikangas et al., 2007). The Mclean-Harvard project adjusted for this by selecting participants at their initial onset of BD, and reported rates of syndromal (98%), symptomatic (72%), and functional (43%) recovery, and 40% relapse rate in this population over a two-year follow-up period, which indicates that the trajectories of symptomatic and functional improvements are different. This contradicts the results of the CSD study, which found that psychosocial impairment disappeared in asymptomatic individuals (Judd & Schettler, 2010).

The STEP-BD study has been to date the largest prospective study in BD, with over 4000 participants followed up during a two-year period, and aimed to produce more generalizable results regarding clinical outcomes. The results indicate that 58.4% achieved syndromic recovery and 48.5% experienced recurrences during the 2-year follow-up period. Similarly to previously discussed results, depressive episodes were more recurrent, as twice as many people experienced depressive relapses than manic relapses. Furthermore, subsyndromal depressive or manic symptoms at syndromic recovery and time spent depressed or anxious in the preceding year were predictors of depressive recurrence. Similarly, subsyndromal manic symptoms at syndromic recovery and proportion of days of elevated mood in the preceding year were predictors of mixed and (hypo)manic episodes (Perlis et al., 2006). These findings are in line with other studies and highlight the importance of subsyndromal symptomology in the course of BD.

However, there are individuals with BD, who can achieve clinical recovery, but still experience difficulties in their everyday lives (Chengappa et al., 2005). Therefore, focusing solely on symptom remission, as the key outcome of treatment, may overestimate the success of the treatments (Gitlin & Miklowitz, 2017). In line with this, the concept of functional recovery has emerged as an additional way of

assessing outcomes in BD. Functional recovery can be evaluated on various behavioural domains, such as social (interaction with family and friends), occupational or educational functioning, and independent living (Harvey, 2006). Functional recovery in BD consistently lags behind symptomatic and syndromal recovery following mood episodes and 30-60% of individuals fail to regain fail to regain full functioning in occupational and social domains (Gitlin & Miklowitz, 2017; MacQueen, Young, & Joffe, 2001). This indicates that BD is associated with significant impairment in both occupational and social functioning beyond the acute phases of the illness, even when syndromic recovery is achieved (Sanchez-Moreno et al., 2009). A recent systematic review specifically focused on long-term occupational outcomes in individuals found that individuals with BD have an employment rate of 40–60% and studies with stronger quality rating supported the upper end of this range (Marwaha, Durrani, & Singh, 2013). Studies that reported on work functioning (as opposed to status measures) also supported this result, indicating that 30–40% of people with BD have significant difficulties in work functioning (Marwaha et al., 2013).

Predictors of functional outcomes have been extensively studied and systematic reviews of the literature consistently identify that depressive symptoms (including subsyndromal presentation) and neurocognitive impairment are the strongest predictors of poor functional outcomes in BD (Gilbert & Marwaha, 2012; Gitlin & Miklowitz, 2017; Marwaha et al., 2013). Secondary predictors were manic symptomology, personality and psychological factors (Gitlin & Miklowitz, 2017) and education in association with employment outcomes (Gilbert & Marwaha, 2012).

A traditionally less frequently used outcome measure in BD is ‘quality of life’ (QOL) which refers to feeling satisfied or fulfilled and experiencing positive mental states; more specifically in BD it incorporates functioning, health, subjective experience and wellbeing as important aspects of quality in life (Morton, Michalak, & Murray, 2017). This concept has received increased interest more recently, and it is in line with the recovery movement (outlined in more detail in the next section), which emphasizes the importance of living a meaningful life despite the impacts of illness (Morton et al., 2017). Recently, a BD-specific QOL measure has been developed and validated (Michalak & Murray, 2010). Compared to measurement of symptoms and functioning, QOL captures more subjective experiences, since the former measures

evaluate individuals according to an objective (previously determined) standard, while QOL is based on the individuals' subjective appraisal (Gitlin & Miklowitz, 2017). Due to its subjectivity, QOL (along with other subjective self-report measures) assessments can vary between clinical states. Therefore, it is important to evaluate individuals during euthymic and symptomatic states in order to increase the understanding of the fluctuation of experiences and adjust for the cognitive distortions caused by mood experiences (Gitlin & Miklowitz, 2017; Murray et al., 2017). In general, bipolar individuals exhibit lower QOL when compared to control participants even in euthymic states, which were more expressed in elevated or low mood (Michalak, Yatham, & Lam, 2005).

In summary, this chapter section aimed to review the traditional objective ways to measure outcomes in BD followed by introducing the new movement of capturing personally meaningful subjective experiences. While symptomatic and objective functional outcomes are helpful in estimating the success of treatment, they are most frequently administered by clinicians or researchers. This increases their objectivity and comparability to predefined standards, but fail to capture the unique experiences. There is increasing evidence for discrepancy in QOL ratings made by service users and health professionals (Fervaha et al., 2015; Hasson-Ohayon, Roe, Kravetz, Levy-Frank, & Meir, 2011). Moreover, individuals with personal experience of severe mental health problems (including BD) have expressed dissatisfaction with solely focusing on clinical measures as the primary targets of clinical practice and arguing for the importance of personally meaningful recovery outcomes (Jones et al., 2013; Ridgway, 2001). In line with this, Jones and colleagues have recently published a self-report measure of recovery in BD, the Bipolar Recovery Questionnaire (BRQ; Jones et al., 2013). Personal recovery is associated with QOL (r=0.5-0.6), but while the latter assesses satisfaction on various domains, the former focuses on the process of recovery (Murray et al., 2017). The BRQ is a promising outcome measure and has been used in the quantitative phase of this thesis.

1.4 Recovery in mental health

This section will provide an overview of personal recovery- the key concept of this thesis. Firstly, the traditional and new meanings of the term recovery will be discussed, followed by reviewing the conceptual framework of the term in mental

health and how the new interpretation impacts on mental health services. This section will finally provide an overview of the assessment of personal recovery in mental health, including individuals with BD, which is relevant to the aims of the present thesis.

1.4.1 Recovery- two meanings for one word

The term of recovery in mental health has been associated with two related but distinct meanings: clinical and personal recovery. Traditionally, recovery from mental health problems was considered unlikely or even impossible (Leonhardt et al., 2017). This assumption was associated with the first meaning, often referred as clinical recovery. Clinical recovery emerged from professional-led research and it is featured as an objective, observable outcome rated by professionals and the definition does not show individual differences (Slade, 2009). This conceptualisation is often operationalised using clinical and functional measures, the pitfalls of which have been discussed in the previous section. Service users with lived experiences of mental health problems called for new enriched recovery approaches (Ridgway, 2001). The second meaning of recovery, therefore, is user-led and it was introduced as a movement by mental health service users in the 1980s, who wrote about their experiences of coping with symptoms, getting better, and gaining a new identity to move beyond the role of mental health patient (Coleman, 1999; Deegan, 1988; Leete, 1989). The recovery movement has led to a significant paradigm shift in the conceptualisation of both recovery and mental health problems (Leonhardt et al., 2017).

The synthesis of these individual accounts emerged primarily in English-speaking countries at the beginning of the 2000s (Andresen, Oades, & Caputi, 2003; Davidson, Sells, Songster, & O'Connell, 2005; Lapsley, Nikora, & Black, 2002; McIntosh, 2005; Scottish Recovery Network, 2006). While synthesising such personal accounts is challenging due to the variety in individual experiences; some common themes emerged from these early works (Slade, 2009). Recovery is seen as a unique, individual and cyclical journey into life, which incorporates personal growth, taking back control over one's own life and being an active participant in order to develop a fulfilling and meaningful life, and positive sense of identity (moving beyond the patient role), which is founded on hopefulness and self-determination (Andresen et al., 2003; Ralph, 2005; Repper, 2003; Slade, 2009).

In contrast to clinical recovery, personal recovery is a process (rather than an outcome), subjectively defined and rated by the person with the mental health problem (as opposed to health professionals) that shows variety in its definition across individuals, although some aspects are important to many individuals (Slade & Wallace, 2017). To date, the largest study on recovery's definition was conducted by Law and Morrison with the participation of individuals with psychosis. Over 381 individuals with psychosis took part in a Delphi study and the highest agreement was reached on items reflecting the achievement of acceptable QOL and developing self-esteem (Law & Morrison, 2014).

There has been less focus on the meaning and nature of personal recovery in BD; this is important, since the experiences of individuals with BD may differ from other mental health problems. BD is characterised by a varied and fluctuating nature and the need to balance experience across different mood phases. For instance, increased optimism, involvement in meaningful activities and social interactions and self-confidence may mean improvement in other mental health problems, but these may be signs of elevated mood in BD (Jones et al., 2013). Despite this, qualitative exploration of recovery in BD has primarily focused on clinical recovery outcomes, and overlooked the unique experiences of service users. More specifically these studies focused on how individuals with BD avoid relapses and stay well, and emphasized the importance of both medication and psychosocial support in self-management (Mansell, Powell, Pedley, Thomas, & Jones, 2010; Russell & Browne, 2005).

To fill this gap, Jones and colleagues explored the nature of personal recovery experiences in a group of individuals with recent onset of BD using interpretative phenomenological analysis as part of programme grant investigating recovery in psychosis and BD (Morrison et al., 2016). Five key themes emerged, individuals with early BD described their recovery process as a lifelong journey and emphasized the importance of understanding and managing their mood experiences by identifying the interplay between psychological, social and environment triggers, the development of resources to self-manage health, increasing their autonomy and independence in their care, and accessing personally meaningful activities. This qualitative investigation indicated that personal recovery in BD was not directly linked to symptom-free periods and pharmacological treatment was not mentioned in relation to personal

recovery, highlighting the different mechanisms underpinning clinical and personal recovery.

1.4.2 The conceptual framework of recovery in mental health

More recently, a comprehensive systematic review of the personal recovery concept in mental health, including BD, was undertaken by Leamy and colleagues with the aim of providing a conceptual clarity and recommendations for recovery-oriented services and research (Leamy, Bird, Le Boutillier, Williams, & Slade, 2011). The review included 97 papers from 13 countries and provided a comprehensive conceptual framework for recovery comprising three interlinked categories: characteristics of the recovery journey, recovery stages and recovery processes (Leamy et al., 2014; Slade & Wallace, 2017). Firstly, the review confirmed the interpretation of previous studies on the journey metaphor of recovery, emphasizing characteristics such as individual, unique and active journey. Furthermore, the review extended this list by identifying that recovery journey is a life changing experience that can occur without being 'cured' and without professional help; a process that is aided by a supportive environment and that evolves gradually, often including struggles and trial and error periods (Leamy et al., 2011). This corroborates with how individuals with BD described their recovery process as a fluctuating and dynamic process (Morrison et al., 2016).

Secondly, proposed recovery stage models were reviewed and mapped onto the Transtheoretical Model of Change (Prochaska & DiClemente, 1982), which is helpful in differentiating recovery stages (Slade & Wallace, 2017). This model includes five stages, including *precontemplation* (no intention to change behaviour, resistant or denial stages), *contemplation* (the person is aware of problem and considers changes in behaviour), *preparation* (intent upon taking actions and often report initial steps in that direction), *action* (modification of behaviour, experiences and environment in order to overcome the problem; commitment is clearly present), *maintenance and growth* (the person has made a sustained change wherein a new pattern of behaviour has replaced the old). The reviewed recovery stage models fit this model of change, as the following examples demonstrate. The *precontemplation* stage is described in the proposed recovery models, such as crisis, demoralisation, moratorium, initiating recovery or dependent stages. The *contemplation* stage is described by terms such as a turning point, accepting help, and awareness or

reawakening of hope. Similarly, the *preparation* stage includes stages of believing, decisions, determination, developing independence and no longer viewing the self as primarily a person with a psychiatric disorder. *Action* can be interpreted as learning, discovering keys to wellbeing, engaging, and regaining what was lost. The final stage of *maintenance and growth* includes adaptive coping (rather than passive adjustment), self-reliance, and living beyond the disability (Leamy et al., 2011). While recovery stages provide a framework for stage-specific clinical interventions and evaluation strategies, stage models were developed with the participation of mixed mental health groups (Leamy et al., 2011). In contrast, in BD there was evidence that recovery was perceived to be a dynamic process rather than movement towards a fixed end point. It is possible that a staging model may be less adequate for describing personal recovery in BD, due to its fluctuating and recurrent nature (Morrison et al., 2016).

The final component of the conceptual framework refers to five overarching recovery processes: Connectedness (peer support, supportive relationships, and being part of the community); Hope and optimism about the future (belief in possibility of recovery motivation to change, hope-inspiring relationships, positive thinking and valuing success, having dreams and aspirations); Identity (overcoming stigma, rebuilding/redefining positive sense of identity); Meaning and Purpose (meaning of mental health experiences, spirituality, quality of life, meaningful life and social roles, meaningful life and social goals, and rebuilding life); and Empowerment (personal responsibility, control over life, focusing upon strengths), forming the acronym of CHIME (Leamy et al., 2011). The CHIME framework is useful in identifying targets for interventions and recovery assessment in mental health (Slade & Wallace, 2017). The framework was subsequently validated by service users and found to be applicable across Western cultures (Bird et al., 2014; Slade et al., 2012). The identified recovery processes in mental health show similarity to the processes highlighted by individuals with early BD, including the engagement in meaningful activities and empowerment, the latter represented in the sense of developing independence and control over service users' own care (Morrison et al., 2016). However, individuals with BD did not explicitly emphasize the role of hope or rebuilding identity as part of their recovery process, while understanding and managing mood experiences played an important role in personal recovery in BD, and in turn, a greater understanding may foster hope and changes in identity by encouraging self-acceptance (Morrison et al., 2016).

1.4.3 Recovery focused interventions and services

The recovery movement not only challenged the conceptualisation of recovery and mental health problems, but also signified an important paradigm shift in mental health treatments (Leonhardt et al., 2017). The personal recovery orientation has been embedded in mental health policies internationally (Department of Health, 2011; Mental Health Commission of Canada, 2012; New Freedom Commission on Mental Health, 2003) and at least in theory has influenced the underpinning of working policies of mental health professionals, including clinical psychologists, mental health nurses, occupational therapists, social workers and psychiatrists (Slade & Wallace, 2017). While service users find the idea and concept of personal recovery helpful, they express dissatisfaction with recovery provisions. A recent report included the views of 82 mental health service users from varied backgrounds and concluded that individuals felt that the implementation of personal recovery in governmental policies and mental health services had been problematic (Beresford et al., 2016).

Firstly, some service users expressed that change in mental health services were superficial; for instance, changing the name of the service, but not actually implementing changes in their policy or philosophy and still operating in line with the medical model of mental health problems (Beresford et al., 2016). Secondly, service users expressed dissatisfaction with the way the concept had been hijacked and transformed by the government and mental health professionals. Service users expressed that the interpretation of personal recovery in governmental policies and services can lead to laying responsibility on the individual to recover, cutting services, support and benefits, and blaming the individual if a sufficient recovery process has not been achieved (Beresford et al., 2016). Due to the greatly increased policy importance of the personal recovery orientation, interventions targeting either a specific process of the recovery framework identified by Leamy and colleagues (2011) or fostering recovery-oriented changes in mental health practices (Slade, Bird, Clarke, et al., 2015) have emerged and will be reviewed in the next section.

1.4.3.1 Interventions focusing on individuals

Firstly, as part of the conceptual CHIME framework, connectedness has been targeted by new interventions. One way to address connectedness is by promoting social inclusion. While there is a lack of intervention directly addressing social

inclusion (Tew et al., 2012), there are interventions that promote social inclusion indirectly, for instance by occupational rehabilitation. Supported Employment is one example of interventions targeting occupational rehabilitation, which showed promise, (Crowther, Marshall, Bond, & Huxley, 2001) and it is recommended for individuals with BD who wish to return to work (NICE, 2014). Returning to employment may be an important recovery aim for some; however, other service users expressed that returning to employment (and coming off benefits) is often encouraged by services when the person is not well enough to work, which can have negative consequences (Beresford et al., 2016). Other interventions, such as family therapies and ISRT aim to improve connectedness by resolving interpersonal and intra-familiar conflicts (Frank et al., 2005; Frank et al., 2000; Miklowitz, 2010); the efficacy of these interventions were discussed in the treatment section. Additional approaches concentrate on facilitating peer-support (Davidson, Bellamy, Guy, & Miller, 2012) as a way to improve connectedness and social support, showed promise (Repper & Carter, 2011).

A recent review identified that interventions fostering positive relationships and peer-support were also effective in improving hope, while not directly targeted, which is the second process of the conceptual framework (Schrank, Bird, Rudnick, & Slade, 2012). This review identified other interventions that showed promising results in fostering hope as an additional outcome, including the Wellness Recovery Action Plan (Copeland, 2002) and other collaborative strategies for illness management (Schrank et al., 2012). Furthermore, interventions that target control, realistic goal formulation, self-esteem, self-efficacy, spirituality and well-being showed similarly promising results in raising hope in individuals with mental health problems (Schrank et al., 2012).

Some of these interventions also impacted on the remaining components of the recovery framework. For instance, targeting spirituality (Huguelet et al., 2011) and utilising personally meaningful goal setting (Clarke, Crowe, Oades, & Deane, 2009; Jones et al., 2015) were found to facilitate the development of meaning and purpose, another process of the framework. Additionally, interventions aimed at increasing personal responsibility and control over the care of the individual have been shown to be effective in improving empowerment, which is the fourth process of the recovery framework (Slade & Wallace, 2017). These approaches include treatment planning

(advance directives) (Swanson et al., 2006), shared decision making (Yaara, Erin, Juliette, Anthony, & Maria, 2017) and joint crisis planning (Henderson et al., 2008). However, while increasing control and personal responsibility can facilitate empowerment, it is important to emphasize the balance of collaborative work between professionals and service users to enable service users to feel empowered and supported at the same time. Service users emphasized that reducing support in line with increasing personal responsibility can have negative impact on their recovery and generate self-blame (Beresford et al., 2016).

The final process of the framework is identity, which has been targeted less extensively by clinical interventions. Such approaches mainly concentrated on reducing stigma (Griffiths, Carron-Arthur, Parsons, & Reid, 2014; Lucksted et al., 2011; Mehta et al., 2015) and fostering self-acceptance, such as the third wave CBT approaches (Gilbert, 2009; Hayes et al., 1999; Linehan, 1993) which was reviewed in the treatment section. With regard to reducing stigma, there is evidence from systematic reviews and meta-analysis for educational and consumer contact-based interventions to reduce stigmatising attitudes in the members of the community either delivered face-to-face, online or via the mass media (Clement et al., 2013; Griffiths et al., 2014; Mehta et al., 2015). While reducing stigma in the community is important, it probably has an impact on the connectedness process of the recovery framework. Reducing perceived or self-stigma has received less attention and synthesised evidence of the efficacy of such approaches is lacking to date (Griffiths et al., 2014).

While some of the discussed interventions show promise, there is a limited evidence base and stronger research designs (such as prospective studies and RCTs) are required for understanding their role in personal recovery. In addition, most of them target one specific aspect of recovery and do not address the broader, more holistic personal recovery orientation. As previously discussed, recovery is an idiosyncratic process, and different individuals emphasize the importance of different recovery fostering processes. Indeed, service users expressed dissatisfaction with approaching the recovery concept as one-size-fits-all (Beresford et al., 2016). Therefore, targeting one component of recovery may be helpful for some service users, but it may not be relevant to others. For example, returning to paid work may be the goals of some individuals, but it may put pressure on and be unrealistic for others (Beresford et al., 2016). Personalised therapeutic approaches showed promising

results in addressing the different needs of service users and contributing to better recovery experiences. For instance, Jones and colleagues have recently conducted a pilot RCT to test the efficacy of a recovery-focussed CBT for people with early BD (less than 5 years). This is the first intervention that specifically focuses on personal recovery in individuals with BD. The intervention offers flexible engagement and identification of personal, recovery-informed therapy goals; the RCT showed positive effects in improving personal recovery, quality of life and increasing time to relapses (Jones et al., 2015). There is a need for larger trials assessing the efficacy of personalised recovery-focused interventions, in order to verify these promising results.

1.4.3.2 Interventions focusing on mental health services and professionals

Another area of research has focused on how mental health services and professionals can support recovery (Slade & Wallace, 2017). The attitudes of and interaction with mental health professionals impact on service users and their recovery experiences (Antonak & Livneh, 1988; Tarrier & Barrowclough, 2003). Mental health professionals are often pessimistic about the long-term prognosis of individuals with mental health problems, and their attitudes are often biased by their primarily negative experiences (Hugo, 2001; Jorm, Korten, Jacomb, Christensen, & Henderson, 1999). To address this, numerous guidelines have been produced to assist professionals and services to adapt the recovery framework, but these guidelines are often difficult to use (Silverstein & Bellack, 2008; Slade & Wallace, 2017). A review and qualitative analysis of the internationally published guidelines for services was conducted with the aim to bring clarity and help translating recovery into practice (Le Boutillier et al., 2011). The identified domains of recovery practices included supporting personally-defined recovery, working relationships, organisational commitment and promoting citizenship (Le Boutillier et al., 2011).

The first two domains impact on the content of interventions and how mental health provisions are delivered by professionals (Slade & Wallace, 2017). These domains have been targeted by service-based interventions, such as person-centred planning in the UK (Tondora, Miller, Slade, & Davidson, 2014) and the collaborative recovery training program in Australia (Crowe, Deane, Oades, Caputi, & Morland, 2006). The latter showed promising results in changing the attitudes and increasing the knowledge of mental health professionals. However, the authors did not control

for social desirability and did not use control groups, which limit their results (Crowe et al., 2006).

More recently, Slade and colleagues developed the REFOCUS intervention to target the first two domains (supporting personally defined recovery and working relationships) via a trans-diagnostic, one-year long, whole team-level intervention (Slade, Bird, Le Boutillier, et al., 2015). The multisite RCT did not identify significant differences in the personal recovery of individuals with psychosis in the intervention arm compared to individuals receiving traditional care. However, functioning was improved in the experimental group, and higher staff participation led to higher scores for service user-rated interpersonal aspects of recovery (Slade, Bird, Clarke, et al., 2015). The authors identified that inadequate implementation was the most likely explanation for the lack of improvement in personal recovery and highlighted the need to focus on the third practice domain, organisational commitment, in order to facilitate implementation (Slade, Bird, Clarke, et al., 2015).

The organisational commitment domain is in the focus of programmes fostering transformation at national level, such as the Implementing Recovery through Organisational Change (ImROC) programme in England (NHS Confederation Mental Health Network, 2012) or the Partners in Recovery in Australia (Australian Government, 2012). The ImROC collaborative programme is aimed at developing systems, services and cultures that support recovery and embedding recovery at all levels of the organisations. They foster service user involvement and co-production of service provisions, strategies and policies, and facilitating peer-support, education and self-management as core practices (NHS Confederation Mental Health Network, 2012). The ImROC Programme has led to the development of Recovery Colleges. Recovery Colleges are co-devised and co-delivered by service users and mental health professionals. They provide peer-led education and training programmes within NHS mental health services (Perkins, Repper, Rinaldi, & Brown, 2012).

Research evidence for the effectiveness of Recovery Colleges is in its infancy and there is a need for robust studies to understand the underlying mechanisms of individual and organisational change (Meddings, McGregor, Roeg, & Shepherd, 2015). However, early results are promising and indicate that Recovery Colleges have a positive impact on service users and can help people to progress towards their recovery goals (Meddings et al., 2015; Zabel, Donegan, Lawrence, & French, 2016).

Furthermore, there is some evidence for the Recovery Colleges impacting on NHS services and professionals by reducing service use and costs (Meddings et al., 2015), providing a helpful resource to staff members, reducing staff burn out, and impacting positively on staff attitudes (Meddings et al., 2015; Perkins, Ridler, Hammond, Davies, & Hackmann, 2017). Further research found that clearer information and communication and individual learning plans (ILPs) were helpful and improved service users' attendance at the colleges (Dunn, Chow, Meddings, & Haycock, 2016).

The fourth recovery practice domain is promoting citizenship, which incorporates living a contributing and productive life in the society and moving beyond the impacts of mental health problems (Slade et al., 2017). Research into interventions targeting this domain in services is lacking (Slade & Wallace, 2017). However, the domain shows overlap with the social inclusion and therefore interventions targeting social inclusion indirectly or stigmatising attitudes, as discussed above, may in turn also impact on the citizenship domain. Supported education, as a way to improve social rehabilitation, showed promise to help individuals to feel the wider entitlement of citizenship and Recovery Colleges play a key role in providing such education (Mowbray et al., 2005; Slade et al., 2014).

In conclusion, it is challenging to implement the personal recovery approach in mental health services and there are several potential reasons for this. Firstly, research and evidence base of recovery lags behind policy changes (Slade et al., 2017), which may have caused difficulties in operationalising and applying recovery ideas in practice. Moreover, implementing recovery does not solely mean to change the content and ways of offering interventions. It requires organisational changes and commitment in order to embed recovery as a core concept of clinical practice, and Recovery Colleges show promises towards this direction (Meddings et al., 2015; Slade, Bird, Clarke, et al., 2015). Fully involving service users in person-centred planning can contribute to increased satisfaction with the received care (Carpenter et al., 2004). However, service users expressed that changes are often superficial and services still follow the clinical recovery concepts, in terms of focusing on treating the illness and acute periods (Beresford et al., 2016). Therefore, care plans can overlook the holistic approach to the individuals' wellbeing and prioritise medication regimes (Weinstein, 2008), concentrate on the actions of healthcare professionals (Gilburt, Slade, Bird, Oduola, & Craig, 2013), or not being implemented in practice (Weinstein,

2010). Furthermore, implementation of recovery at service level may follow a one-size-fits-all everyone approach, and does not provide flexibility to address the unique needs of service users (Beresford et al., 2016).

1.4.3.3 Measuring the impact of interventions- personal recovery assessment

In parallel with the development of interventions targeting the identified recovery processes or practice domains, a need for assessing the effectiveness of such interventions has arisen. However, measuring recovery can be challenging due to the inconsistency in definitions and conceptualisations used (Leonhardt et al., 2017). The identification of the personal recovery conceptual framework was helpful in providing a basis for consistency and measure development (Leamy et al., 2011).

Firstly, a systematic review identified six tools for service evaluation; however, none of them had been psychometrically evaluated, and none of them matched the CHIME framework (Williams et al., 2012). To overcome this, the authors developed the INSPIRE measure to assess mental health service support for recovery (Williams et al., 2015). The tool has demonstrated adequate psychometric properties and is recommended for assessing services as part of clinical evaluation or for research purposes (Williams et al., 2015).

Secondly, another systematic review identified 13 tools to measure personal recovery in mental health populations (Shanks et al., 2013). Out of the 13 measures, four had shown satisfactory psychometric properties, including the Recovery Assessment Scale (RAS; Corrigan, Giffort, Rashid, Leary, & Okeke, 1999), the Stages of Recovery Instrument (STORI; Andresen, Caputi, & Oades, 2006), the Maryland Assessment of Recovery (MARS; Drapalski et al., 2012), and the Questionnaire about the Process of Recovery (QPR; Neil et al., 2009). The QPR showed the strongest link to the CHIME framework (Shanks et al., 2013).

The QPR is a promising questionnaire for assessing recovery in psychosis, but it was not developed for measuring the unique experiences of individuals with BD (Morrison et al., 2016). Individuals with BD experience intense mood fluctuations and the need to balance such fluctuations. Signs of improvement in other mental health problems, such as increased activity level, socialising or optimism, can be early signs of elevated mood in BD and therefore a specific tool to assess recovery in BD is needed (Jones et al., 2013; Morrison et al., 2016). To overcome this, Jones and colleagues

developed the Bipolar Recovery Questionnaire (BRQ) in collaboration with individuals with BD; and evaluated its psychometric properties (Jones et al., 2013). The tool has shown adequate psychometric properties and has been used as the primary outcome in Chapter 4 of the present thesis.

The recovery paradigm shift has raised another important question: what are the occurrences, barriers and facilitators of personal recovery (Leonhardt et al., 2017). Silverstein and Bellack attempted to answer this question by reviewing the recovery literature in schizophrenia. The authors identified that personal recovery was a realistic and meaningful outcome; however, the definitions and operationalisations used were diverse and confusing, which made data synthesis challenging (Silverstein & Bellack, 2008). To overcome these challenges, they identified four areas for future research, focusing on i) the definition of recovery, ii) development of reliable measures, iii) rates and barriers of recovery and iv) effectiveness of recovery-oriented care, which impacted on the aims of the present study.

1.5 Aims of the thesis

Since the publication of the Silverstein and Bellack paper (2008), there have been important developments in research focusing on definitions, new measures, services and interventions to support the paradigm shift of personal recovery (outlined above). However, less attention has been paid to the influential factors in personal recovery. Moreover, research in this area has primarily concentrated on psychosis, schizophrenia or combined mental health populations. The nature of personal recovery experiences may differ across different mental health groups, as outlined above. Therefore, it is important to investigate personal recovery in BD separately from other mental health problems. Despite this, personal recovery in BD has not been systematically studied, and the present study aimed to address this limitation of the literature.

The overarching aim of the study is to deepen understanding of the recovery concept and explore barriers and facilitators of personal recovery in BD, in order to inform recovery-oriented services and interventions. To achieve this, the present thesis is constructed in an alternative format and includes three studies that have been designed to complement each other.

Chapter 3 presents a systematic literature review, which has been inspired by the challenges outlined in the Measuring outcomes in bipolar disorder section and in the review of Silverstein and Bellack (2008). The aims of this review are to bring structure and clarity to an inherently complex area of research by:

i) Providing an overview of recovery definitions and operationalisations used in BD.

ii) Reviewing factors assessed for association with the different recovery concepts.

Secondly, as discussed in the Aetiology section, there is evidence for the impact of psychosocial factors in the development and maintenance of BD. Psychological models of BD focused on identifying such factors, including dysfunctional attitudes, response styles to low mood, BAS-related psychological and self-dispositional appraisals, as outlined above. Moreover, there is evidence for such processes to impact on clinical recovery outcomes, which will be reviewed in more detail in Chapter 4. However, there exists little data on whether these BD-relevant psychological processes influence the unique experiences of personal recovery. Deepening our understanding of such impacts is essential, since the majority of cognitive and behavioural psychological processes are amenable to change in psychological intervention. Therefore, Chapter 4 aims to fill this gap in the literature and:

iii) Explore associations between bipolar relevant psychological processes, including dysfunctional attitudes, self-dispositional appraisals, impulsivity, response styles to negative mood, and BAS related psychological processes with concurrent personal recovery, while allowing for adjustment for demographic and clinical factors.

iv) Explore whether bipolar relevant psychological processes (as listed above) predict changes in personal recovery over a follow-up period of 6 months, while allowing for adjustment for demographic and clinical factors.

Moreover, there is increasing evidence for clinical and personal recovery to follow different pathways (Macpherson et al., 2016). The primary aims of Chapter 4 were based upon the assumption that factors that underpin clinical outcomes in BD may

also influence personal recovery outcomes. However, given the assumptions and supporting evidence, this may not be the case. Therefore, the third (secondary) aim of Chapter 4 was to further explore this question by:

v) Comparing factors impacting on personal recovery and clinical outcomes including demographic, clinical and psychological factors to determine whether different factors underpin outcomes related to the different conceptualisations of recovery.

Given that recovery is a complex and idiosyncratic process, the final study was designed to explore the views of participants on the recovery concept, definition and barriers and facilitators of personal recovery in BD, with the hope that it will also help the interpretation of the results of Chapter 4. Participants' views were explored in three key issues:

vi) real life utility of one of the most widely used personal recovery definition (Anthony, 1993);

vii) factors that may support or hinder personal recovery day-to-day and longer-term;

viii) potential links between day-to-day and longer-term recovery experiences.

Chapter 2: Methodology

As outlined at the end of the previous chapter, this thesis set aims but did not operate with predefined hypotheses. The aim of this chapter is to provide an in-depth account of the chosen methodology, and justify such theoretical and methodological decisions. To achieve this, the epistemological and ontological considerations underpinning mixed methods approaches will first be discussed. This is important since quantitative and qualitative research methods are often regarded as entirely distinct research methodologies. While this distinction is helpful in understanding the differences in research strategies, including data collection and analysis, it is not definite. The chapter aims to present arguments for combining quantitative and qualitative research designs by explaining how the different components can complement each other to gain a deeper understanding of the examined concept, which in this case is personal recovery. This will be followed by reviewing specific mixed method approaches in order to provide a justification for selecting an explanatory sequential design. The final considerations of this chapter will focus on the challenges and advantages of using an explanatory sequential mixed-method design to answer the research questions of the thesis.

2.1 Epistemological and ontological considerations- breaking down the quantitative/qualitative divide

Epistemological orthodoxies focus on questions of what is regarded as acceptable knowledge (Bryman, 2016). The main epistemological positions include positivism, realism and interpretivism. Positivism dominated social science research for decades, and this orthodoxy advocates the application of natural science to study the social world in a value-free objective manner (Bryman, 2016). It is a deductive approach that is based upon the idea that the purpose of theory is to generate hypotheses, and research is used to test hypotheses and conclude whether the theory is valid (Bryman, 2016). Positivism in social sciences assumes that human behaviour is determined by external factors and that is possible to measure social phenomena by accessible observations (Bowling, 2002). Positivist approaches therefore do not measure meaning to individuals, as these are not directly and objectively observable (Bowling, 2002).

Realism is similar to positivism in terms of the belief that natural and social sciences should be based upon the same data collection and interpretation approaches and that there is an objective external reality that can be systematically measured (Bryman, 2016). Critical realism is the most predominant manifestation of realism in social sciences (Maxwell, 2012). In contrast to positivism, critical realism recognises and accepts that there are underlying unobservable mechanisms, which influence the observable entities and identifying such mechanisms is essential in understanding social phenomenon. This orthodoxy involves retro-deductive reasoning, which aims to draw conclusions about the underlying mechanisms that cannot be observed, based upon the accessible observations (Bryman, 2016).

While natural science epistemology such as positivism and realism has been long established and remains the dominant philosophy of scientific research, its use has been criticised (Bowling, 2002). Positivism has been mainly criticised by its focus on superficial facts and not recognising the underlying mechanisms or the subjective meaning to the individual. While critical realism accepts and examines underlying mechanisms, it also overlooks the subjective meaning to individuals (Bowling, 2002). The latter point is in the focus of interpretivism; this orthodoxy advocates for research strategies that allow for individual differences and which are capable of capturing the subjective meaning of behaviour and other social phenomena. Interpretivism is based upon inductive reasoning, which starts with the observations and proposes theories as a result of observations (Bryman, 2016). The different interpretivist approaches (phenomenology, hermeneutics and symbolic interactionism) agree that the subjects of investigation of social sciences are fundamentally different from the subjects of natural sciences, which therefore requires different research procedures. The main difference is in the aim of research; instead of explaining human behaviour based on observations, interpretivism aims to understand human behaviour and its course and effects (Bryman, 2016). Interpretivist epistemology is in line with the overarching aim of the present study, understanding the subjective experience of personal recovery and potential underlying mechanisms in personal recovery processes.

While epistemology focuses on what is regarded as acceptable knowledge, ontology considers the nature of the subject under examination. The two main ontological positions are objectivism and constructivism. The former considers social entities as objective entities with a reality external to the social actor, for instance to

the individual, while the latter conceptualise social entities as constructions built up from the experiences, perceptions and actions of the person (Bryman, 2016). Objectivism in general is associated with positivist and realist epistemology, while constructivism is the basis of interpretivism. Constructivism holds that social phenomena and their meanings are continually being produced and revised by the social actor through social interactions (Bryman, 2016). Constructivism lies between objectivism and subjectivism, since it is believed that knowledge does not reflect external reality, but is based upon the intra and interpersonal experiences and circumstances of the individual (Slade, 2009). This ontological approach provides a supportive ontological basis for investigating both mental health and personal recovery experiences, due to allowing integration between knowledge deriving from the clinical models of mental health problems with the idiosyncratic experiences of the individuals (Slade, 2009).

Quantitative and qualitative research methods are traditionally associated with certain epistemological and ontological commitments. More specifically, quantitative strategies are linked to positivism, realism, and objectivism while qualitative methods to interpretivism and constructivist positions. Based upon these predispositions, quantitative research is concerned with testing hypotheses, which derive from theories, and assumes that social reality is an objective and external reality to the individual and therefore focuses on studying observable behaviour. In contrast, qualitative methods are considered to build theories from observations and emphasize the importance of socially constructed reality and the interpretation of and subjective meaning to the individuals (Bryman, 2016). The two approaches therefore seem fundamentally different and the application of these different strategies for studying the same concept seems impossible (Sale, Lohfeld, & Brazil, 2002).

However, application of different research strategies in real life is not as simple and connections to epistemological and ontological positions are not as deterministic as outlined above. Qualitative research is not always used to generate theories, as it can be used as a deductive approach to test theories and have a specific focus on particular research questions. For instance, it can be applied to verify theoretical assumptions or clarify inconsistent findings of the quantitative literature (Bryman, 2016). Moreover, qualitative research methods often exhibit other features that are originally associated with natural science epistemology and quantitative designs, such

as empiricism and critical realism. Empiricism states that knowledge is gained through experiences; in line with this, qualitative research lays emphasis on studying social reality from the direct experience of the research participants (Bryman, 2016). Qualitative investigations almost inevitably study observable behaviour along with meaning. Moreover, critical realism accepts that there are real mechanisms behind social phenomena, which are not directly accessible to observation, but social research must aim to understand such mechanisms (Bryman, 2016). Qualitative methods assist the researcher to undertake this task by helping him or her to construct a model of potential mechanisms, which can then be used to explain a set of observable patterns (Roberts, 2014).

Similarly, quantitative research methods exhibit features of interpretivism and constructivism, typically associated with qualitative research. Firstly, quantitative research often aims to understand subjective meaning to respondents, for instance assessing attitudes via questionnaires or in the present study views on personal recovery. Assessing meaning via quantitative approaches has been criticised due to using categorical answer options, which restrict the self-expression of the respondents. However, the development and validation of questionnaires involve extensive respondent validation processes aiming to bring out a wide range of potential and meaningful positions (Bryman, 2016). Secondly, quantitative methods play an important role in revealing social constructs and generating theories, for instance, exploratory quantitative research uses an inductive approach and aims to generate theories, as opposed to testing hypotheses deriving from theories (Bryman, 2016). This approach has been used in Chapter 4 of the study; personal recovery research lags behind the application of the concept in mental health services (outlined in Chapter 1) and research has primarily focused on the conceptualisation as opposed to the complex underlying mechanisms underpinning personal recovery processes. For these reasons, the aim of Chapter 4 was to explore such mechanisms, as opposed to deriving specific hypotheses from the personal recovery theory.

While the quantitative and qualitative approaches are still regarded for many researchers as incompatible, the differences between the two approaches have been extensively debated (Lund, 2012). Since the early 2000s mixed method approaches have been established, and extensively utilised in health research, with the aim of combining qualitative and quantitative research within the same study (Lund, 2012;

Sale et al., 2002). The main epistemological perspectives supporting the combination of qualitative and quantitative results include situationalism and pragmatism. The former supports the adaptation of methodology to the situation, while the latter emphasizes that multiple paradigms can be used to address the same research questions (Creswell & Clark, 2011). The basic rationale of the mixed methods strategy is that by combining qualitative and quantitative methods the strength of each approach can be exploited while the limitations attached to each can be overcome (Tashakkori & Teddlie, 1998). Mixed methods are particularly popular in health research because of the complexity of most health problems and interventions that require data from different perspectives and a broad spectrum of qualitative and quantitative methods (Baum, 1995; Steckler, McLeroy, Goodman, Bird, & McCormick, 1992). Furthermore, previous research identified that the multifaceted and complex nature of personal recovery requires the application of mixed method designs to integrate a range of data to inform this complex phenomenon (Hasson-Ohayon et al., 2011; Leonhardt et al., 2017). In line with this, the present study used a mixed methods approach to deepen understanding of the complex concept of personal recovery in individuals with bipolar disorder (BD). The next section will review the potential ways of combining quantitative and qualitative research with an aim to provide a justification for the selected approach.

2.2 Major mixed methods designs

Table 2 presents the four major mixed method designs based on the work of Creswell and Clark (2011). The design, purpose, analysis, epistemological assumptions along with the strength and challenges of each approached are summarised in Table 2.

Table 2. Characteristics of the main mixed methods designs- table based upon the categorisation and work of Creswell and Clark (2011)

	The convergent parallel design	**The explanatory sequential design**	**The exploratory sequential design**	**The embedded design**
Timing and priority of the strands	Simultaneous and equivalent strands- data collection of one strand does not influence the other strand.	Sequential: quantitative (emphasis) phase followed by qualitative phase.	Sequential: qualitative (emphasis) phase followed by quantitative phase.	Either simultaneous or sequential: either qualitative or quantitative emphasis supplemented by quantitative or qualitative data.
Purpose and analysis	Different but complementary data collection to answer the same research question, bringing together the differing strengths of designs. Separate analysis of the strands, but results interpreted in combination (comparing or contrasting strands);	Quantitative phase: can be used to inform interview questions, purposive sampling or identifying individuals for qualitative analysis. Qualitative phase: depends on quantitative results and is used to interpret the initial quantitative findings.	Qualitative phase: can be used to inform sampling and data collection for quantitative analysis. Quantitative phase is used to test or generalise the findings of the initial qualitative phase.	The collection and analysis of both types of data is combined within a traditional quantitative or qualitative research design. The supplemented strand is used to enhance the overall design and answer a secondary research question, for instance: more complete understanding of the trial data needed or need to follow-up exploration of trial.

Table 2 (continued)

	The convergent parallel design	**The explanatory sequential design**	**The exploratory sequential design**	**The embedded design**
Epistemological assumptions	Pragmatism	Post-positivism and constructivism	Constructivism and post-positivism	Pragmatism-concurrent, post-positivism or constructivism – depending on strand priority
Strengths	Intuitive and time efficient design; Separate data analysis with traditional techniques; Suitable for team work for team members with different expertise.	Most straightforward design: Only one type of data is collected at the time, suitable for single researcher; Straightforward to implement and report. Can explain trends and associations along with mechanisms and reasons.	Best suited for exploration, instrument development and testing. Only one type of data is collected at the time, suitable for single researcher. Straightforward to implement and report.	Suitable for research with non-sufficient time or resources. Additional data improves the overall design. Suitable for team work to address different research questions. Two types of results can be published separately and independently as answer different questions. Easier to obtain funding, as primarily focuses on either quantitative or qualitative design.
Challenges	Most challenging design:	Time consuming approach;	Time consuming approach;	Both primary and secondary research

Table 2 (continued)

	The convergent parallel design	The explanatory sequential design	The exploratory sequential design	The embedded design
	Much effort and expertise required; Challenging to integrate results of the different strands; Different sample sizes must be considered when interpreting the results; Challenging to manage controversial findings across strands.	Difficult to obtain ethical approval in advance as qualitative data collection will depend on the results of the quantitative phase.	Difficult to obtain ethical approval in advance as quantitative data collection will depend on the results of the qualitative phase. The developed measure must be tested for validity and reliability.	questions must be decided in advance. It can be difficult to integrate results as the strands intend to answer different research questions, but it does not necessarily must be integrated. Collecting qualitative data during intervention (trial) can introduce treatment bias that may impact on the results.

The above categorisation is based upon the priority of the strands and whether the different strands of data collection happen concurrently or sequentially (in phases). Approaches using concurrent quantitative and qualitative data are more suitable for team work, where different team members can dedicate their time and expertise on one strand of the data collection and analysis (Creswell & Clark, 2011). The convergent parallel design uses the different stands equally to answer one overarching research question, while the embedded design uses the strands to answer different research questions, prioritise either qualitative or quantitative data collection and uses the other type of data for supplementing the main data collection and answering secondary research questions (Creswell & Clark, 2011). The present thesis had one overarching research question, which is to understand factors that impact on personal recovery. Therefore, the embedded design was not a suitable approach to answer this

research question. Convergent parallel design was also considered unsuitable for the present study. While the fact that both quantitative and qualitative data is equally valued in this approach was appealing, it was felt challenging to implement. Firstly, this design is suitable for studies conducted during a short period of time that require concurrent data collection for both strands (Creswell & Clark, 2011), which would have been difficult for a sole researcher. Secondly, the two strands are treated entirely separately and are only integrated at the time of analysis (Creswell & Clark, 2011). This would not allow using data from one strand to inform data collection for the other strand. This was problematic as the present study aimed to represent views of individuals with diverse recovery experiences in the qualitative interviews by using the first quantitative phase to inform purposive sampling for the qualitative phase.

After disregarding the convergent parallel and embedded mixed method designs, the two sequential designs were considered. One of the benefits of these approaches is that the qualitative and quantitative data collection happens in phases and preliminary data analysis of the first phase can inform the second phase. For these reasons, sequential designs are more feasible and suitable for the timeframe and resources of PhD projects. The selection between explanatory and exploratory sequential designs was more difficult, as both approaches would contribute (in different ways) to answer the research question. Firstly, personal recovery is an individual and unique experience and the potential influential factors of personal recovery have not been extensively studied, which would suggest using an exploratory sequential design that is suitable for more qualitatively-orientated research questions and for the exploration of important factors linked to the concept of interest. Using this approach would have been beneficial for making an informed selection of the potential psychological process measures to be used in a second quantitative phase.

However, we selected the explanatory sequential design for the following reasons. Firstly, exploratory designs are recommended when measures are not available or the construct of interest is unknown. The primary interest of this project was to understand potentially important psychological factors, such as dysfunctional attitudes and response styles to life experiences, which have been shown to be present and play important roles in the course of BD, but have been less examined for association with personal recovery. Therefore, the psychological processes of interest were known and the measures to assess these processes were accessible. There is a

wide range of validated measures that use targeted questions to reveal these psychological processes in individuals, which may be subconscious or difficult to articulate as part of an interview.

Secondly, the aim of the present study was to explore association patterns between bipolar-relevant psychological processes and personal recovery in BD using validated questionnaires without specifying the nature of the interconnections in advance. As discussed above, quantitative data collection is far less driven by hypothesis testing than is frequently supposed, and questionnaire studies are often exploratory in their nature (Bryman, 2016). This approach was used in the first phase of the study (Chapter 4).

Furthermore, although personal recovery is a unique and individual experience, recent research indicates that the concept of recovery is meaningful and measureable in BD (Jones et al., 2013; NICE, 2014; Silverstein & Bellack, 2008). As previously discussed, quantitative research frequently addresses personal and meaningful concepts and attitudes assessed on validated questionnaires (Bryman, 2016). The Bipolar Recovery Questionnaire (BRQ) was developed and validated as part of an exploratory sequential study, starting with qualitative interviews to develop items for the questionnaire and followed by a quantitative validation study (Jones et al., 2013). The current project aimed to build on this and other previous research, and use the validated measures to assess psychological processes in association with personal recovery. The initial quantitative phase not only enabled the exploration of patterns of links between psychological factors and recovery, but was also used to purposively identify individuals with diverse recovery experiences for the qualitative interviews. The qualitative interviews played an important role in exploring a broader range of potentially important factors in recovery by using open questions. Some of the interview questions focused on whether particular ways of thinking impact on recovery with the aim to explain, elaborate and, where possible, illustrate the findings of the quantitative phase.

2.3 Advantages and challenges using mixed methods in this study

Some of the key advantages of using mixed methodology in the present study were discussed in the previous section. More specifically, the initial quantitative phase was used to explore associative patterns between bipolar-relevant psychological

processes and recovery, and for selecting participants with a diverse range of recovery experiences for qualitative interviews. The qualitative interviews were then used to explain, elaborate and illustrate the findings of the quantitative results. The main benefit of using mixed methods is that by combining qualitative and quantitative research it is possible to overcome their weaknesses and draw on their strengths (Tashakkori & Teddlie, 1998). More explicitly, the strengths of the quantitative phase in the present study are as follows. Cross-sectional designs are ideal for describing psychological processes present at the time of baseline testing and how these are associated with current personal recovery in individuals with BD. Longitudinal designs are able to establish the extent to which psychological factors predict future personal recovery accounting for symptoms (since current mood and symptoms will be controlled for). Moreover, the direction and reasons for changes in personal recovery can be investigated as an advantage of longitudinal design (Shaughnessy, Zechmeister, & Zechmeister, 2012). These traditional quantitative research designs were both used to increase our understanding of general patterns in recovery.

On the other hand, surveys can miss in-depth data and the subjective meaning to the individual participants; qualitative interviews are able to overcome this by capturing the in-depth account of personal experience of recovery in individuals with BD. By applying both approaches, a more comprehensive account of personal recovery can be achieved, which will have a positive impact on the credibility of the research findings. While the quantitative phase is helpful in identifying the important psychological processes underpinning personal recovery, this data is not suitable for providing an explanation of the underlying mechanisms, more specifically how and why these different ways of thinking may impact on recovery. In contrast, the qualitative data can help to achieve an understanding of the underlying mechanisms and illustrate the 'dry' quantitative findings with real life experiences of the individuals. This can also increase the clinical applicability of the findings by making them more explicit to real life situations, which potentially can be important for both mental health professionals and service users.

While the primary research projects used a mixed method approach, they were preceded by a systematic literature review that aimed to understand the current state of literature on personal recovery in BD. Doing a high quality literature review provides essential basis for the current work by acquiring a fuller understanding of the

previous research (Boote & Beile, 2005). Systematic review methodology was chosen for reviewing the literature due to its comprehensiveness, emphasis on rigour, transparency, and explicit procedures (Moher, Liberati, Tetzlaff, & Altman, 2009). The acquired knowledge of the literature provided a basis for the research questions of the subsequent phases. This is important when considering the philosophical and theoretical positions of the present study. An explanatory sequential mixed methods approach was used, which gives priority to the quantitative phase. This first quantitative phase started from a post-positivist and deductive perspective and utilised the available theory and evidence of bipolar research to select concepts and measures of interest and statistically analysed the data.

On the other hand, an inductive approach, normally associated with interpretivist and constructivist perspectives, was already present in the quantitative phase in terms of using the data to inform and feedback to theories, instead of deriving specific hypotheses *from* theories. This was expressed by not pre-specifying the direction of potential links between psychological processes and personal recovery and using an exploratory modelling to analyse the quantitative data. The interpretivist and constructivist perspective is then fully utilised in the qualitative phase, when it is aimed to understand what are the personally meaningful factors in recovery that the participants identify based upon their unique inter- and intrapersonal experiences.

2.3.1 Practical considerations

While the above philosophical and theoretical considerations are important, there are other, more practical factors that can pose challenges and may impact on research outcomes. Some of these factors are attached to the researcher and others to the population (Bryman, 2016). One of these factors is the subjective feelings, beliefs and preconceptions of the researcher, which may have impacted on the generation of the research questions, data collection (selection of measures and questions of the interviews) and interpretation of the data. It is recognised that purely objective research is impossible (Bryman, 2016); however it is important to account for potential researcher biases and attempt to limit the impact of such biases as much as possible. This was taken into consideration during each phase of the study. Firstly, data collection and analysis for the systematic review phase were conducted by two researchers, as recommended by Cochrane to reduce the risk of bias in study selection

which could result from an individual reviewer's assumptions and judgements (Higgins, Altman, & Sterne, 2011).

Secondly, as part of the quantitative phase, valid and reliable questionnaires were used in a random and varied order. This was to ensure that the way the questions were phrased and asked was not influenced by the researcher and also to control for the question order effect. This effect refers to the impact that one question can have on the answers for subsequent questions. Moreover, the research at each phase avoided specific hypotheses and used exploratory data analysis, which in turn, can be useful in reducing the confirmation bias effect (paying more attention to data that confirms the hypotheses).

Finally, the qualitative phase was most likely to be exposed to researcher bias due to the subjective interpretation and preconception of the researchers and the available results of the quantitative phase. In order to monitor and account for this the qualitative phase started with, and continuously utilised, a reflective log. Reflexivity will be discussed in more detail in the qualitative chapters along with the key results of these chapters. A further attempt to minimise the impact of researcher's biases was that each research step, from generating questions to collecting and interpreting data, was reviewed by the supervisory team.

Furthermore, it is important to consider the unique characteristics of the population when designing and conducting research (Bryman, 2016). The outcome measure for Chapter 4 was selected after considering the desire of the study population to assess a broader range of experiences as opposed to solely focusing on clinical outcomes in research. Participants were purposively selected for interviews in order to understand the underlying factors of different recovery experiences. On the other hand, characteristics of the respondents may also impact on the outcome of the study. As discussed previously, BD includes intense disruption to mood, thoughts and behaviour (Jones et al., 2010). The way participants feel on the day of the assessment would impact on how they think about their recovery and may also intensify dysfunctional thinking processes. To control and account for this, the study involved individuals who did not meet the criteria for a manic, mixed or depressed mood episode prior to the collection of the quantitative and qualitative data, and mood symptoms were control measures in the quantitative data analysis. However, it is acknowledged that subsyndromal symptoms may still have impacted on the way

participants completed the questionnaires or expressed themselves as part of the qualitative interviews.

To sum up, the present chapter aimed to review the epistemological and ontological presumptions associated with quantitative and qualitative research and break down the division between paradigms to justify the combined application of the two in a mixed method study. The mixed methods typology was presented and reviewed in order to justify the selection of explanatory sequential mixed method design. This approach gives priority to quantitative research, but utilises qualitative findings to explain, elaborate and illustrate the 'dry' quantitative findings. While the theoretical and philosophical considerations are important, there are also practical factors that may have impacted on the results of the present study. This chapter aimed to review how these were accounted for and attempts to minimise researchers' and respondents' biases were reviewed.

Chapter 3: Systematic literature review of personal recovery in bipolar disorder (BD): operationalisation and predictors

Intended for submission to Clinical Psychology Review

3.1 Abstract

The importance of personal recovery has been recently recognised in the UK and there is increasing interest in exploring service users' perspectives and experiences of recovery, as opposed to focussing solely on clinical outcomes. The trajectories of clinical recovery are often different from social-functional improvements and from personal recovery. There are individuals who experience improvements in one area while still experiencing difficulties in other area(s). Therefore, focusing solely on clinical recovery is not sufficient for understanding recovery in BD. This work provides a systematic literature review and narrative synthesis of studies investigating personal and related recovery experiences in BD with the aim of reviewing the definitions, operationalisations of recovery and factors assessed in association with recovery. Twenty-six primary research studies were included, comprising 2320 participants from 10 countries, published between 1980 and 2017. The studies' approach to assess recovery was diverse; after categorisation the main identified concepts included i) social-functional (SFR), ii) occupational and residential (ORR) and iii) personal recovery (PR). The studies examined an extensive range of predictors, including psychological interventions, demographic, clinical and neurocognitive factors. The different recovery concepts showed unique associations with each other and with the examined predictors. Future research and clinical implications are discussed.

Keywords: BD, social recovery, functional recovery, occupational recovery, residential recovery and personal recovery.

Highlights:

- SFR and ORR: mainly measured on clinician rated tools in prospective studies.
- PR: mainly assessed by self-report measures in cross-sectional studies.
- Diversity across findings of predictors of different recovery concepts.
- The majority of the factors were found to be non-significant in predicting recovery.

- Personalised therapeutic approaches to improve PR in BD.

3.2 Introduction

Bipolar disorder (BD) affects 1-1.5% of the population (Goodwin & Jamison, 2007); over 1 million people in England alone (McCrone et al., 2007). Many individuals achieve incomplete clinical recovery with ongoing symptomology between episodes (Gitlin, Swendsen, Heller, & Hammen, 1995; Judd et al., 2002; Judd et al., 2003). Personal recovery has been defined as "a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills and/or roles. It is a way of living a satisfying, hopeful, and contributing life even with limitations caused by the illness. Recovery involves the development of new meaning and purpose in one's life as one grows beyond the catastrophic effects of mental illness" (Anthony, 1993, p.527.).

In contrast with clinical recovery, personal recovery emerges from the unique experience of service users with mental health problems. It is an idiosyncratic and multifaceted concept, which may include clinical improvement but not as a prerequisite. Clinical and personal recovery concepts are therefore overlapping but different (Slade, 2009), including in their trajectories of change (Jones et al., 2013; Macpherson et al., 2016). Service users often refer to social and functional outcomes when describing their recovery experiences, such as wider engagement with the society, employment and control over life choices (Jones et al., 2013). Thus, clinically recovered patients may experience functional impairment, whereas those with significant residual symptomology may achieve high levels of functioning (Murray & Michalak, 2007; Tohen et al., 2003).

The significance of personal recovery has been recently recognised in the UK, and national policy requires mental health services to focus on personal recovery. Despite the internationally recognised importance of personal recovery (Department of Health, 2011; New Freedom Commission on Mental Health, 2003) most research in BD has focused on clinical recovery, including relapse prevention and symptom suppression (Jones et al., 2013).

Previous systematic reviews of personal recovery in mental health problems generally have focused on three main areas. First, instruments assessing personal recovery; most recently Sklar et al. (2013) conducted a comprehensive systematic

review of instruments assessing recovery from a variety of mental health problems, and also considered the extent of service users' involvement in the development of the tools. A more specific review was conducted by Williams and colleagues (2012) aimed at identifying all standardised service user-rated measures of the personal recovery orientation of services and evaluating the conceptualisation of recovery used within these measures.

Second, the conceptual framework of personal recovery in mental health problems has been reviewed as part of a REFOCUS research programme (Bird et al., 2014; Leamy et al., 2011; Slade et al., 2012). The authors identified and validated a conceptual framework of recovery processes, including empowerment and reclaiming control over one's life; rebuilding positive personal and social identities (including dealing with the impact of stigma and discrimination); connectedness (including both personal and family relationships, and wider aspects of social inclusion); hope and optimism about the future; and finding meaning and purpose in life.

A third area reviewed by Tew et al. (2012) explored social factors in recovery informed by the review of Leamy and colleagues (2011). Although this indicated the important mediational role such social factors can play in personal recovery, the additional roles of psychological and environmental factors were not considered.

It is important to investigate recovery experiences in BD separately from other mental health problems, particularly because factors that indicate improvement in other mental health problems, such as optimism and increased engagement in social activities may be early warning signs in BD (Jones et al., 2013). There has been no review of the definition, assessment and prediction of personal/functional recovery in BD; the present review aimed to fill this gap.

The aim of the present study is to answer the following research questions:

i) How has personal recovery been defined and operationalised including domains within this topic, such as social and functional recovery?

ii) Which factors have been assessed for association with the different recovery concepts?

3.3 Method

The review protocol has been published on the Prospero (International Prospective Register of systematic reviews): http://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42015019187.

3.3.1 Search procedure

An electronic search of the Web of Science, PsycINFO and PubMed databases was conducted on 1st January 2017. The following search terms were applied: (“bipolar disorder” OR “bipolar affective disorder” OR “manic depression” OR “rapid cycling” OR “bipolar I” OR “bipolar II” OR “bipolar 2” OR “bipolar NOS” OR “bipolar spectrum disorder” OR hypomani* OR "mixed states" OR "mixed episodes" OR cyclothymi* OR manic OR mania OR “bipolar mood disorder”) AND (recover*). The search was restricted to peer-reviewed articles published after 1980 to coincide with the DSM-III’s more precisely operationalised definition of bipolar disorder compared with previous versions (American Psychiatric Association, 2017).

Following PRISMA guidelines, all articles were screened at title, abstract and the full-text levels for eligibility by two raters (BM and LH). The second rater (LH) was blinded to the decisions of the first rater (BM). The raters met regularly to resolve disagreements, where disagreements could not be resolved between the raters, the research team agreed inclusion/exclusion decisions through regular screening meetings. Reference lists of the eligible studies and articles that cited eligible studies were scanned to identify further literature not found in the electronic database search.

3.3.2 Eligibility criteria

3.3.2.1 Inclusion and exclusion criteria

In relation to the PICO system, studies were identified based on the considered population and outcome. No specific inclusion or exclusion criteria were applied to the investigated intervention/comparison (including assessed factors), other than a factor or component of personal recovery must have been examined in association with the outcome. Table A.1 (appendix) indicates how the detailed exclusion criteria were applied.

Table 3. Inclusion and exclusion criteria

PICO	Inclusion criteria	Exclusion criteria
Population	Adults (age>16) with BD, diagnosis of BD was verified based on DSM or ICD criteria	Not investigating BD separately from other mental health problems.
Intervention	A component or predictor factor of personal recovery was examined in association with the predictor variable. No restriction applied to the type of factors examined in association with the outcome.	Comparing personal recovery in BD to recovery in other mental health problems, but not examining factors in association with personal recovery in BD.
Comparison	Not restricted	N/A
Outcome	A recovery (other than clinical or symptomatic) definition was provided and operationalised as an outcome measure or there is a stated relevance to personal recovery in the method/results section (for example in qualitative themes)	Recovery definition was not provided/ operationalised.
Additional criteria	Peer-reviewed primary research articles, using qualitative or quantitative designs English full-text available	Secondary research articles

3.3.3 Data extraction and quality assessment

Data was extracted across two main domains, the study characteristics (year of publication, authors, location, study design, definition and operationalisation of personal recovery as the outcome measure, potential predictors, statistical analysis and main findings of the study) and the participants characteristics (sample size, inclusion criteria, diagnosis verification, age range of participants).

The quality assessment approach was consistent with that adopted by Leamy and colleagues (Leamy et al., 2011). The Effective Public Health Practice Project tool (Effective Public Health Practice Project, 2009) was used for quantitative studies as it allows evaluation of a variety of quantitative study designs and has acceptable psychometric properties (Thomas, Ciliska, Dobbins, & Micucci, 2004) (Armijo-Olivo,

Stiles, Hagen, Biondo, & Cummings, 2012). The RATS guideline -Relevance, Appropriateness, Transparency and Soundness (Clark, 2003) - was selected for qualitative studies to assess the relevance of the study question, appropriateness of the qualitative method, transparency of procedures and soundness of interpretive approach. Data extraction and quality assessment were conducted by the principal investigator (BM) and checked by the second rater (LH; data extraction 100%; study quality 50%).

3.3.4 Data analysis

Narrative synthesis was used because studies were too diverse in terms of how they operationalised and assessed recovery, which variables they considered in multivariate analyses to permit meta-analysis. Pooling the data together for analysis from studies with a high degree of variation in methodology may have increased the likelihood of systematic error (Ahlbom, 1993). For these reasons, meta-analysis was not conducted. This approach enables the synthesis of diverse primary studies focusing on personal recovery, in association with a range of different potential predictor variables. Study data was analysed and synthesised to explore i) how personal recovery was defined and operationalised and ii) which factors were examined in association with personal recovery.

3.4 Results

3.4.1 Study selection and quality assessment

Figure 1 demonstrates the systemic search and screening process, which identified 26 full-text articles.

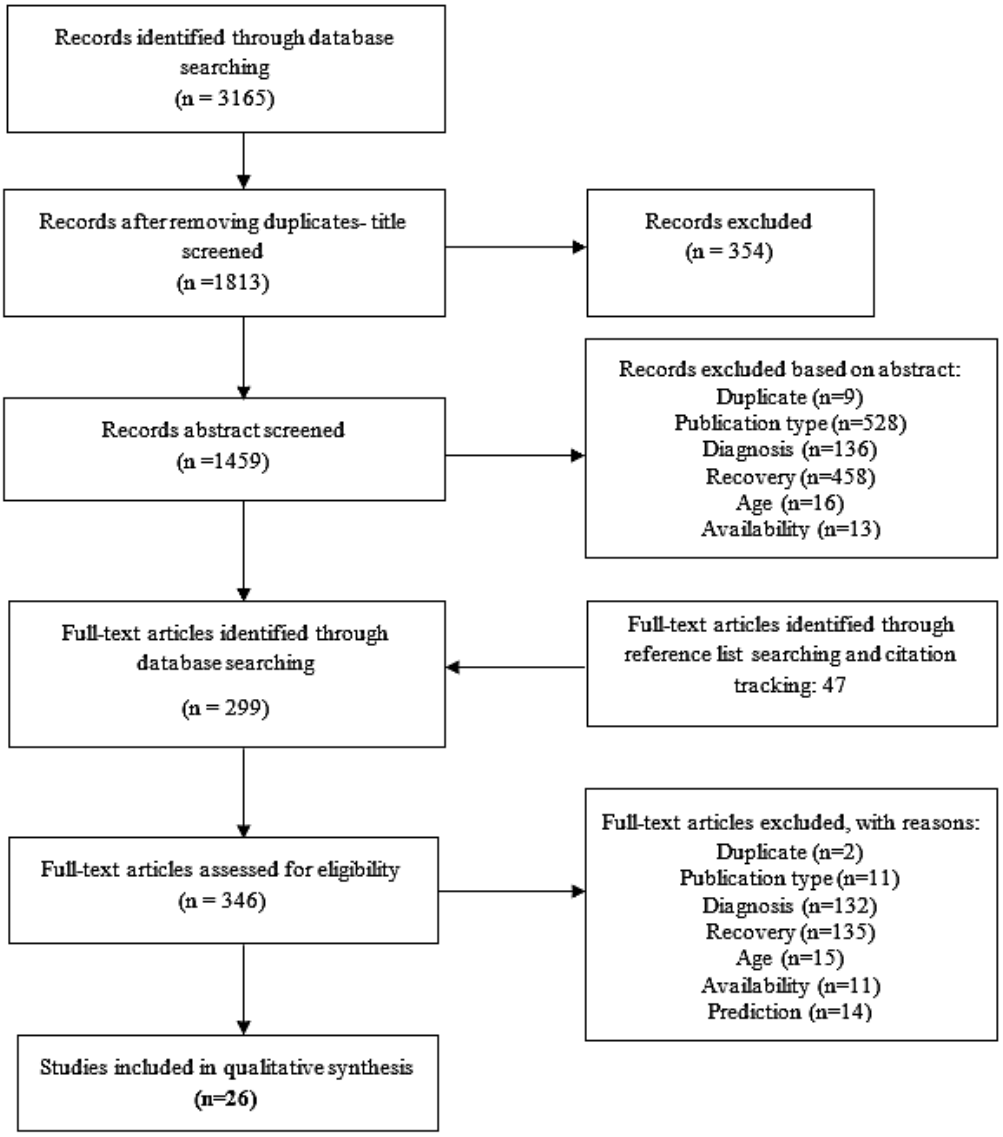

Figure 1. Flowchart illustrating the search and screening process

Cohen's Kappa statistics indicated substantial interrater agreement for full text screening (n=335; 11 full-texts were not available in English); exclusion/inclusion decisions 0.625; primary exclusion reasons, 0.774. Any disagreements were resolved with the supervisory team.

All of the qualitative studies retrieved for full-text screening (n=47) were excluded from the review mainly due to issues with diagnosis of participants (Table A.1 for details).

From the 26 eligible studies, 13 were quality assessed by both raters (BM, LH) - the raters originally agreed on the quality categorisation of eight articles, with

consensus on the remainder following discussion. Most often assigned category was 'Weak' (n=14, 53.9%), followed by 'Moderate' (n=11; 42.3%); 'and only one article achieved 'Strong' (3.8%) categorisation; Table A.2 (Appendix) presents the results of the overall EPHPP quality assessment ratings. The high proportion of weak and moderate categorisations results from a number of methodological limitations of the reviewed literature, including the selection bias – authors did not use comprehensive lists to enable the representativeness of the target population.

3.4.2 Overall summary of the studies

Twenty-six studies were included in the analysis; Table A.2 (Appendix) provides a summary of the study design, methods and key findings, while Table A.3 presents the sample characteristics, of each study.

A total of 2320 participants with BD took part in the studies conducted across ten countries (Australia, Brazil, China, France, Germany, India, Iran, Spain, UK, and US). There were four cases when the authors used the same bipolar cohort in two different studies, including i) Bonnin et al. (2015) and Reinares et al. (2015), ii) Wingo, Baldessarini, Compton, & Harvey (2010) and Wingo, Baldessarini, Holtzheimer, & Harvey (2010); iii) Tse, Davidson, Chung, Ng, & Yu (2014) and Tse, Murray, et al. (2014), and iv) Grover, Hazari, Aneja, et al. (2016) and (Grover, Hazari, Singla, et al., (2016). However, the authors operationalised recovery differently and/or investigated different potential predictors of recovery and therefore were eligible for inclusion. The included studies ranged in sample size, spanning from *N*=13 to *N*=516 participants. Participants were reportedly aged between 17 and 80 years at the time of their participation. However, summary information was variable with only six studies reporting the age range. More widely, the *mean* age was provided (25 studies) and ranged between 22.10 and 42.25.

Most studies used DSM-IV criteria to verify the research diagnosis of BD (*n*=17). Twelve studies (46%) considered Bipolar Disorder Type I (BD-I) only focusing either on individuals with first and current (*n*=6) or current (*n*=3) manic or mixed episodes or on participants who had recently achieved clinical recovery from an acute affective episode (*n*=3). The other fourteen studies (54%) were more inclusive and did not restrict inclusion to BD-I. In terms of clinical restrictions, these studies included individuals either in clinical remission (*n*=9) or not restricting

inclusion criteria based on clinical state (*n*=5). From this latter set of five studies (not restricting inclusion criteria based on subtype of BD and clinical state) one study focused on and included participants with substance abuse comorbidity and one focused on homeless individuals with BD.

3.4.2.1 Design characteristics

The most common study design was longitudinal (n=16; including two clinical trials and one retrospective study). Eight studies used cross-sectional designs, and two studies applied prospective designs but relevant information was reported in cross-sectional findings only.

3.4.3 Definition and operationalisation of recovery in BD

The first aim was to review the definitions of personal and related recovery concepts and provide an overview of the measures used in quantitative studies to operationalise recovery in BD. The eligible studies were diverse in the recovery definitions and operationalisations used (Table 4). The majority of the studies provided one eligible recovery definition (*n*=23); two studies defined two eligible recovery concepts (Key: 16 and 22), and one study used a composite measure of recovery (Key: 7). The most commonly assessed recovery domain was functional recovery (*n*=15), followed by personal recovery (*n*=7). The remaining studies defined and operationalised psychosocial (*n*=1), occupational functional (*n*=1), social functional (*n*=1), occupational and residential role (*n*=1) recovery. In order to allow for exploration of factors associated with the examined recovery concepts, eligible studies were grouped thematically based upon the similarity of their recovery domains. This resulted in identifying three main recovery concepts: i) social-functional, ii) occupational and residential and iii) personal recovery. The study keys to identify each study are presented in Table 4.

- *Social-functional recovery:* this category comprised studies that originally defined and assessed functional recovery by using a global functioning measure and/or psychosocial functioning measure and studies, which defined (psycho)social recovery (*n*=13, study keys: 1, 2, 4, 5, 6, 7, 8, 12, 13, 17, 19, 24, 26).

- *Occupational and residential recovery:* this category included studies that originally defined and measured occupational and/or residential recovery and

studies that used vocational and/or residential indexes to define and measure functional recovery (*n*=8, study keys: 3, 7, 16, 18, 20, 21, 22 and 25).

- *Personal recovery:* this category included studies explicitly defining and measuring personal recovery (*n*=7, study keys: 9, 10, 11, 14, 15, 22 and 23).

Based upon the above categorisation, the study with the composite measure of recovery (Key: 7) was interpreted as assessing both social-functional and occupational and residential recovery; study 16 was categorised into occupational and residential recovery, and study 22 was interpreted as assessing both occupational and residential and personal recovery; relevant findings of study 7 and 22 are discussed under both recovery sections.

The above categories are not mutually exclusive and often overlap, especially the social-functional and occupational and residential recovery concepts. For instance, occupational and residential recovery may be an important component of social-functional recovery; also, both social-functional and occupational and residential improvements may play a key role in personal recovery. However, for the purpose of structuring and synthesising data categorisation and interpreting the categories separately was necessary to allow a more specific exploration of potential factors impacting on the examined recovery domains.

Furthermore, some of the studies examined associations between the identified recovery concepts, such as exploring associations between occupational and residential status (often used as a measure of occupational and residential recovery) and social-functional or personal recovery; or similarly, exploring associations between global functioning (often used to measure social-functional recovery based upon the present categorisation) and personal recovery. This circularity of the concepts and measures used as both predictors and outcomes in the reviewed literature derives from the complexity of the recovery concept and how it is operationalised. The results of such associations are considered when interpreting findings for both relevant recovery concepts. Table 4 presents the original recovery definitions and the assigned categories. These often differ, for instance if a study defined functional recovery and used vocational and residential indexes to operationalise it, this study will be in the occupational and residential category, and not in the social-functional category, as the

latter required the assessment of global functioning and/or social aspects of functioning.

Table 4. Studies eligible for inclusion

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
1	Bahorik, Newhill, & Eack (2013), USA	**Functional recovery:** psychosocial and occupational functioning	Continuous score	GAF (clinician rated)	Social-functional recovery
2	Barekatain, Khodadadi, & Maracy (2011), Iran	**Functional recovery**: recovery achieved if: participants presented rating resembles or is better than premorbid psychosocial functioning in role performance, interpersonal relationships, recreational enjoyment and sexual activity for at least 2 months	Categorical, binary	GAF (clinician rated) LIFE-RIFT (clinician rated)	Social-functional recovery
4	Bonnin et al. (2015), Spain	**Functional recovery:** global functionality (lower level of functional disability in autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships and leisure time) – recovery was defined as FAST total score <12	Categorical, binary	FAST (clinician rated)	Social-functional recovery
5	Conus et al. (2006), Australia	**Functional recovery:** operationalised in two ways: returning to premorbid functioning and assessed on scale as quality of life. 1) PAS (less than or equal to the premorbid ratings on at least 4 out of 5 items) 2) QLF ratings of individual items –item mean score ≤ 4.0 was a marker of dysfunction in a particular dimension (including interpersonal relations, instrumental role, intrapsychic foundation and common objects and activities)	Categorical, binary	1) PAS (score extracted from QLS and RPMIP-clinician rated measures) 2) QLS (clinician rated)	Social-functional recovery
6	de Barros Pellegrinelli et al. (2013), Brazil	**Functional recovery:** no additional definition, recovery scores as rated on different scales	Continuous score	WHOQOL-BREF; GAF (clinician rated	Social-functional recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
				measures) and SAS (self-report)	
8	Dunayevich et al. (2000), USA	**Functional recovery:** recovery achieved if returned to premorbid levels of global functioning for at least 8 continuous weeks	Categorical, binary	LIFE (clinician rated)	Social-functional recovery
12	Heilbronner et al. (2015), Germany	**Psychosocial recovery:** difference score between the current GAF score (assessing the last remission) and the worst GAF score ever during an illness episode	Continuous score	GAF (clinician rated)	Social-functional recovery
13	Jaeger, Berns, Loftus, Gonzalez, & Czobor (2007) USA	**Functional recovery:** global rating of functioning, including role position, support and performance ratings for work and/or school functioning and independent living	Continuous score	MSIF (clinician rated)	Social-functional recovery
17	Reinares et al. (2015), Spain	**Functional recovery:** lower level of functional disability in autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships and leisure time; recovery-total score rated on scale and recovery achieved if score lower than 12.	Categorical, binary	FAST (clinician rated)	Social-functional recovery
19	Strakowski, Williams, Fleck, & Delbello (2000), USA	**Functional recovery:** including role performance, interpersonal relationships, sexual activity and recreational enjoyment. Recovery areas assessed separately, and recovery of one area achieved if ratings equal to or better than participants' highest functioning in 5 years prior to hospitalization and maintained for two contiguous months. "Good functional outcome" was defined if recovery was achieved of at least 3 out of 4 areas.	Categorical, binary	LIFE (clinician rated)	Social-functional recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
24	Wingo, Baldessarini, Compton, et al. (2010), USA	**Social functional recovery:** Recovery achieved if current social functioning scores equal to or better than previous highest social functioning score.	Categorical, binary	FAST- IRQ Interpersonal Relationship Questionnaire (clinician rated)	Social-functional recovery
26	Yan-Meier et al. (2011), USA	**Functional recovery:** a mean score of ≤1.5 across items in role functioning domains of leisure time with friends, leisure time with family, duties at home, and duties in the workplace/school; measured over the preceding month. The first phase of the study assessed clinical recovery from a (hypo)manic episode. The second phase of the study (eligible for the review) included clinically recovered individuals and assessed functional recovery. This phase also compared individuals with concurrent clinical and functional recovery, delayed functional recovery and functionally not recovered individuals.	Categorical, binary	LFQ (self-report)	Social-functional recovery
7	Drake, Xie, McHugo, & Shumway (2004), USA	**Recovery:** composite recovery definition consisting of several variables that correspond to the consumers' views on recovery. Recovery was measured on each variable using cut-off points to dichotomise the scores. Cut-off scores were decided upon clinical meaningfulness or common sense: symptom control (BPRS subscale average >3), active participation in managing one's illnesses (substance abuse SATS>5), independent living (>80% of days residing in one's own housing), competitive employment (any competitive job in year 3), regular contact with friends who do not	Categorical, binary	Regular contact with friends who do not use alcohol or drugs QOLI (clinician rated measures) Competitive employment Independent living	Social-functional recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
		use alcohol or drugs (at least weekly), and overall satisfaction with life (>5 on the QOLI) global satisfaction rating. Summary of an individual's recovery outcomes, were calculated by adding together the number of scores above threshold on these six items.		(clinician rated measures) Other measures and composite score not used in review due to its focus on clinical outcomes and substance abuse recovery)	Occupational and residential recovery
3	Bearden et al., (2011), USA	**Occupational/ functional recovery:** recovery achieved if: ≤ 1.5 mean score of occupational functioning questions (obtained on 4 items-higher score indicates more problems in occupational functioning): amount of time worked (quantity worked) job performance (quality of work), conflict with co-workers and enjoyment (interest and satisfaction at work).	Categorical, binary	LFQ- workplace subscale (self-report)	Occupational and residential recovery
16	Loftus & Jaeger (2006), USA	**1) Occupational role recovery:** the highest global role score was dichotomized to create good (part-time to full-time competitive employment or college enrolment) and poor functioning (supported employment/ nonmainstream vocational training to unemployment) groups. **2) Residential role recovery:** global score of the residential role subscale- recovery score as rated on scale.	Categorical, binary Continuous score	MSIF (clinician rated)	Occupational and residential recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
18	Strakowski, Stoll, Tohen, Faedda, & Goodwin (1993), USA	**Functional recovery:** residential status and occupational status. Estimated premorbid residential and occupational status (from medical records) compared to outcomes at 6 months follow-up. Recovery achieved if premorbid levels were attained.	Categorical, binary	MLCI and MVCI (clinician rated)	Occupational and residential recovery
20	Tohen et al. (1992), USA	**Functional recovery:** Recovery achieved if premorbid (6 month prior to hospitalisation for index episode) occupational and residential status attained at 6-month follow-up.	Categorical, binary	MLCI and MVCI (clinician rated)	Occupational and residential recovery
21	Tohen et al. (2003), USA	**Functional recovery:** Recovery achieved if both occupational and residential status returned to or exceeded the highest levels within the pre-intake year, using best estimate procedure based on information from participants, medical records and family members.	Categorical, binary	MVSI and MLCI (clinician rated)	Occupational and residential recovery
25	Wingo, Baldessarini, Holtzheimer (2010), USA	**Functional recovery:** current occupational and residential status equal or better than previous estimated highest levels of residential and occupational functioning, using information from patients and relatives.	Categorical, binary	RSI and VSI (clinician rated)	Occupational and residential recovery
22	Tse, Davidson, et al. (2014), China	**1) Functional recovery:** estimated current residential and employment levels based on participants' self-report and clinical case notes. **2) Personal recovery:** consumer based personal recovery	Categorical Continuous score	MLCI and MVSI (clinician rated) SRS (self-report)	Occupational and residential recovery Personal recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
9	Girard et al. (2016), France	**Personal recovery:** consumer's perspective on recovery (subscales: personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, no domination by symptoms).	Continuous score	RAS (self-report)	Personal recovery
10	Grover, Hazari, Singla, et al. (2016), India	**Personal recovery:** consumer's perspective on recovery (subscales: personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, no domination by symptoms; and based on current factor structure: defeated/overcome the illness, personal confidence, seeking and relying on social support, awareness and control over the illness, goal and success orientation).	Continuous score	RAS (clinician rated)	Personal recovery
11	Grover, Hazari, Aneja, et al. (2016), India	**Personal recovery:** consumer's perspective on recovery (subscales: personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, no domination by symptoms; and based on current factor structure: defeated/overcome the illness, personal confidence, seeking and relying on social support, awareness and control over the illness, goal and success orientation).	Continuous score	RAS (self-report or clinician assisted)	Personal recovery
14	Jones et al. (2013),UK	**Personal recovery:** Anthony's personal recovery definition (1993).	Continuous score	BRQ (self-report)	Personal recovery
15	Jones et al. (2015), UK	**Personal recovery:** definition not provided, but personal recovery contrasted to clinical recovery.	Continuous score	BRQ (self-report)	Personal recovery
23	Tse, Murray, et al., (2014), China	**Personal recovery:** Anthony's definition (1993), contrasted to clinical and functional recovery. The total score is used to define the four stages of recovery: (i) overwhelmed by the disability (score: 0–57), (ii) struggling with the disability (score: 58–90), (iii) living with	Categorical	SRS (self-report)	Personal recovery

Table 4 (continued)

Study key	Publication, location	Definition/operationalisation of recovery	Recovery outcome variable	Recovery measure(s) used	Assigned category for analysis
		the disability (score: 91–119), and (iv) living beyond the disability (score: 120–135).			

Measures: BPRS: Brief Psychiatric Rating Scale (Lulroff, Nuechterlein, & Ventura, 1986); BRQ: Bipolar Recovery Questionnaire (Jones et al., 2013); FAST: Functioning Assessment Short Test (Rosa et al., 2007); GAF: Global Assessment of Functioning (American Psychiatric Association, 1987, 2000, 2003); IRQ-FAST: Interpersonal Relationship Questionnaire of the Functioning Assessment Short Test (Rosa et al., 2007); LFQ: Life Functioning Questionnaire (Altshuler, Mintz, & Leight, 2002); LIFE: Longitudinal Interval Follow-up Evaluation (Keller et al., 1987); LIFE-RIFT: Longitudinal Interval Follow-Up Evaluation-Range Impaired Functioning Tool (Leon et al., 2000); MLCI: Modified Location Coded Index (Dion, 1985; Dion, Tohen, Anthony, & Waternaux, 1988); MSIF: Multidimensional Scale of Independent Functioning (Jaeger, Berns, & Czobor, 2003); MVCI: Modified Vocational Coded Index (Dion, 1985); MVSI: Modified Vocational Status Index (Tohen, Waternaux, & Tsuang, 1990); PAS: Premorbid Adjustment Scale (Cannon-Spoor, Potkin, & Wyatt, 1982); QLS: Quality of Life Scale (Heinrichs, Hanlon, & Carpenter Jr, 1984); QOLI: Quality of Life Interview (Lehman, 1988); RAS: Recovery Assessment Scale (Corrigan, Salzer, Ralph, Sangster, & Keck, 2004); RPMIP: Royal Park Multidiagnostic Instrument for Psychosis (McGorry, Copolov, & Singh, 1990; McGorry, Singh, et al., 1990); RSI: Residential Status Index (Tohen et al., 2003); SAS: The Social Adjustment Scale Self Report (Weissman & Bothwell, 1976); SATS: Substance Abuse Treatment Scale (McHugo, Drake, Burton, & Ackerson, 1995); SRS: Stages of Recovery Scale (Song & Hsu, 2011); VSI: Vocational Status Index (Tohen et al., 2003); WHOQOL-BREF: Quality of Life Scale of the World Health Organisation Quality of Life Assessment- shorter version; (Fleck et al., 2000).

3.4.4 Predictors of recovery experiences in BD

Tables 5-7 summarise the factors examined for any association with social-functional, occupational and residential and personal recovery, respectively. For each factor the studies are presented separately based upon their inherent design (cross-sectional or longitudinal) and referenced by their study key (see Table 4). If a study reported both cross-sectional and longitudinal results, both findings are reported under the relevant column headings. To aid interpretation, the results of quality assessment are also presented in brackets adjacent to the study Key (for example 'M' for moderate, see table footnotes). Positive (+) and negative (-) column headings in the tables refer to identified significant associations (p<.05), while the 0 column heading represents non-significant findings. In case of significant categorical variables the reference category is also presented (for instance for gender 'male' means that men had significantly lower/higher recovery or were significantly more/less likely to achieve recovery compared to women). Furthermore, if a study identified both significant and non-significant associations with a predictor variable depending on different analyses, variables considered or measures used, for completeness both findings are presented in the tables and further clarification is provided in the table footnotes and text. Detailed information on the statistical analyses, variables adjusted for and results, including reported effect sizes are presented in Table A.2.

3.4.4.1 Social-functional recovery

Thirteen eligible studies focused on social-functional recovery, 11 used longitudinal designs; all except one (Key: 26) assessed recovery using clinician-rated measures and one used both clinician-rated and self-reported measures (Key: 6). Overall, the eligible studies examined an extensive range of potential predictors, including demographic, clinical, and neurocognitive factors among others (Table 5).

Table 5. Factors examined in association with social-functional recovery

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
Demographic factors	Age	24 (W)			4(W)	1(W) 8(M) 19(M)	5(M)	6
	Education		24(W)			19(M)[a]	19(M)[a]	2
	Employment status		7(W)[c] 24(W)	7(W)[c]		4(W) 19(M)[a]	19(M)[a]	4
	Ethnicity /race		24(W)			1(W) 8(M) 19(M)		4
	Gender		24(W)		1(W)-Male[d]	4(W) 8(M), 12(W) 19(M)		6
	Marital status		24(W)			4(W)		2
	Parental education		24(W)					1
	Residential status		7(W)[c]	7(W)[c]				1
	SES					8(M) 19(M)[a]	19(M)[a]	2
Clinical factors	Age of onset		24(W)			4(W) 12(W) 19(M)[a]	19(M)[a]	4
	BD subtype		24(W)					1
	BMI				4(W)			1
	Family psychiatric history					4(W) 5(M)		2
	Hospitalisation/ Index episode (duration)				4(W)[b] 19(M)[c]	4(W)[b] 19(M)[a]	19(M)[a] [c]	2
	Hospital admissions		24(W)					1
	Illness duration	24(W)			4(W)[b]	4(W)[b] 12(W)		3
	Medication: lithium, benzodiazepines, antidepressants		24(W)			13(W)		2
	Medication: number of psychotropic medication	24(W)						1
	Mental health contact/month					19(M)		1
	Number of episodes: depressive		24(W)		4(W)			2
	Number of episodes: total		24(W)		4(W)			2
	Number of episodes: manic		24(W)			4(W) 8(M)		3

Table 5 (continued)

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
	Polarity of first episode					4(W)		1
	Psychiatric and/ or medical comorbidities		24(W)		PD: 8(M)[e]	4(W) PD: 8(M)[e]		3
	Rapid cycling		24(W)			4(W)		2
	Sleep (hours)					4(W)		1
	Substance use		7(W) 24(W)		1(W) – alc.[d] 2(W)[c] 5(M) 13(W)	1(W)-can. 2(W)[c] 4(W) 19(M)		8
	Suicide: previous attempts		24(W)			4(W)		2
	Symptoms: global psychiatric	7(W)[c]	7(W)[c]					1
	Symptoms: depressive	24(W)	13(W)		26(W)[a, b]	13(W) 19(M) 26(W)[a, b]		4
	Symptoms: manic	13(W)	24(W)		26(W)[a, b]	13(W) 19(M) 26(W)[a, b]		4
	Symptoms: mixed		17(W)			4(W) 17(W) 19(M)		3
	Symptoms: negative				5(M)			1
	Symptoms: psychotic	13(W)	24(W)		4(W)[b] 19(M)[a]	4(W)[b] 19(M)[a]		4
	Symptomatic remission/ recovery					19(M)[a]	5(M) 19(M)[a]	2
	Time since last episode		24(W)					1
	Treatment adherence/ compliance					2(W)[c] 8(M) 19(M)	2(W)[c]	3
	Untreated episode history					5 (M) 19(M)		2
Neurocognitive predictors	Attention		24(W)				13(W)	2
	Concentration		24(W)					1
	Executive functioning		24(W)					1
	Ideation fluency						13(W)	1
	IQ		24(W)					1
	Learning					13(W)		1
	Mental tracking		24(W)					1
	Non-verbal functions					13(W)		1

Table 5 (continued)

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
	Verbal knowledge					13(W)		1
	Verbal learning		24(W)					1
	Verbal memory		24(W)					1
	Working memory					13(W)		1
Other predictors	Gene CACNA1C					12(W)		1
	Different areas of functioning		7(W) 19(M)			19(M)		2
	Previous level of functioning		24(W)			12(W)	5(M) 19(M)	4
	Psychoeducation					6(M)		1
	Quality of life		7(W)					
	Time between BL and FU assessments					13(W)		1
	Stressful life events				26(W)[a, b]	26(W)[a, b]		1

Abbreviations: N: number of studies examined the predictors; PD: personality disorder; W: weak quality assessment; M: Moderate quality assessment; S: Strong quality assessment, alc.: alcohol use, can.: cannabis use

'-': significant negative association ($p<.05$); '0': no association, '+': significant positive association ($p<.05$)

[a] Results differ depending on the examined areas/domains of social-functional recovery –associations present with one or more domains of recovery, but not with other areas or domains.

[b] Results differ depending on analyses used (correlation, regression or comparison of recovered vs non-recovered groups) within the same study.

[c] Results differ depending on the recovery measures used

[d] interactional effect male and alcohol consumption

[e] There was no association in the first episode subgroup between personality disorder and social-functional recovery

Demographic factors

Seven studies examined associations between social-functional recovery and demographic factors. No associations were found between social-functional recovery and ethnicity, marital status or parental education (Key: 1, 4, 8, 19, and 24). Most studies found that gender (n=4) was not associated with social-functional recovery. However, the relationships between age and recovery showed mixed results: three studies reported no association, two found a negative association (Key: 4, 24), and one found a positive association (Key: 5). In addition, an interaction was found for gender and bipolar diagnosis indicating that men with BD and alcohol use comorbidity were less likely to have better social-functional recovery compared to women with the same conditions (Key: 1). Furthermore, having a higher SES (calculation based on employment status and education) in a prospective study was associated with better role performance recovery and with achieving 'good outcome'. 'Good outcome' was operationalised as recovery in at least three out of four areas, including role

performance, interpersonal relationships, sexual activity and recreational enjoyment (Key: 19). A cross-sectional study examined associations between both residential and employment status and social-functional recovery, in co-occurring bipolar and substance use disorder, and found a positive association when recovery was operationalised as the frequency of social contact with peers who do not abuse substances, but not when operationalised as overall life satisfaction (Key: 7). These findings indicate that while employment status, SES and residential status may not be associated with global functioning (key: 4, 7, 8, 19) they potentially impact on specific areas of functioning, including recovery of role performance (Key: 19) or on performance outcomes, such as having more frequent social contacts (Key: 7).

Clinical factors

In general, clinical factors were the most widely studied predictors in association with social-functional recovery (n=12). Social-functional recovery was not associated with BD subtype (Key: 24), family psychiatric history (Key: 4, 5), number of hospital admissions (Key: 24), medication use (including, lithium, benzodiazepines, antidepressants; Key: 13, 24), mental health contact hours/month (Key: 19) number of manic episodes (Key: 4, 8, 24), polarity of first episode (Key: 4), rapid cycling (Key: 4, 24), amount of sleep (Key: 4), number of previous suicide attempts (Key: 4, 24), experience of mixed symptoms (Key: 4, 17, 19), time since last episode (Key: 24) and untreated episode history (Key:5, 19).

Findings of studies considering age at illness onset, illness duration, number of total and depressive episodes, length of hospitalisation, psychiatric comorbidities, substance use, treatment adherence, symptomology and symptomatic recovery were mixed. Three studies found onset age did not impact on social-functional recovery outcomes (Key: 4, 12, 24) whereas, one indicated later age of onset was associated with achievement of role performance recovery during the follow-up period (Key: 19). Two studies (Key: 4, 24) indicating no association between onset age and social-functional recovery found that ‘recovered’ individuals (Table 4 presents recovery definitions) had a shorter illness duration (Key: 4, 24). Illness duration correlated negatively with recovery, but did not remain a significant predictor in the longitudinal regression model (Key: 4). The same studies (Key: 4, 24) also adjusted for the number of total previous and total depressive episodes and found no association between social-functional recovery and the number of episodes in cross-sectional analysis

(Key: 24). However, in the prospective analysis, individuals with a higher number of total and depressive episodes had worse social-functional recovery outcomes (Key: 4).

Two prospective studies focused on the number of hospitalisation days during the follow-up period (6 and 8 months) or the length of index episode (Key: 4, 19). Bonnin and colleagues (Key: 4) found that the number of days spent in hospital during the 6 months follow-up period correlated negatively with social-functional recovery (positive correlation with functional impairment score; however, this term did not remain in the regression model and 'recovered' and 'not recovered' participants (see Table 4 for definition) did not differ significantly in the number of days they spent in hospital. Moreover, Strakowski et al. (Key: 19) found that individuals with a longer index episode (more than 2 months) were more likely to achieve recovery in the area of interpersonal relationships, but not in other examined areas (listed in Table 4). The authors also added that individuals with a longer index episode duration had significantly poorer interpersonal relationship ratings at baseline (Key: 19).

Furthermore, studies examining symptomology (n=4) and symptomatic recovery (n=3) in association with social-functional recovery showed varied results too. Some studies found no association between manic (Key: 19, 24), depressive (Key: 13, 19), or psychotic (Key: 24) symptoms and social-functional recovery. Others indicated mixed results; for instance, Jaeger et al. (Key: 13) studied social-functional recovery outcomes at 12 months and found that while baseline manic scores were not influential, follow-up manic symptoms (concurrent with recovery assessment) influenced recovery. The findings of Yan-Meier and colleagues (Key: 26) indicated that manic and depressive symptoms, generally, were not significant predictors of social-functional recovery in respect of friends, family, home and work recovery domains, except lower depressive symptoms were significant predictors of recovery in home duties. However, individuals with delayed functional recovery and non-recovery presented higher depressive (Key: 24, 26) and manic symptoms (Key: 26) compared to individuals who achieved functional recovery (Key: 24) or achieved symptomatic and functional recovery concurrently (Key: 26; Table 4 presents recovery definitions).

In line with this, studies focusing on psychotic symptoms also showed varied results, no cross-sectional association was found by Wingo and colleagues (Key: 24) however, Jaeger et al. (Key: 13) found that psychotic symptoms at the time of follow-

up assessment were associated with worse functional recovery (cross-sectional finding). With regard to prospective findings, Bonnin and colleagues (Key: 4) found that recovered and non-recovered individuals did not differ in terms of experiencing psychotic symptoms during their index episode. However, the presence of psychotic symptoms during an index episode was a significant predictor of functional recovery in the final regression model. Strakowski et al. (Key: 19) found that individuals who failed to achieve recovery in the sexual activity domain exhibited psychotic symptoms at baseline, but did not find similar results in other examined recovery domains. Furthermore, achieving symptomatic recovery, or remission, was found to have a positive impact on social-functional recovery in prospective studies (Key: 5, 19). However, the Strakowski et al. (Key: 19) only found this to be the case for recovery in the interpersonal relationship domain and not for other examined recovery domains. In addition, a cross-sectional examination of global psychiatric symptomology also indicated that higher levels of symptoms were negatively correlated with social-functional recovery when measured as overall life satisfaction, but did not correlate with social-functional recovery measured as the frequency of social contacts with peers who do not abuse alcohol (Key: 7).

The most extensively examined clinical predictor was substance abuse comorbidity. Two cross-sectional and two prospective studies found no association between alcohol and drug use and social-functional recovery (Key: 4, 7, 19, 24), while two prospective studies found negative associations (Key: 5, 13). Moreover, two studies reported mixed results: Barekatain, et al. (Key: 2) found negative associations when recovery was measured on the LIFE-RIFT scale, but not on the GAF scale. While Bahorik et al. (Key: 1) found that men with BD, who use alcohol had worse social-functional recovery compared to female counterparts, but did not identify similar associations with cannabis use. With regard to treatment adherence, two studies found no evidence of a longitudinal impact on recovery (Key: 8, 19). Another prospective study (Key: 2) examined the impact of both substance use and treatment adherence and found that the former had a negative association, while the latter impacted positively on social-functional recovery. This was the case when recovery was measured using the LIFE-RIFT scale but not the GAF scale. Furthermore, psychiatric or medical comorbidities, in general, did not have an impact or association with recovery based upon the results of a cross-sectional and a prospective study (Key:

4, 24). However, one prospective study (Key: 8) found that individuals with personality disorder comorbidity were significantly less likely to achieve social-functional recovery during the follow-up period. However, this was not the case for the first episode subgroup. Finally, some of the factors were examined by a single study each, including BMI, negative symptoms and the number of psychotropic medications. These single study results indicated that Body Mass Index (Key: 4), negative symptoms (Key: 5) (prospective studies) and the number of psychotropic medications (Key: 24 - cross-sectional study) were negatively associated with social-functional recovery.

Neurocognitive and other predictors

Two studies (Key: 24 cross-sectional and Key: 13 prospective designs) investigated associations between neurocognitive factors and social-functional recovery (Table 5). The majority of these factors were not associated with social-functional recovery, exceptions were ideation fluency and attention, which showed positive associations with social-functional recovery in a longitudinal study (Key: 13).

Other studies examined potential predictors, such as the presence of gene CACNA1C, quality of life, psychoeducation intervention, time between baseline and follow-up assessments and presence of stressful life events. Moreover, some of the eligible studies explored associations between previous levels of functioning and current social-functional recovery or associations between functioning in different areas, including role performance, interpersonal relationships, sexual activity and recreational enjoyment. The majority of these factors were only examined by a single study each and no association was found between gene CACNA1C (Key: 12), time between baseline and follow-up assessment (Key: 13), quality of life, psychoeducation intervention (Key: 6) and social-functional recovery. Similarly, studies exploring whether functioning in different areas were inter-correlated found that functioning in one area did not show associations with functioning in other areas (measured both cross-sectionally and longitudinally); indicating that different subdomains of social-functional recovery seem to be independent from each other (Key: 7, 19).

More studies focused on the impact of previous levels of functioning on current social-functional recovery. Two studies found no association: premorbid functioning was not associated with achieving social-functional recovery (Key: 12), and

individuals who achieved social-functional recovery did not differ in previous levels of functioning compared to non-recovered individuals (Key: 24). On the other hand, Conus et al. (Key: 5) found that achieving social-functional recovery at 6 months was significantly associated with social-functional recovery at 12 months. Moreover, adjusting for baseline functioning in different recovery domains was necessary in the Strakowski et al. (Key: 19) study, as baseline functioning impacted on follow-up levels of functioning. Finally, Yan-Meier and colleagues (Key: 26) examined the impact of experiencing stressful life events in a prospective cohort study. The findings indicated that the occurrence of stressful life events was negatively associated with later social-functional recovery on work/school, friend and family domains, but not on home domains. Furthermore, participants who failed to achieve recovery in the family relations domain had significantly higher stress levels, but the authors did not find similar results with regard to the other examined recovery domains (Key: 26).

3.4.4.2 Occupational and residential recovery

Four studies used longitudinal design, and three used cross-sectional designs. Bearden and colleagues (Key: 3) reported both cross-sectional and longitudinal results, and assessed recovery on a self-report measure (as opposed to the other six studies, which used clinician-rated tools). Similarly to social-functional recovery, the studies examined an extensive range of potential predictors (Table 6). The next paragraphs will summarise the key findings in association with occupational and residential recovery.

Table 6. Factors examined in association with occupational and residential recovery

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
Demographic factors	Age	3(M)[b]	3(M)[b] 16(M)[ab] 25(W)	16(M)[ab]	3(M)	18(M) 20(W)	21(M)	6
	Education		3(M) 16(M)[ab]	16(M)[ab] 25(W)				3
	Ethnicity		3(M) 16(M) 25(W)[b]	25(W)[b] – Cau.		18(M) 20(W) 21(M)[b]	21(M)[b] -Cau.	6
	Gender		3(M) 16(M) 25(W)		20(W)-Men	18(M) 21(M)		6
	Marital status		3(M) 16(M) 25(W)[b]	25(W)[b]-mar.		20(W) 21(M)[b]	21(M)[b] -mar.	5
	Parental education		25(W)					1
Clinical factors	Age of onset		3(M) 16(M) 25(W)					3
	Being in therapy at the time of assessment		3(M)					1
	BD subtype		25(W)					1
	Comorbidities psychiatric or medical	16(M)-PD[ab]	16(M)[ab] 25(W)			20(W) 21(M)		4
	Hospitalisation length (index episode)				21(M)			1
	Hospitalisation number	16(M)[ab]	16(M)[ab] 25(W)					2
	Illness duration	25(W)[b]	25(W)[b]					1
	Medication usage		3(M) 25(W)			21(M)		3
	Number of episodes: depressive		3(M) 25(W)			21(M)		3
	Number of episodes: manic		3(M) 25(W)					2
	Number of episodes: total		25(W)					1
	Rapid cycling		25(W)					1
	Substance abuse		7(W) 16(M) 25(W)			21(M)		4
	Suicide attempts		25(W)					1

Table 6 (Continued)

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
	Symptoms depressive	3(M)[b] 16(M)[a] [b]	3(M)[b] 16(M)[ab] 25(W)			3(M) 18(M) 21(M)		5
	Symptoms global psychiatric		7(W)					1
	Symptoms manic	16(M)[a] [b]	3(M) 16(M)[ab] 25(W)			18(M) 21(M)		5
	Symptoms mixed					21(M)		1
	Symptoms psychotic		25(W)			21(M)		2
	Time since last episode		25(W)					1
	Episodic memory			3(M)		3(M)[c]	3(M)[c]	1
	Estimated premorbid IQ		25(W)[b]	25(W)[b]				1
Neurocognitive factors	Executive function		3(M) 25(W)[bc]	25(W)[bc]		3(M)[c]	3(M)[c]	2
	Speed of processing			3(M)		3(M)		1
	Verbal learning and memory		25(W)					1
	Visual scanning			3(M)		3(M)[c]	3(M)[c]	1
	Working memory/ attention, concentration, mental tracking		25(W)	3(M)		3(M)[c]	3(M)[c]	2
Other factors	Different areas of functioning		7(W)[a]	7(W)[a]		21(M)		2
	Harm avoidance					18(M)		1
	Novelty seeking				18(M)			1
	Personal recovery		22(W)					1
	Reward dependence					18(M)		1

Abbreviations: N: number of studies examined the predictors; W: weak quality assessment; M: Moderate quality assessment; S: Strong quality assessment, PD: Personality disorder; Cau: Caucasian; mar:married

'-': significant negative association ($p<.05$); '0': no association, '+': significant positive association ($p<.05$)

[a] Results differ depending on the examined areas/domains of recovery (occupational vs residential) –associations present with one domain of recovery, but not with other.

[b] Results vary depending on analyses used (correlation, regression or comparison of recovered vs non-recovered groups) within the same study.

[c] Results vary depending on the operationalisation of the predictor variable (i.e. using different measures or using both the baseline score and change score between baseline and follow-up for a particular predictor).

Demographic factors

Six studies investigated associations between demographic factors and occupational and residential recovery. Two prospective and one cross-sectional study found no association with age (Key: 18, 20, 25). Bearden and colleagues (Key: 3) found that an increase in age was associated with reduced odds of achieving occupational recovery at both baseline and follow-up. In contrast, in Loftus and Jaeger's study (Key: 16) age had a positive cross-sectional association with residential role recovery, indicating that older participants were more likely to achieve residential role recovery.

With regard to highest education, two studies did not find differences in highest educational between participants with better and worse recovery (Key: 3, 16); while two studies identified positive associations between the duration of education and occupational recovery (Key: 16, 25). The majority of cross-sectional and longitudinal studies focusing on ethnicity (Key: 3, 16, 18, 20) and marital status (Key: 3, 16, 20) found no association with occupational and residential recovery. However, two studies found different results that recovered participants were more likely to be Caucasian and married (Key: 21, 25); however these factors did not remain significant predictors of recovery in multiple regression models (Key: 21, 25). Similarly, gender showed no association with recovery in the majority of the studies (Key: 3, 16, 18, 21, 25); with one study indicating that males were less likely to achieve occupational and residential recovery at the 6 month follow-up (Key: 20). Finally, only one cross-sectional study examined parental education in association with occupational and residential recovery, and found no association (Key: 25).

Clinical factors

All seven eligible studies examined clinical factors in associations with occupational and residential recovery (Table 6). Findings of cross-sectional and longitudinal studies were consistent, indicating no associations between recovery and age of onset (Key: 3, 16, 23), medication usage (Key: 3, 21, 25), number of previous depressive and manic episodes (Key: 3, 21, 25), substance abuse (Key: 7, 16, 21, 25) and psychotic symptoms (Key: 21, 25). Single cross-sectional studies found no association between occupational and residential recovery and being in therapy at assessment (Key: 3), BD subtype, number of total episodes, past suicide attempts, time

since last episode (Key: 25), global psychiatric symptomology (Key: 7) and mixed symptomology by a longitudinal study (Key: 21).

The majority of the studies did not find cross-sectional or longitudinal associations between psychiatric or medical comorbidities (Key: 20, 21, 25) and depressive (Key: 18, 21, 25) or manic symptomology (Key: 3, 18, 21, 25) and occupational and residential recovery. However, Loftus and Jaeger (Key: 16) found individuals with maladaptive personality disorder traits were more likely to be in the poor work functioning group; however, personality disorder did not remain a significant predictor of occupational recovery following multiple regression modelling and showed no association with residential recovery. Secondly, with regard to manic and depressive symptomology, the same study (Key: 16) found that the former showed negative correlation with residential recovery and individuals in the poor work functioning group had significantly higher manic symptoms. However, manic symptomology did not predict occupational or residential recovery in regression models. In terms of depressive symptomology, the same study found that depressive symptoms correlated and predicted residential recovery in the regression model, but did not impact on occupational recovery. Bearden and colleagues (Key: 3) found that depressive symptoms predicted baseline occupational recovery, but not recovery at the 3 months follow-up, and individuals in the recovered and non-recovered groups did not differ significantly in their depressive symptoms.

In terms of illness duration, a cross-sectional study found that this factor predicted occupational and residential recovery in the multiple regression modelling, but individuals in the recovered and non-recovered groups did not differ in the length of their illness (Key: 25). With regard to hospitalisation, one study focused on the length of index hospitalisation and found negative associations with occupational and residential recovery in both bivariate and multivariate analyses (Key: 21). The number of previous hospitalisations were examined by two cross-sectional studies; while one found no association with occupational and residential recovery (Key: 25), the other (Key:16) found that individuals in the poor work functioning group had higher numbers of previous hospitalisations. However, this factor did not predict occupational and residential recovery in multivariate regression models and did not impact on residential role recovery.

Neurocognitive and other predictors

Two studies examined associations between neurocognitive factors (one cross-sectional and one longitudinal) and three studies between other predictors (one cross-sectional and two longitudinal) and occupational and residential recovery. The results of Bearden et al. (Key: 3) showed that episodic memory, visual scanning, working memory/attention and speed of processing were associated with concurrent occupational recovery, while executive functioning was not. None of these baseline factors predicted occupational recovery at 3 months follow-up. However, cognitive improvements across episodic memory, visual scanning, working memory/attention, and executive functioning predicted occupational recovery at 3 months. In line with this, Wingo and colleagues (Key: 25) found that recovered individuals performed significantly better on executive functioning and premorbid IQ measures, but these differences disappeared in multiple regression models adjusting for residual mood symptoms and education.

Finally, four studies investigated additional predictors of occupational and residential recovery, which included different areas of functioning (Key: 7, 21), personality characteristics (Key: 18) and personal recovery (Key: 22). Occupational and residential recovery was found to be independent of both social-functional (when assessed on global measures of quality of life or functioning) and personal recovery (Key: 7, 21, 22); however, it was associated with a performance measure of social-functional recovery (assessed as frequency of social contacts; Key: 7). Furthermore, only one study focused on personality factors and found that higher levels of novelty seeking (impulsiveness and disorderliness sub-dimensions) were associated with worse occupational and residential recovery, while other personality factors (harm avoidance and reward dependence) did not show an association (Key: 18).

3.4.4.3 Personal recovery

Seven studies investigated personal recovery; one used a longitudinal design. All except one study (Key: 9) measured recovery on self-reported scales (Table 7).

Table 7. Factors examined in association with personal recovery

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
Demographic factors	Age		10(W) 11(M) 23(M)[b]	23(M)[b]				3
	Education		10(W) 11(M) 23(M)					3
	Employment status		10(W)[a] 11(M)[a] 22(W) 23(M)	10(W)[a] 11(M)[a]				4
	Family type (nuclear/ extended)		10(W) 11(M)					2
	Gender		10(W) 11(M) 23(M)					3
	Income (Individual/ Family)		11(M)[a] 23(M)	11(M)[a]				2
	Marital status		10(W) 11(M) 23(M)					3
	Number of children		23(M)					1
	Locality (rural/urban)		10(W) 11(M)					2
	Religion		10(W) 23(M)					2
Clinical factors	Age of onset	23(M)[b]	10(W) 11(M) 23(M)[b]					3
	Illness duration		10(W) 11(M)					2
	Life time binge drinking		23(M)[b]	23(M)[b]				1
	Longest hospitalisation		23(M)					1
	Number of episodes: total		10(W) 11(M)					2
	Number of hospital appointments in last 3months		10(W)					1
	Number of hospitalisations		11(M) 23(M)					2
	Remission duration		10(W) 11(M)					2
	Substance use		23(M)					1

Table 7 (continued)

	Variables	Cross-sectional findings			Longitudinal findings			N
		-	0	+	-	0	+	
	Symptoms: depressive	10(W) 11(M) 14(W)[c]	23(M) 14(W)[c]					4
	Symptoms: manic	14(W)[bc]	10(W) 11(M) 14(W)[bc] 23(M)					4
Other factors	Functioning (different areas or global)		14(W)[bc]	11(M) 14(W)[bc]				2
	Internalised stigma	11(M)[b]	11(M)[b]					1
	Negative religious coping		11(M)					1
	Occupational and residential recovery		22(W)					1
	Perceived conflict (internal state)	14(W)[b]	14(W)[b]					1
	Personally important elements of recovery		23(M)[c]	23(M)[c]				1
	Positive religious coping		11(M)[ab]	11(M)[ab]				1
	Post-traumatic growth			14(W)				1
	Quality of life			9(W)				1
	Recovery enhancing environment (organisational)		23(M)					1
	Recovery focused CBT						15(S)	1
	Religiousness (hope, involvement, influence)		11(M)					1
	Religiosity (private, organisational, intrinsic)		11(M)[ab]	11(M)[ab]				1
	Stigma resistance		11(M)[b]	11(M)[b]				1
	Well-being (internal state)			14(W)				1

Abbreviations: N: Number of studies examined the predictors; W: weak quality assessment; M: Moderate quality assessment; S: Strong quality assessment

'-': significant negative association ($p<.05$); '0': no association, '+': significant positive association ($p<.05$)

[a] Results differ depending on the examined areas/domains of personal recovery–associations present with one or more domains of recovery, but not with other areas or domains.

[b] Results vary depending on analyses used (correlation, regression or comparison of recovered vs non-recovered groups) within the same study.

[c] Results vary depending on the operationalisation of the predictor variable (i.e. using different measures or subscales)

Demographic factors

Most demographic factors were not associated with personal recovery, including gender, marital status, education (Key: 10, 11, 23), family type (Key: 10, 11), religion (Key: 10, 23), or number of children (Key: 23). Some associations were reported between demographic factors and aspects of personal recovery; for instance, being in a paid job was positively associated with 'willingness to ask help' (Key: 10, 11). Moreover, higher income showed positive associations with 'goal orientation' and 'not being dominated by the symptoms'; but not with other personal recovery domains or with the overall personal recovery experience of the individuals (total scores) (Key:11). Furthermore, Tse et al. (Key: 23) found that bivariate analysis did not identify differences in age across the four recovery stages (overwhelmed by the disability, struggling with the disability, living with the disability and living beyond the disability). However, individuals aged over 45 were more likely to be in a more advanced recovery stage ('living with disability') compared to individuals, who were under 45, in a decision tree analysis.

Clinical factors

Personal recovery was not associated with illness duration, number of previous episodes or hospitalisation or the length of remission (Key: 10, 11). Moreover substance use, longest hospitalisation (Key: 23), and number of hospital visits 3 months prior to the assessment also seemed to be independent of personal recovery (Key: 10), based on single study results. However, Tse and colleagues (Key: 23) found that substance use did not impact on personal recovery. Surprisingly, engaging in lifetime binge drinking was a differentiator in the decision tree analysis and contributed to participants over age 45 to be in more advanced recovery stages.

Furthermore, the majority of the studies found that the age of illness onset (Key: 10, 11) and current manic symptoms (Key: 10, 11, 23) did not impact on personal recovery. There were two exceptions with regard to these factors. Tse et al. (Key: 23) found that age of onset did not differ significantly across the different stages of recovery; however, in the case of participants whose age was under 45, an earlier age of onset (under age 22) was associated with more advanced personal recovery in the decision tree analysis. Jones and colleagues (Key: 14) found that observer-rated manic symptomology was negatively correlated with personal recovery, but did not

remain significant in the regression model. In contrast, the majority of the studies found that current depressive symptoms were negatively associated with personal recovery (Key: 10, 11, 14). Furthermore, self-report depressive symptoms remained a significant predictor in the regression model, although associations with an observer-rated measure of depression did not remain significant in the same model (Key: 14). One study found that current depressive symptoms were not associated with personal recovery (Key: 23).

Other factors

Six studies aimed to explore additional factors influencing personal recovery, examining a wider range of other factors compared to social-functional or occupational and residential recovery. The studies were diverse in their selection of potential predictors, resulting in the majority of these factors only being examined by one study (Table 7).

Quality of life (Key: 9), post-traumatic growth, internal state of well-being and different areas of overall functioning showed positive associations with personal recovery (Key: 14). With regard to functioning, Jones et al. (Key: 14) found that while mental health and overall functioning showed bivariate associations with recovery and predicted recovery in a regression model that adjusted for functioning and growth measures, these factors did not remain predictors of recovery after adjustment for mood. In contrast, post-traumatic growth and wellbeing remained predictors of recovery after adjusting for mood (Key: 14). In line with these results, Grover et al. (Key: 11) also identified bivariate associations between functioning and personal recovery, and it remained a significant predictor after adjusting for depressive symptoms. Furthermore, another pro-recovery factor was identified by Jones et al. (Key: 15); the authors investigated a recovery-focussed CBT for people with recent onset BD. The pilot randomised control trial found that the intervention is feasible and effective, as it significantly improved personal recovery at both 6 and 12 months follow-ups. This is the only study that examined personal recovery prospectively and achieved a strong quality rating in the present review (Key: 15).

A range of factors were not associated with personal recovery, including negative religious coping, religiousness (including subscales of hope, involvement and influence; Key: 11); occupational and residential recovery (Key: 22), and a recovery-

enhancing organisational environment (Key: 23). Other studies resulted in inconsistent findings depending on the statistical analyses used, or the domain of recovery examined. Jones and colleagues (2013) found that perceived conflict in internal states showed negative bivariate association with recovery, although it did not predict recovery in the regression models (Key: 14). Grover et al. (2016b) reported negative associations between internalised stigma, and recovery (Key: 11). Positive religious coping showed positive bivariate associations with some of the recovery domains, such as personal confidence (and personal confidence and hope-revised factor), reliance on others (and seeking and relying on social support-revised factor), defeated/overcome the illness, awareness and control over the illness and recovery overall score, and personal religiosity with goal orientation (and goal and success orientation-revised factors), but these variables did not show bivariate association with other recovery domains and did not remain significant in the regression model (Key: 11).

3.5 Discussion

The aims of the current review were: 1) to systematically investigate the operational definitions of personal and related recovery experiences in BD; and 2) to identify potential influential factors in personal and related recovery experiences. Recovery concepts were categorised into three groups based upon similarities in the definitions and operationalisations used: *social-functional recovery* comprised studies that conceptualised recovery as global functioning, including functioning in different social roles and environments; *occupational and residential recovery* category included studies that either provided occupational and/or residential recovery definitions or used vocational and/or residential status indices as operational definition of recovery; and *personal recovery* - this category included studies that explicitly focused on idiosyncratic experiences of service users.

It is recognised that these categories are not mutually exclusive and independent. However, the categorisation was necessary, as many studies focused on particular aspects of recovery, and reviewing the impacting factors on an overarching recovery concept would have been misleading. Other reviews on the recovery concept in severe mental health problems also identified that the key barrier to study recovery was the diversity in recovery concepts and definitions (Leonhardt et al., 2017;

Silverstein & Bellack, 2008). Therefore, this categorisation was used as an attempt to organise the data coherently and reflect key differences in emphasis across studies.

The encountered difficulties in reviewing the conceptual and operational recovery definitions were mainly caused by the complex nature of the recovery concept and circularity of the selected outcome and predictor variables. For instance, employment status was assessed as a potential influential factor in social-functional recovery by several studies. In contrast, occupational status was an operational definition of recovery in other studies. Arbitrary definitions and operational approaches to recovery were especially used at the early stages of the literature.

The reviewed studies examined an extensive range of potential predictors. However, a predictor was often examined by only one study, which made data synthesis impossible for some factors. Nevertheless, the findings indicate that the examined recovery concepts are relatively, but not completely, distinct from each other. Occupational and residential recovery did not show association with personal recovery or with social-functional recovery as a global measure. However, it did show association with some aspects of social-functional recovery, such as the frequency of social contacts, and recovery of the role performance domain. Furthermore, occupational and residential recovery was associated with demographic (for instance education, age, marital status and ethnicity) and neurocognitive factors, while fewer associations were identified with clinical factors. In contrast, social-functional and personal recovery were less clearly associated with specific demographic characteristics but some studies indicated associations between global psychosocial functioning and personal recovery; indicating that social-functional and personal recovery may be more strongly related.

Some studies identified associations between social-functional recovery and psychiatric history (age of onset, previous hospitalisations and episodes, illness duration), comorbidity (substance abuse and personality disorder) and symptomology; suggesting that clinical factors may have more impact on social-functional recovery compared to other recovery concepts. The majority of studies found no associations between clinical factors and personal recovery, except depressive symptoms, which were generally found to have a negative association. However, future prospective studies are required to explore whether depressive symptoms play an important role in longer-term personal recovery outcomes.

Neurocognitive factors, especially improvement in performance across different cognitive domains seem to have more impact on occupational and residential recovery compared to social-functional recovery; however, executive functioning and attention have been found to impact on both social-functional and occupational and residential recovery. In terms of other examined predictors, the personality factor of novelty seeking was found to impact negatively on occupational and residential recovery, and stressful life events on social-functional recovery. However, these are only based on single study results and further investigation is required to confirm definite associations. In terms of personal recovery, an extensive range of 'other' factors has been investigated. Specifically, positive associations have been found with quality of life and religiosity and negative associations with internalised stigma. As all were investigated by a single cross-sectional study, future studies are required to confirm such associations.

Two potential interventions were examined by randomised clinical trials, investigating the effectiveness of group psychoeducation on social-functional recovery and of individualised recovery-focussed CBT on personal recovery. Psychoeducation did not improve social functioning in BD based on the trial's finding, while recovery-focused CBT was found to have a positive impact on personal recovery. This suggests that more personalised interventions may be more effective in improving both personal and social-functional recovery outcomes, given that these two concepts of recovery showed more similarities the present review. However, further trials are required that focus on recovery outcomes to confirm these findings.

The discrepancies across the findings of the reviewed studies may be related to the wide range of study designs, recovery definitions, measures, and data analysis methods used. Furthermore, most of the studies were of weak or moderate quality. Due to the diversity across studies, there is limited consensus in identifying the best predictors.

3.5.1 Strengths and limitations of the review

This is the first review to attempt to synthesize different concepts of recovery experiences and their potential predictors in BD. The review did not restrict its focus to clinical trials, to include information that is more comprehensive, and explore associations with naturally occurring predictors. In addition, the review focused on

multiple facets of recovery, which were not previously reviewed in a systematic manner. A further strength of the present review is that it exhibits a degree of internal validity due to the use of two screeners to assess the inclusion status, thus reducing the potential impact of reviewer bias. Two blinded raters conducted the screening and the extracted data was 100% checked by a second rater (LH) to ensure that all the relevant information is represented in the review. Finally, the quality of the studies was examined using the EPHPP quality assessment tool. This tool has satisfactory internal validity (Thomas et al., 2004) and inter-rater reliability (Armijo-Olivo et al., 2012), which was also assessed and ensured in the present study by continuous discussion and regular consensus meetings between the raters (BM & LH). Finally, DC reviewed the quality rating of each eligible study, focusing primarily on the appropriateness of the study designs and data analyses.

This study aimed at reviewing the existing operational definitions of recovery, and organising and examining the factors assessed in association with the different recovery concepts, depending on the recovery definition and operationalisation used, to work towards clarity in this area of research. For this reason, we used "recovery" as a search term and inclusion depended on researchers defining their outcomes in terms of "recovery", which resulted in the inclusion of 26 research papers. It is acknowledged that by choosing this approach, studies examining functioning and/or occupational/residential status that did not explicitly operationalise recovery were excluded, which may have implications for the reviewed list of predictors. With regard to exclusion criteria, studies not written in English were omitted due to resources not being available for translation. Furthermore, it was intended that both qualitative and quantitative primary research would be reviewed, but only quantitative studies met the inclusion criteria. It is recognised that some potentially interesting work, both quantitative and qualitative, may have been excluded, which is an inevitable result of applying strict inclusion criteria. However, applying strict inclusion criteria was necessary due to the state of the current literature, which is very heterogeneous and often of low or inconsistent quality.

The main reasons for exclusion at full-text stage were studies that either did not define recovery or only focused on clinical aspects of recovery, studies not verifying the research diagnosis of the participants based on the DSM and ICD criteria, and/or not reporting a minimum age of 16. These criteria were applied in order to

identify relevant and synthesisable research outcomes but may have led to the exclusion of some valuable research.

3.5.2 Future research

The review identified a considerable inconsistency in both assessment of recovery and proposed predictors of recovery. This highlights the need for consensus research on identifying different recovery domains and core measures to assess each domain by conducting appropriately powered studies. Therefore, future research is recommended to focus on more specific types of predictors and use larger sample sizes to obtain results that are more definitive. Particularly in respect to personal recovery, there is a need for more prospective studies, since only one reviewed study investigated this recovery concept prospectively. Future in-depth research is also needed to understand how the different concepts of recovery are interrelated, whether these are similar or distinct categories, and whether achieving improvements in one impacts upon improvements in other recovery categories.

Finally, there is increasing evidence that cognitive and behavioural psychological processes are important in relation to the risk of BD in at-risk groups and poorer outcomes in individuals diagnosed with BD. However, only one of the eligible studies investigated potential personality or psychological characteristics in relation to recovery outcomes. Therefore, future research is recommended to explore potential psychological predictive factors for recovery outcomes.

3.5.3 Clinical implications

The majority of the examined clinical predictors were found to be independent of the reviewed recovery concepts. However, psychiatric history, comorbidities and symptomology were indicated to some extent in occupational and residential recovery and more explicitly in social-functional recovery, and concurrent depressive symptoms were implicated in personal recovery. Therefore, targeting depressive symptoms, and developing skills to cope with symptoms and negative life events may be beneficial for improving recovery outcomes. The current review did not focus on clinical recovery outcomes; however, a few reviewed studies focused on time spent in remission and found that it may impact positively on social-functional recovery, but had no association with personal recovery. This indicates that interventions should not

solely focus on achieving and maintaining remission, but also identifying and working towards individually meaningful recovery targets and outcomes.

The main findings of the present review suggest that there is a wide range of factors that may influence recovery outcomes in BD, and that there seem to be no consensus on robust predictors identified across the studies. In terms of clinical interventions, group psychoeducation seems to be ineffective while recovery-focused individual cognitive behaviour therapy was found to be effective. It can therefore be concluded that personalised approaches are more likely to be beneficial than generalised approaches, especially since there is no current agreement on a potential list of predictors to be targeted in order to improve recovery.

3.5.4 Conclusion

In conclusion, the present study was the first to review personal and related recovery experiences in BD systematically. It aimed to review operational definitions of recovery, and potential predictors found to influence recovery outcomes and processes. The main recovery concepts identified across studies and investigated in the review were social-functional, occupational and residential, and personal recovery. The studies within the current review investigated a comprehensive list of potential influential factors including demographic, clinical and neurocognitive factors, among others. Considering the majority of demographic and clinical predictors, most studies converged on finding no association between recovery and an extensive range of these factors. Occupational and residential recovery seemed to be more influenced by demographic and neurocognitive factors, while social-functional recovery seemed to be more influenced by clinical factors compared to other recovery concepts. The only consistently identified factor in association with personal recovery was current depressive symptoms; however, no prospective study has been conducted to verify the long-term impact of depressive symptoms on personal recovery. In respect to personal recovery, a personalised recovery-focused CBT approach was identified as the most promising predictor in the present review. Future research is recommended to clarify inconsistent research findings and to deepen our understanding of the different aspects and potential predictors of recovery experiences.

3.6 References

Ahlbom, A. (1993). Pooling epidemiologic studies. *Epidemiology, 4*(4), 283-284.

Altshuler, L., Mintz, J., & Leight, K. (2002). The Life Functioning Questionnaire (LFQ): a brief, gender-neutral scale assessing functional outcome. *Psychiatry Research, 112*(2), 161-182.

American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders-DSM-III-R* (3rd ed.). Washington: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders DSM-IV-TR* (4th ed.). Washington: American Psychiatric Association.

American Psychiatric Association. (2003). *Manual diagnóstico e estatístico de transtornos mentais DSM-IV-TR* (4th ed.). Porto Alegre: Artmed.

American Psychiatric Association. (2017). DSM History. Retrieved from 12th October 2017, from http://www.psychiatry.org/practice/dsm/dsm-history-of-the-manual

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal, 16*, 11-23.

Armijo-Olivo, S., Stiles, C. R., Hagen, N. A., Biondo, P. D., & Cummings, G. G. (2012). Assessment of study quality for systematic reviews: a comparison of the Cochrane Collaboration Risk of Bias Tool and the Effective Public Health Practice Project Quality Assessment Tool: methodological research. *Journal of Evaluation in Clinical Practice, 18*(1), 12-18. doi: 10.1111/j.1365-2753.2010.01516.x

Bahorik, A. L., Newhill, C. E., & Eack, S. M. (2013). Characterizing the longitudinal patterns of substance use among individuals diagnosed with serious mental illness after psychiatric hospitalization. *Addiction, 108*(7), 1259-1269. doi: 10.1111/add.12153

Barekatain, M., Khodadadi, R., & Maracy, M. R. (2011). Outcome of single manic episode in bipolar I disorder: a six-month follow-up after hospitalization. *Journal of Research in Medical Sciences, 16*(1), 56–62.

Bearden, C. E., Shih, V. H., Green, M. F., Gitlin, M., Sokolski, K. N., Levander, E., . . . Altshuler, L. L. (2011). The impact of neurocognitive impairment on occupational recovery of clinically stable patients with bipolar disorder: A prospective study. *Bipolar Disorders, 13*(4), 323-333. doi: 10.1111/j.1399-5618.2011.00928.x

Bird, V., Leamy, M., Tew, J., Le Boutillier, C., Williams, J., & Slade, M. (2014). Fit for purpose? Validation of a conceptual framework for personal recovery with current mental health consumers. *Australian and New Zealand Journal of Psychiatry, 48*(7), 644-653. doi: 10.1177/0004867413520046

Bonnin, C. M., Reinares, M., Hidalgo-Mazzei, D., Undurraga, J., Mur, M., Saez, C., . . . Vieta, E. (2015). Predictors of functional outcome after a manic episode. *Journal of Affective Disorders, 182*, 121-125. doi: 10.1016/j.jad.2015.04.043

Cannon-Spoor, H. E., Potkin, S. G., & Wyatt, R. J. (1982). Measurement of premorbid adjustment in chronic schizophrenia. *Schizophrenia Bulletin, 8*(3), 470.

Clark, J. P. (2003). How to peer review a qualitative manuscript. *Peer Review in Health Sciences, 2*, 219-235.

Conus, P., Cotton, S., Abdel-Baki, A., Lambert, M., Berk, M., & McGorry, P. D. (2006). Symptomatic and functional outcome 12 months after a first episode of psychotic mania: Barriers to recovery in a catchment area sample. *Bipolar Disorders, 8*, 221–231.

Corrigan, P. W., Salzer, M., Ralph, R. O., Sangster, Y., & Keck, L. (2004). Examining the factor structure of the recovery assessment scale. *Schizophrenia Bulletin, 30*(4), 1035.

de Barros Pellegrinelli, K., de, O. C. L. F., Silval, K. I., Dias, V. V., Roso, M. C., Bandeira, M., . . . Moreno, R. A. (2013). Efficacy of psychoeducation on symptomatic and functional recovery in bipolar disorder. *Acta Psychiatrica Scandinavica, 127*(2), 153-158. doi: 10.1111/acps.12007

Department of Health. (2011). *No health without mental health: A cross-government mental health outcomes strategy for people of all ages*. London: Department of Health.

Dion, G. (1985). *Parameters and predictors of functional outcome in bipolar patients hospitalized for a manic episode: Results of two and six month follow-ups (rehabilitation)*: ProQuest Dissertations Publishing.

Dion, G. L., Tohen, M., Anthony, W. A., & Waternaux, C. S. (1988). Symptoms and functioning of patients with bipolar disorder six months after hospitalization. *Psychiatric Services, 39*(6), 652-657.

Drake, R. E., Xie, H., McHugo, G. J., & Shumway, M. (2004). Three-year outcomes of long-term patients with co-occurring bipolar and substance use disorders. *Biological Psychiatry, 56*(10), 749-756. doi: 10.1016/j.biopsych.2004.08.020

Dunayevich, E., Sax, K. W., Keck Jr, P. E., McElroy, S. L., Sorter, M. T., McConville, B. J., & Strakowski, S. M. (2000). Twelve-month outcome in bipolar patients with and without personality disorders. *Journal of Clinical Psychiatry, 61*(2), 134-139.

Effective Public Health Practice Project. (2009). Quality Assessment Tool for Quantitative Studies. Retrieved from 12th October 2015, from http://www.ephpp.ca/tools.html

Fleck, M., Louzada, S., Xavier, M., Chachamovich, E., Vieira, G., Santos, L., & Pinzon, V. (2000). Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. *Revista de Saúde Publica, 34*(2), 178-183.

Girard, V., Tinland, A., Boucekine, M., Loubière, S., Lancon, C., Boyer, L., & Auquier, P. (2016). Validity of a common quality of life measurement in homeless individuals with bipolar disorder and schizophrenia. *Journal of Affective Disorders, 204*, 131-137. doi: 10.1016/j.jad.2016.06.023

Gitlin, M. J., Swendsen, J., Heller, T. L., & Hammen, C. (1995). Relapse and impairment in bipolar disorder. *American Journal of Psychiatry, 152*(11), 1635.

Goodwin, F. K., & Jamison, K. R. (2007). *Manic-depressive illness : bipolar disorders and recurrent depression* (2nd ed. ed.). Oxford: Oxford University Press.

Grover, S., Hazari, N., Aneja, J., Chakrabarti, S., Sharma, S., & Avasthi, A. (2016). Recovery and its correlates among patients with bipolar disorder: A study

from a tertiary care centre in North India. *International Journal of Social Psychiatry, 62*(8), 726-736. doi: 10.1177/0020764016676214

Grover, S., Hazari, N., Singla, N., Chakrabarti, S., Aneja, J., Sharma, S., & Avasthi, A. (2016). Recovery among patients with severe mental illness: Factor analysis of recovery assessment scale in Indian setting. *Indian Journal of Social Psychiatry, 32*(2), 92. doi: 10.4103/0971-9962.181088

Heilbronner, U., Malzahn, D., Strohmaier, J., Maier, S., Frank, J., Treutlein, J., . . . Schulze, T. G. (2015). A common risk variant in CACNA1C supports a sex-dependent effect on longitudinal functioning and functional recovery from episodes of schizophrenia-spectrum but not bipolar disorder. *European Neuropsychopharmacology, 25*(12), 2262-2270. doi: 10.1016/j.euroneuro.2015.09.012

Heinrichs, D. W., Hanlon, T. E., & Carpenter Jr, W. T. (1984). The Quality of Life Scale: An instrument for rating the schizophrenic deficit syndrome. *Schizophrenia Bulletin, 10*(3), 388-398.

Jaeger, J., Berns, S., Loftus, S., Gonzalez, C., & Czobor, P. (2007). Neurocognitive test performance predicts functional recovery from acute exacerbation leading to hospitalization in bipolar disorder. *Bipolar Disorders, 9,* 93-102.

Jaeger, J., Berns, S. M., & Czobor, P. (2003). The multidimensional scale of independent functioning: A new instrument for measuring functional disability in psychiatric populations. *Schizophrenia Bulletin, 29*(1), 153-167.

Jones, S. H., Mulligan, L. D., Higginson, S., Dunn, G., & Morrison, A. P. (2013). The Bipolar Recovery Questionnaire: Psychometric properties of a quantitative measure of recovery experiences in bipolar disorder. *Journal of Affective Disorders, 147*(1-3), 34-43. doi: 10.1016/j.jad.2012.10.003

Jones, S. H., Smith, G., Mulligan, L. D., Lobban, F., Law, H., Dunn, G., . . . Morrison, A. P. (2015). Recovery-focused cognitive-behavioural therapy for recent-onset bipolar disorder: Randomised controlled pilot trial. *British Journal of Psychiatry, 206*(1), 58-66. doi: 10.1192/bjp.bp.113.141259

Judd, L. L., Akiskal, H. S., Schettler, P. J., Endicott, J., Maser, J., Solomon, D. A., . . . Keller, M. B. (2002). The long-term natural history of the weekly symptomatic status of bipolar I disorder. *Archives of General Psychiatry, 59,* 530-537.

Judd, L. L., Schettler, P. J., Akiskal, H. S., Maser, J., Coryell, W., Solomon, D., . . . Keller, M. (2003). Long-term symptomatic status of bipolar I vs. bipolar II disorders. *International Journal of Neuropsychopharmacology, 6*(2), 127-137. doi: 10.1017/S1461145703003341

Keller, M. B., Lavori, P. W., Friedman, B., Nielsen, E., Endicott, J., McDonald-Scott, P., & Andreasen, N. C. (1987). The Longitudinal Interval Follow-up Evaluation: A comprehensive method for assessing outcome in prospective longitudinal studies. *Archives of General Psychiatry, 44*(6), 540-548.

Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: Systematic review and narrative synthesis. *The British Journal of Psychiatry, 199*(6), 445-452. doi: 10.1192/bjp.bp.110.083733

Lehman, A. F. (1988). A quality of life interview for the chronically mentally ill. *Evaluation and Program Planning, 11*(1), 51-62.

Leon, A. C., Solomon, D. A., Mueller, T. I., Endicott, J., Posternak, M., Judd, L. L., . . . Keller, M. B. (2000). A brief assessment of psychosocial functioning of subjects with bipolar I disorder: The LIFE-RIFT. *The Journal of Nervous and Mental Disease, 188*(12), 805-812.

Leonhardt, B. L., Huling, K., Hamm, J. A., Roe, D., Hasson-Ohayon, I., McLeod, H. J., & Lysaker, P. H. (2017). Recovery and serious mental illness: a review of current clinical and research paradigms and future directions. *Expert Review of Neurotherapeutics, 17*(11), 1117-1130. doi: 10.1080/14737175.2017.1378099

Loftus, S. T., & Jaeger, J. (2006). Psychosocial outcome in bipolar I patients with a personality disorder. *Journal of Nervous and Mental Disease, 194*(12), 967-970. doi: 10.1097/01.nmd.0000243814.35854.10

Lulroff, D., Nuechterlein, K. H., & Ventura, J. (1986). Manual for expanded Brief Psychiatric Rating Scale (BPRS). *Schizophrenia Bulletin, 12*, 594-602.

Macpherson, R., Pesola, F., Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2016). The relationship between clinical and recovery dimensions of outcome in mental health. *Schizophrenia Research, 175*(1-3), 142-147. doi: 10.1016/j.schres.2015.10.031

McCrone, S., Cotton, S., Jones, L., Hawkins, T. A., Costante, J., & Nuss, M. (2007). Depression in a rural, free clinic providing primary care: Prevalence and predictive factors. *Archives of Psychiatric Nursing, 21*(5), 291-293. doi: 10.1016/j.apnu.2007.06.009

McGorry, P. D., Copolov, D. L., & Singh, B. S. (1990). Royal Park Multidiagnostic Instrument for Psychosis: Part I. Rationale and review. *Schizophrenia Bulletin, 16*(3), 501.

McGorry, P. D., Singh, B. S., Copolov, D. L., Kaplan, I., Dossetor, C. R., & van Riel, R. J. (1990). Royal Park Multidiagnostic Instrument for Psychosis: Part II. Development, reliability, and validity. *Schizophrenia Bulletin, 16*(3), 517.

McHugo, G. J., Drake, R. E., Burton, H. L., & Ackerson, T. H. (1995). A scale for assessing the stage of substance abuse treatment in persons with severe mental illness. *The Journal of Nervous and Mental Disease, 183*(12), 762-767.

Murray, G., & Michalak, E. E. (2007). Quality of life in patients with bipolar disorder: Defining and measuring goals. *Psychiatric Times, 24*(6), 24.

New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America: Final report.* Rockville, MD: Department of Health and Human Services.

Reinares, M., Bonnín, C. d. M., Hidalgo-Mazzei, D., Undurraga, J., Mur, M., Nieto, E., . . . Vieta, E. (2015). Making sense of DSM-5 mania with depressive features. *Australian and New Zealand Journal of Psychiatry, 49*(6), 540-549. doi: 10.1177/0004867415585583

Rosa, A. R., Sánchez-Moreno, J., Martínez-Aran, A., Salamero, M., Torrent, C., Reinares, M., . . . Ayuso-Mateos, J. L. (2007). Validity and reliability of the Functioning Assessment Short Test (FAST) in bipolar disorder. *Clinical Practice and Epidemiology in Mental Health, 3*(1), 5.

Silverstein, S. M., & Bellack, A. S. (2008). A scientific agenda for the concept of recovery as it applies to schizophrenia. *Clinical Psychology Review, 28*(7), 1108-1124. doi: https://doi.org/10.1016/j.cpr.2008.03.004

Sklar, M., Groessl, E. J., amp, Amp, Apos, Connell, M., . . . Aarons, G. A. (2013). Instruments for measuring mental health recovery: A systematic review.

Clinical Psychology Review, 33(8), 1082-1095. doi: 10.1016/j.cpr.2013.08.002

Slade, M. (2009). *Personal recovery and mental illness: A guide for mental health professionals*. Cambridge: Cambridge University Press.

Slade, M., Leamy, M., Bacon, F., Janosik, M., Le Boutillier, C., Williams, J., & Bird, V. (2012). International differences in understanding recovery: Systematic review. *Epidemiology and Psychiatric Sciences, 21*(4), 353-364. doi: 10.1017/S2045796012000133

Song, L.-Y., & Hsu, S.-T. (2011). The development of the Stages of Recovery Scale for persons with persistent mental illness. *Research on Social Work Practice, 21*(5), 572-581.

Strakowski, S. M., Stoll, A. L., Tohen, M., Faedda, G. L., & Goodwin, D. C. (1993). The Tridimensional Personality Questionnaire as a predictor of six-month outcome in first episode mania. *Psychiatry Research, 48*(1), 1-8.

Strakowski, S. M., Williams, J. R., Fleck, D. E., & Delbello, M. P. (2000). Eight-month functional outcome from mania following a first psychiatric hospitalization. *Journal of Psychiatric Research, 34*(3), 193-200.

Tew, J., Ramon, S., Slade, M., Bird, V., Melton, J., & Le Boutillier, C. (2012). Social factors and recovery from mental health difficulties: A review of the evidence. *British Journal of Social Work, 42*(3), 443-460. doi: 10.1093/bjsw/bcr076

Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing, 1*(3), 176-184. doi: 10.1111/j.1524-475X.2004.04006.x

Tohen, M., Stoll, A. L., Strakowski, S. M., Faedda, Q. L., Mayer, P. V., Goodwin, D. C., . . . Madlgan, A. M. (1992). The McLean first-episode psychosis project: Six-month recovery and recurrence outcome. *Schizophrenia Bulletin, 18*(2), 273-282.

Tohen, M., Waternaux, C. M., & Tsuang, M. T. (1990). Outcome in mania: A 4-year prospective follow-up of 75 patients utilizing survival analysis. *Archives of General Psychiatry, 47*(12), 1106-1111.

Tohen, M., Zarate, C. A., Hennen, J., Khalsa, H. M. K., Strakowski, S. M., Gebre-Medhin, P., . . . Baldessarini, R. J. (2003). The McLean-Harvard first-episode mania study: Prediction of recovery and first recurrence. *American Journal of Psychiatry, 160.*, 2099-2107.

Tse, S., Davidson, L., Chung, K. F., Ng, K. L., & Yu, C. H. (2014). Differences and similarities between functional and personal recovery in an Asian population: A cluster analytic approach. *Psychiatry, 77*(41-56.).

Tse, S., Murray, G., Chung, K. F., Davidson, L., Ng, K. L., & Yu, C. H. (2014). Exploring the recovery concept in bipolar disorder: A decision tree analysis of psychosocial correlates of recovery stages. *Bipolar Disorders, 16*(4), 366-377. doi: 10.1111/bdi.12153

Weissman, M. M., & Bothwell, S. (1976). Assessment of social adjustment by patient self-report. *Archives of General Psychiatry, 33*(9), 1111-1115.

Williams, J., Leamy, M., Bird, V., Harding, C., Larsen, J., Boutillier, C., . . . Slade, M. (2012). Measures of the recovery orientation of mental health services: Systematic review. *The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 47*(11), 1827-1835. doi: 10.1007/s00127-012-0484-y

Wingo, A. P., Baldessarini, R. J., Compton, M. T., & Harvey, P. D. (2010). Correlates of recovery of social functioning in types I and II bipolar disorder patients. *Psychiatry Research, 177*(1-2), 131-134. doi: 10.1016/j.psychres.2010.02.020

Wingo, A. P., Baldessarini, R. J., Holtzheimer, P. E., & Harvey, P. D. (2010). Factors associated with functional recovery in bipolar disorder patients. *Bipolar Disorders, 12*(3), 319-326. doi: 10.1111/j.1399-5618.2010.00808.x

Yan-Meier, L., Eberhart, N. K., Hammen, C. L., Gitlin, M., Sokolski, K., & Altshuler, L. (2011). Stressful life events predict delayed functional recovery following treatment for mania in bipolar disorder. *Psychiatry Research, 186*(2-3), 267-271. doi: 10.1016/j.psychres.2010.08.028

Chapter 4: Cross-sectional and longitudinal predictors of personal recovery and comparison to clinical outcomes in bipolar disorder (BD)

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4.1 Abstract

Background: Personal recovery is a service-user defined concept of recovery. It has been a major focus in the formulation of mental health policies and clinical guidelines. Despite this interest, research into factors influencing recovery is still in its infancy, especially in BD. Psychological processes are proposed to play an important role in clinical and functional outcomes, but their impact on personal recovery has not been extensively studied.

Methods: Participants with a DSM-IV research diagnosis of BD participated in concurrent (N=107) and prospective (n = 90) assessments of recovery. Multiple linear regression, using backwards elimination, was used to determine whether the examined psychological processes (dysfunctional attitudes, response styles, impulsivity, Behavioural Activation System (BAS) processes, and self-dispositional and normalising appraisals) contributed to the Bipolar Recovery Questionnaire (BRQ) scores at baseline and also to changes in BRQ scores (at 6 months follow-up) after allowing for adjustment for the effects of clinical and demographic factors. Backward stepwise ordinal regression was used to determine predictors of clinical outcomes (operationalised as ordinal factors created from the number of depressive and manic episodes) to compare the factors found to be associated with clinical and personal recovery outcomes in the baseline sample.

Results: The results of the multiple linear regression models indicated that seven predictors explained 55.7% of the variance in personal recovery at baseline: Adjusted R^2 = .557, $F(7, 99) = 20.058$, $p < .001$). Depressive symptoms, negative self-dispositional appraisal and dysfunctional attitudes were negative predictors of baseline personal recovery, while adaptive coping, risk taking, being in a relationship, and being female positively predicted personal recovery at baseline. At follow-up three predictors remained significant in the model and explained 15.5% of the variance in the change score: Adjusted R^2 = .155, $F(3, 86) = 6.438$, p = .001; including employment status, baseline personal recovery and rumination. Rumination and being

in employment positively predicted changes in personal recovery at 6 months. In comparison, depressive episodes were positively predicted by depressive symptoms and negative self-dispositional appraisals (Nagelkerke's R^2 = 0.263) whilst (hypo)manic episodes were negatively predicted by BAS processes, adaptive coping, and recent depression relevant experiences; and positively predicted by impulsivity, education level and dysfunctional attitudes and both types of episodes were predicted by the time since first episode (Nagelkerke's R^2 = 0.406).

Conclusion: Psychological processes seem to play important roles in both personal recovery and clinical outcomes. Refined recovery-focused interventions would potentially benefit from advocating balanced adaptive coping strategies and engagement in pleasurable activities, while targeting dysfunctional attitudes and maladaptive responses to depressive mood.

4.2 Introduction

Recovery in mental health problems, including Bipolar Disorder (BD), has been originally defined as clinical recovery, focusing on symptom reduction and relapse prevention, or returning to premorbid levels of functioning, which is in line with the biomedical model of mental health problems (Slade, 2009). Mental health service users define recovery as a personal journey or process, rather than an outcome, and emphasize the importance of control, hope, empowerment and connectedness, among other factors (Leamy et al., 2011). While clinical and functional outcomes are important they overlook the subjective and unique experiences of service users, which are captured by personal recovery measures (Jones et al., 2013). Clinical and functional outcomes show different trajectories compared to personal recovery (Andresen, Caputi, & Oades, 2010; Tse, Davidson, et al., 2014), and focusing solely on these outcomes may misjudge the success of treatment in mental health problems (Gitlin & Miklowitz, 2017). There has been an increased interest in personal recovery experiences in mental health policies and clinical guidelines in the UK (Department of Health, 2011; NICE, 2014) and several studies aimed at identifying factors that may contribute to better personal recovery experiences.

Research on mental health-related personal recovery has primarily focused on schizophrenia and psychosis, with less investigation into BD. A recent study explored the longitudinal predictors of personal recovery in psychosis and found that recovery was predicted by negative emotion, positive self-esteem and hopelessness; and to a lesser extent by symptoms and functioning, indicating that psychosocial factors and negative emotions were more important longitudinal predictors of personal recovery compared to symptoms and functioning (Law, Shryane, Bentall, & Morrison, 2016). To date, there has not been any prospective research to assess the impact of psychological processes on personal recovery in BD. Only one cross-sectional study focused on psychological factors and identified that personal recovery in BD is positively correlated with normalising appraisals of mood changes, and negatively associated with depression, negative self-appraisals of depression-relevant experiences, extreme positive and negative appraisals of activated states, and negative beliefs about mood swings. However, appraisal styles did not remain significant in multivariate association (Dodd, Mezes, Lobban, & Jones, 2017).

Further cross-sectional findings have shown that personal recovery in BD was negatively associated with discrimination experience, internalised stigma of mental health problems and residual depressive symptoms, and positively associated with global functioning, personal growth, well-being, respect, hope, and self-directed empowerment, older age, binge drinking history, early first diagnosis, being in employment and having a 'meaningful role' (Dodd et al., 2017; Grover, Hazari, Aneja, et al., 2016; Jones et al., 2013; Tse, Murray, et al., 2014).

Deepening understanding of the psychological processes impacting on personal recovery is important in order to inform recovery-focused psychological therapies, which have shown promising results (Jones et al., 2015). Psychological processes have been investigated in relation to clinical and functional outcomes. The key bipolar-relevant psychological processes include Behavioural Activation System (BAS)-relevant cognitive styles (Alloy, Abramson, Walshaw, et al., 2009), impulsivity (Strakowski et al., 2010), positive and negative self-appraisal (Jones & Day, 2008; Mansell et al., 2011) response styles to negative and positive affect (Reilly-Harrington et al., 1999; Thomas et al., 2007) and dysfunctional attitudes regarding goal attainment, dependency and achievement (Lam et al., 2004).

Behavioural activation and behavioural inhibition systems (BAS and BIS) are neurobiological-based motivational systems, characterised by Gray (1982). The former responds to reward signals, triggering approach behaviour and positive affect, the latter responds to threat signals, triggering inhibition and negative affect. Depue and Iacono (1989) argued that the BAS system is dysregulated in BD. In particular, individuals with BD are more responsive to signals of reward. The weak regulation of the BAS system is proposed to play a role in (hypo)manic episodes. Individuals with BD have specific BAS-relevant cognitive styles in response to rewards and greater reward responsiveness to signal of rewards is expressed on both self-report measures and a behavioural task (card sorting for winning rewards or avoid losing) compared to healthy controls (Alloy, Abramson, Walshaw, et al., 2009; Hayden et al., 2008). High scores on BAS self-report scale in individuals with BD have been related to increased levels of manic symptoms, to the onset of manic and hypomanic episodes, and to increased likelihood of progressing into more severe bipolar spectrum disorder episodes (Alloy et al., 2008; Alloy et al., 2012; Meyer et al., 2001).

Impulsivity has been also proposed as a key feature in BD that is more evident during manic episodes but also present across other affective states (Najt et al., 2007). Increased level of impulsivity was associated with a more severe course of bipolar spectrum disorders measured by factors such as early onset, more frequent episodes of illness, and a history of suicide, after controlling for age, education and gender (Swann, Lijffijt, Lane, Steinberg, & Moeller, 2009). According to Barratt (1993), impulsivity incorporates three different behavioural factors: non-planning (failure to consider the future), motor (acting without thinking) and attentional impulsiveness (inability to maintain attention, distractibility resulting in unconsidered, inappropriate decisions). A recent study examined impulsivity in individuals with unipolar depression, BD, unaffected relatives and healthy controls and indicated that elevated attentional impulsivity may predispose to development of affective disorders, while reduced non-planning impulsivity may be a protective factor against affective disorders (Henna et al., 2013).

Research in BD has also focused on the role of extreme appraisals in the escalation of symptom development. Individuals with BD exhibited increases in positive self-dispositional appraisals in response to hypomania-relevant events (Jones, Mansell, & Waller, 2006). Increased positive self-dispositional thinking style may lead to behaviours that exacerbates disturbance in circadian and social rhythms, such as taking up extra challenges and work, dedicating less time for relaxation, and therefore may lead to escalating symptoms and affective episodes (Jones, 2001). Kelly and colleagues (2011) found that individuals with BD tend to have higher level of both negative and positive appraisals, and high self-dispositional appraisals were indicated in predicting BD.

Moreover, the way that individuals respond to their depressed mood (response style) has been proposed as a predictor of episodes and increased symptomology in BD. Rumination (directing one's attention to one's negative affective state) has been less distinctly related to discrete episodes, as it was found to be present in mania, depression and remission (Van der Gucht et al., 2009). Thomas and Bentall (2002) found that hypomanic traits were associated not only with rumination but also with distraction (a form of adaptive coping) and risk taking (a type of maladaptive response style with high potential for negative consequences). Studies examined coping styles associated with current episodes, and found that manic episodes were associated with

increased risk taking (Van der Gucht et al., 2009) and with adaptive coping (Thomas et al., 2007); while current depressive episodes related to increased level of rumination (Thomas et al., 2007). In terms of symptomology, a ruminative thinking style was associated with increased levels of depressive symptoms, while a risk-taking cognitive style was related to increased levels of manic symptoms (Knowles et al., 2005; Thomas & Bentall, 2002).

Dysfunctional attitudes of dependency, achievement and goal attainment are also proposed to play an important role in the course of BD (Lam et al., 2010). It is indicated that extreme goal-attainment attitudes may contribute to the development of both manic and depressive symptoms and episodes. Extreme striving behaviour can result in engagement in extreme pleasurable and goal-oriented activities, such as extreme spending, overworking and irregularities in daily routine. These factors are considered to play a role in the development of (hypo)manic episodes, and therefore influence the course of BD (Lam et al., 2010). On the other hand, if individuals cannot excel at the activities they undertook it may result in consequences of experiencing self-blame, hopelessness and depressive symptoms (Lam et al., 2004). The findings about dysfunctional attitudes in remitted bipolar populations are controversial. Several studies found no differences between remitted bipolar and unipolar individuals in goal-attainment (Alatiq, Crane, Williams, & Goodwin, 2010; Perich, Manicavasagar, Mitchell, & Ball, 2011). On the other hand bipolar patients exhibited significantly higher levels of goal-attainment compared to individuals with unipolar depression, after controlling for residual symptoms and excluding individuals with current episodes (Lam et al., 2004) and compared to healthy controls (Perich et al., 2011). In addition, remitted bipolar patients significantly differed in levels of dependency and achievement compared to remitted unipolar and healthy controls, suggesting a unique role of these attitudes in BD (Perich et al., 2011). Further studies are required to examine whether these dysfunctional attitudes are activated in acute episodes only and are moderated in episode-free periods or are present in remitted stages as well.

In conclusion, there is evidence that bipolar-relevant psychological processes may influence clinical recovery outcomes and the course of illness. However, there exists little data examining how bipolar-relevant psychological processes influence the outcome of personal recovery experiences in individuals with BD. It is essential to deepen our understanding of such associations, since the majority of cognitive and

behavioural psychological processes are amenable to change in psychological intervention. Therefore, the present study aimed to investigate the following research questions:

i) What proportion of the variance in the baseline personal recovery score is explained by the examined bipolar-relevant psychological processes after allowing for adjustment for clinical and demographic factors in a cross-sectional analysis?

ii) What proportion of the variance in the personal recovery change score (follow-up minus baseline) is explained by bipolar-relevant psychological processes after allowing for adjustment for clinical and demographic factors in a prospective longitudinal analysis?

ii) How do the best set of predictors (demographic, clinical and psychological factors) of personal recovery compare to the best set of predictor of clinical outcomes (operationalised as ordinal factors created from the number of lifetime depressive and manic episodes) in the present baseline sample?

4.3 Method

4.3.1 Design

The present study combined cross-sectional and prospective (6 month follow-up period) data collection. A cross-sectional design was used to gain an understanding of the psychological processes present at the time of baseline assessment and their interrelation with concurrent personal recovery and clinical outcomes in individuals with BD. A longitudinal design was used to establish the extent to which psychological factors predicted changes in personal recovery accounting for baseline symptomology, clinical and demographic factors. The benefit of using a longitudinal design, in addition to cross-sectional assessment, is that one can examine the changes in the factors under investigation sequentially through time, which can in turn be used to make a stronger argument about the potential direction of effects when compared to cross-sectional results.

4.3.2 Participants

Individuals with BD were recruited from various sources (via NHS Mental Health Services in Northwest England, social media and adverts displayed in local places, from a panel of individuals who had expressed an interest in taking part in research at the Spectrum Centre for Mental Health Research, and from the Bipolar UK

charity) using convenience sampling. A power calculation was performed to estimate the sample size using the nQuery Advisor® + nTerim 2.0 programme. A required sample size of $n = 130$ is based upon the assumption that the demographic and clinical variables (Table 8) in total explain 20% of the variability in the BRQ total score and that the eight psychological measures (Table 8) contribute a further 8%. Power, $1 - \beta$, was set at 0.8 and the significance level, α, at 5% (two-sided). To allow for a dropout rate of 20% the study aimed to recruit 150 participants.

Participants were included in the study if the following criteria were met: i) had a primary research diagnosis of bipolar (I or II) disorder, confirmed using Structured Clinical Interview for DSM-IV (SCID) (First, Spitzer, Gibbon, & Williams, 2002); ii) were aged over 18; iii) sufficient English language skills and residing in the UK; iv) had capacity to consent. Consensual capacity was assessed based upon the procedures outlined by Nicholson, Cutter and Hotopf (2008). Participants were excluded if they i) lacked capacity to consent; ii) if based upon the SCID interviews were experiencing a current episode of (hypo)mania or depression and/or being treated under a section of the Mental Health Act; iii) had a primary diagnosis other than BD; iv) had suicidal behaviour or a primary alcohol and/or drug problems; or v) had more than 50% missing items on any measure.

4.3.3 Measures

4.3.3.1 Personal recovery

The primary outcome variable was personal recovery as assessed by the Bipolar Recovery Questionnaire (BRQ; Jones et al., 2013). The BRQ operates with 36 items; for example *'I feel in control of the things that happen in my life'*; each item is marked on a 100mm visual analogue scale from 0 to 100 (for full questionnaire, see in Appendix C). The scale is anchored at four points by '*Strongly disagree'* (0), '*Disagree*' (25), '*Agree*' (75) and '*Strongly agree'* (100). Scores range from 0-3600; higher BRQ scores indicate a higher degree of self-rated personal recovery. In the baseline sample, Cronbach's alpha was $C(\alpha) = 0.91$. The BRQ was completed at baseline and again at 6-month follow-up. The change in the BRQ score (follow-up – baseline) was calculated and formed the primary outcome variable in the prospective analysis.

Table 8 lists the demographic and clinical factors that were considered for adjustment together with the psychological factors assessed for associations with personal and clinical outcomes. The measures used to operationalise the assessed factors are discussed in Section 4.3.3.2.

Table 8. Variables assessed for association with personal recovery in the baseline and follow-up modelling

Demographic factors	Clinical factors	Psychological factors
Age	Depressive symptoms	Rumination
Gender	Manic symptoms	Adaptive coping
Residential status	*Number of depressive episodes*[a]	Risk taking
Employment status	*Number of manic episodes*[a]	Positive self-dispositional and normalising appraisals
Relationship status	Number of hospitalisations	Negative self-dispositional and normalising appraisals
Education	Age of onset	Behavioural Activation
	Depression and hypomania relevant experiences in the past three months	Impulsivity
		Dysfunctional attitudes

a) The numbers of depressive and manic episodes were outcome variables in the second baseline analysis focusing on predictors of clinical outcomes, and were adjusted for in the primary models investigating the best set of predictors of personal recovery at baseline and at follow-up.

4.3.3.2 Demographic and clinical factors

Screening and episode assessment: Structured Clinical Interview for DSM-IV (SCID; First et al., 2002): SCID interview was used for three purposes: firstly, to verify a BD research diagnosis; and secondly, to identify individuals with a current mood episode, suicidal behaviour and/or with a primary psychiatric research diagnosis other than BD. For these sub-purposes, the following modules were administered: A (Mood Episodes), B (Psychotic and Associated Symptoms), C (Psychotic Disorders), D (Mood Disorders) and E (Substance Use Disorders). Thirdly, this tool was used to assess the number of previous manic and depressive episodes. The episode counts were categorised based upon previous literature (Morriss et al., 2016) to form ordinal variables with three levels for both manic and depressive episodes (*'1 ≤ 7', '2 = 8-19', '3 ≥ 20'*). The factors created from the number of manic and depressive episodes were adjusted for in the regression models exploring the predictors of personal recovery, and were used as outcome measures in the analysis investigating the predictors of clinical outcomes.

Demographic and clinical history questionnaire: This was used to collect demographic information and to allow for adjustment for potential confounders, including age, gender, employment status, education, residential status, relationship status and clinical history (including age of onset, number of hospitalisations and number of episodes). The demographic questionnaire data was used to estimate the number of previous episodes where SCID data was missing. Employment, residential and relationship statuses were each dichotomised, whereas education ('*primary', 'further' and 'higher'*) and number of hospitalisation ('*0', '1-6', '≥7'*) were assessed on ordinal scales.

Depressive symptoms - Center for Epidemiologic Studies: Depression Scale (CES-D; Radloff, 1977): Participants indicated how often they experienced depressive symptoms over the previous week. The CES-D operates with 20 items, for example '*I was bothered by things that usually don't bother me*' rated on a 4-point Likert scale (from '*0 = Rarely (less than one day)*' to '*3 = Most of the time (5-7 days)*'. Scores range between 0-20, higher scores indicate higher levels of depressive symptomology. In the baseline sample, Cronbach's alpha was $C(\alpha)$ = 0.87.

Manic symptoms – Altman Mania Rating Scale (AMRS; Altman, Hedeker, Peterson, & Davis, 1997): measures the frequency of (hypo)manic symptoms on five groups of items during the past week, participants are asked to select one item from each group, for example '*I often feel happier or more cheerful than usual*'. The items represent a 5-pont Likert scale; selecting items that describe higher frequency indicate higher levels of manic symptomology (scores range from 0-20). In the baseline sample, Cronbach's alpha was $C(\alpha)$ =0.82.

Depression and hypomania relevant experiences - Interpretation of Depression Questionnaire (IDQ-E; Jones & Day, 2008) and the Hypomania Interpretation Questionnaire (HIQ-E; Jones et al., 2006): Both measures are described in more detail in the psychological factors section (Section 4.3.3.3). Here, the '*Experience*' subscales of each measure were used to assess if participants had any depression- or hypomania-relevant symptom experiences in the preceding 3 months. Both questionnaire subscales include 10 items (for example items, see Section 4.3.3.3) and participants were asked to indicate '*yes/no'* as to whether they had experienced each symptom. Scores range between 0-10, higher scores indicate more symptom

experiences in the preceding three months. In the baseline sample, Cronbach's alpha was *C*(α) = 0.90 for IDQ-E and *C(α)* =0.94 for HIQ-E.

4.3.3.3 Psychological factors

Rumination, adaptive coping and risk taking - Response Style Questionnaire (RSQ) revised version (Knowles et al., 2005; Nolen-Hoeksema, 1991): The RSQ is designed to measure response styles to negative mood and incorporates 3 subscales assessed on 48 items: rumination (RSQ-R; 25 items, for example '*Think about how angry you are with yourself*'), risk taking (RSQ-RT; 8 items, for instance '*Drink alcohol excessively*') and adaptive coping (RSQ-AC; 15 items, for example '*Make a plan to overcome a problem*'). Respondents rate the frequency of thoughts and behaviours each on a 4-point Likert scale (0-3). Scores ranges are rumination: 0-75, risk taking: 0-24, and adaptive coping: 0-45; higher scores indicate higher rumination, adaptive coping or risk taking. In the baseline sample, Cronbach's *C(α)* = 0.89 for R, *C(α)* = 0.70 for RT and *C(α)* = 0.91 for AC.

Positive (HIQ-H), negative (IDQ-D) self-dispositional and normalising appraisals (HIQ-N and IDQ-N) measured on the Interpretation of Depression Questionnaire and Hypomania Interpretation Questionnaire (IDQ and HIQ; Jones & Day, 2008; Jones et al., 2006)*:* The HIQ has two subscales (HIQ-H and HIQ-N) and asks participants to endorse i) positive self-appraisals (HIQ-H) and ii) normalising appraisals (HIQ-N) of the same hypomania-relevant experience. For instance, '*If my thoughts were coming so thick and fast that other people couldn't keep up, I would probably think it was because. . .*'; '*I am full of good ideas and others are too slow*' (HIQ-H); and '*There are too many demands on my time'* (HIQ-N). Each appraisal is assessed on 10 items scored on four-point Likert scales (from A = '*Not at all*' to D = '*Great deal'*). The IDQ is modelled on the structure of the HIQ and measures negative self-dispositional (IDQ-D) and normalising appraisals (IDQ-N) for depression-related experiences on two subscales. For instance, '*If I felt cut off from other people I would probably think it was because. . .'* (1) '*I am an insensitive person*' (IDQ-D) and (2) '*Things are difficult at the moment and I have little energy for other things*' (IDQ-N). Scores on each subscale range between 10 and 40; higher scores indicated stronger self-dispositional or normalising appraisals. In the baseline sample, Cronbach's alpha was *C(α)* = 0.88 for HIQ-H, *C(α)* = 0.85 for HIQ-N, *C(α)* = 0.91 for IDQ-D, and *C(α)* = 0.89 for IDQ-D.

Behavioural Activation - The BIS/BAS Inventory (Carver & White, 1994): The BIS/BAS scale was designed to assess dispositional sensitivity to the behavioural inhibition system (BIS) and the behavioural activation or behavioural approach system (BAS). The questionnaire incorporates two subscales assessed on 20 items: the Behavioural Inhibition System subscale (7 items), for example '*Criticism or scolding hurts me quite a bit'* and the Behavioural Activation System subscale (13 items). The BAS subscale is divided into 3 categories/subscales: Reward Responsiveness (5 items, for example, '*When I'm doing well at something I love to keep at it*.'), Drive (4 items, for instance 'When I want something I usually go all-out to get it.'), and Fun Seeking (4 items, for example 'I crave excitement and new sensations'). The items are each evaluated on a four-point Likert-scale (from 1 = '*strongly disagree'* to 4 = '*strongly agree*'). The BAS Total score was used in the present study, scores range from 13 to 52; higher scores indicate higher behavioural activation. BIS scores were not used in the present study due to the argument that the BAS system is dysregulated in BD (Depue & Iacono, 1989). In the baseline sample, Cronbach's alpha was $C(\alpha)$ = 0.89.

Impulsivity-Barratt Impulsiveness Scale (Patton & Stanford, 1995): This is designed to assess the personality/behavioural construct of impulsiveness. The questionnaire operates with three subscales: Non-planning (11 items; '*I say things without thinking.*' Attentional (8 items; *'I don't "pay attention*."') and Motor impulsiveness (11 items; '*I do things without thinking*.'). The items are assessed on a four-point Likert Scales (from 1 = '*Rarely/Never'* to 4 = '*Almost always/always'*). The total score of the subscales was used, ranging from 30 to 120, and higher scores indicate higher levels of impulsivity. In the baseline sample, Cronbach's alpha was $C(\alpha)$ = 0.82.

Dysfunctional Attitudes: Dysfunctional Attitude Scale DAS-24 (DAS-24; Lam et al., 2004): Measures dysfunctional attitudes of goal attainment ('*I should be happy all the time'*), dependency ('*What other people think of me is very important'*) and achievement ('*If I do not do well all the time, people will not respect me'*). The questionnaire incorporates 24 items; each subscale contains 8 items. The items are assessed on a 7-point Likert scale ranging from 1='*totally agree'* to 7='*totally disagree'*. Reversed scoring was applied to ensure that higher values indicate higher levels of dysfunctional attitudes. The total score of the subscales was used, ranging from 24-168. In the baseline sample, Cronbach's alpha was $C(\alpha)$ = 0.92.

4.3.4 Procedure

NHS ethical approval (Ref: 14/LO/1170) was obtained for the present study and participants provided informed consent before taking part in the research. Following consent, participants completed the baseline questionnaires online or on paper, depending on preference. The baseline assessment included the demographic and clinical history questionnaire, psychological and symptoms measures and the Bipolar Recovery Questionnaire (BRQ). Participants who had previously participated in studies conducted by the Research Centre were offered the opportunity to sign a SCID consent form to permit the PI to use the results of their previous SCID for the purpose of this study. These participants only participated in a brief SCID update to ensure that they currently did not meet criteria for manic or depressive episodes. Other participants were invited to participate in a SCID interview covering the modules detailed above. BM, who was fully trained to conduct SCID interviews, and attended regular clinical interview skills training and supervision, conducted the interviews over the phone. General Practitioner/care co-ordinator contact details were collected, prior to conducting the interviews and all participants were reminded that confidentiality would be broken in the instance where the researcher deemed that the participant was of imminent risk to themselves or others, as stated on the information sheet and consent form.

Participants were contacted 6 months after their baseline assessment and were asked to consent for this second phase and to complete their follow-up assessment. The follow-up assessment included updating their SCID interview (to ensure that no acute episodes were present at the time of the assessment) and once again completing the BRQ.

4.3.5 Data analysis

All data analyses were performed using SPSS version 21. Data imputation was based upon multiple regression models. Variables entering the imputation models included other items of the same subscale. A single imputed value was used in the primary analyses. Sensitivity analysis was conducted to compare the results based upon the complete cases and the imputed database. Descriptive analyses were conducted: continuous variables are described by their mean, standard deviation, and range, while categorical and ordinal variables by their frequencies and percentages.

Bivariate analyses were conducted to explore associations between the measures of demographic, clinical and psychological factors and personal recovery. Pearson's correlation coefficients were used (as appropriate) to quantify linear associations between continuous variables, and Spearman's correlations were used for ordinal pairs, and otherwise. Chi–square tests were used for testing dependencies between categorical variables, t-tests for comparing means of continuous variables, and Mann-Whitney U-Tests for comparing medians of ordinal variables.

Backward stepwise multiple linear regression models (based on F-statistic) were used to determine the predictors of the BRQ total scores at baseline and predictors of the BRQ change scores (between follow-up and baseline). Commencing with a saturated `main effects' model (results in Appendix D), backwards elimination was used to select a parsimonious model which `best' explains the data. The rationale for using a stepwise method was to avoid over-fitting and to conduct an exploratory analysis of the data, since previous research did not provide theoretical reasons and justification for making assumptions about the order in which the variables should be entered in the model. Both forwards and backwards selection methods were considered, and backwards method was selected to minimise the risk of excluding variables included in the suppressor effect (occurs when a predictor has a significant effect, but only when another variable is kept constant), which is associated with higher risk of making Type-II error (Field, 2009). Models resulting from a forwards selection and a backwards elimination procedure were contrasted in order to gauge selection procedure sensitivity; both yielded the same predictor sub-set.

Follow-up data were analysed using change scores (BRQ at follow-up minus BRQ at baseline). The aim was to investigate predictors of change in recovery (BRQ) scores over the observation period. Baseline was included as a predictor to allow for regression to the mean and to improve efficiency. Of course analysis of covariance (ANCOVA: BRQ at follow up modelled with BRQ at baseline as a predictor) and change scores adjusted for baseline are formally equivalent (Senn, 2006). Both `*change ANCOVA'* and ANCOVA analyses results are presented in Appendix D (Table D.3).

Backward stepwise ordinal regression (based on Wald statistic) was used to determine predictors of clinical outcomes (operationalised as ordinal factors created from the number of depressive and manic episodes) in order to compare the factors

found to be associated with clinical and personal recovery outcomes in the baseline sample. Statistical significance required a two-sided *p*-value of <.05.

4.4 Results

4.4.1 Participant attrition and missing data

Figure 2 illustrates the recruitment and screening process for the study. Data from 107 participants were included in the baseline assessment, recruited from the panel at the Spectrum Centre (51%), Bipolar UK (31%), Mental Health Service Referrals (10%), and other self-referrals, who observed the study advert online/in public places (8%). Out of the 107 at baseline, 92 (85.98%) participants completed the follow-up assessments. However, the follow-up model diagnostics identified two participants with outlier values in the follow-up data, who were subsequently excluded from the follow-up analysis. Their removal was to ensure that the extreme values (potentially not plausible) deriving from two participants did not skew the modelling results. Online questionnaire items were forced response, therefore missing items only occurred on paper questionnaires and were minimal (0.06%). The small amount of missing data motivated using a single imputed value, and sensitivity analysis did not show any difference between the results derived from the complete cases and the imputed database.

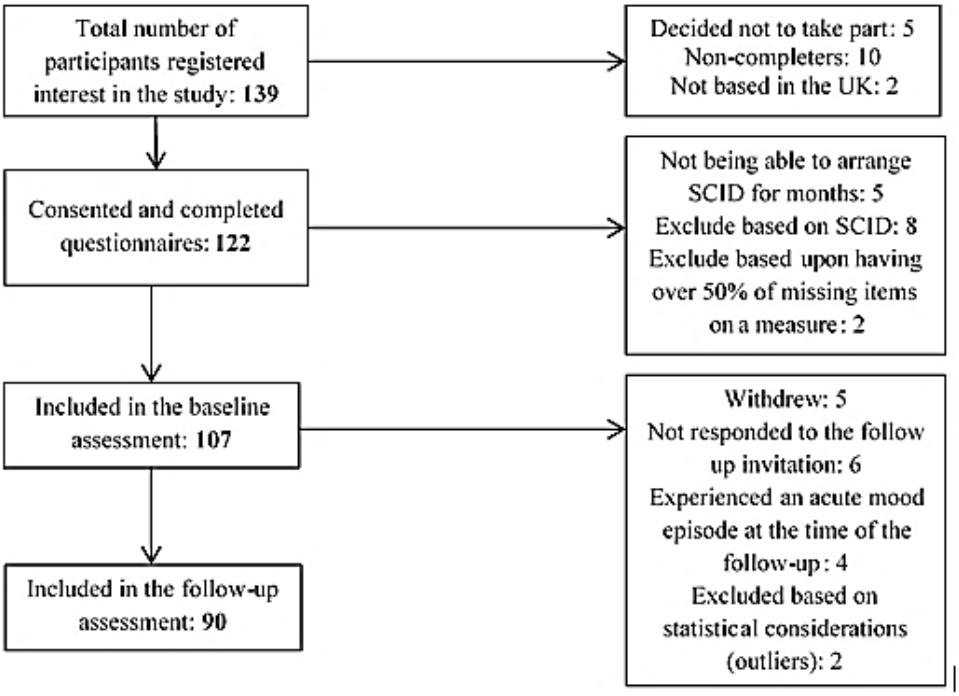


Figure 2. Recruitment and screening process

4.4.2 Descriptive statistics

Tables 9 and 10 show the results of the descriptive analyses, outcome variables are shaded in grey.

4.4.2.1 Demographic characteristics

The sample participants varied in terms of their age range (23-77) and had a mean age of 46.13 years (SD=10.97). The proportion of: females (61.7%); those in a single relationship (52.3%) and those living with others (60.7%) were slightly higher compared to: males; being in a relationship and living alone, respectively. The sample were generally well educated, with 64.5% educated to university degree level and 74.8% of the participants were employed.

Table 9. Frequencies and percentages of categorical variables

Variable	Number	Percentage
Gender		
Female	66	61.7
Male	41	38.3
Employment status		
Employed	80	74.8
Unemployed	27	25.2
Residential status		
Alone	42	39.3
With others*	65	60.7
Relationship status		
Single	56	52.3
In relationship	51	47.7
Highest education		
Primary or secondary	13	12.1
Further	25	23.4
Higher	69	64.5
Number of hospitalisations		
0	36	33.6
1-6	62	57.9
>7	9	8.4
SCID based BD diagnosis		
BD-I	76	71
BD-II	30	28
BD-NOS	1	1
Number of depressive episodes		
0-7	28	26.2
8-19	19	17.8
>20	60	56.1
Number of manic episodes		
1-7	44	41.1
8-19	19	17.8
>20	44	41.1

Table 10. Descriptive statistics of continuous variables

Variable	Mean	SD	Range
Age	46.13	10.97	23-77
Age of onset	17.55	8.22	4-49
Time since first episode (years)	28.57	11.85	3-64
Depressive symptoms	19.04	11.94	0-51
Manic symptoms	4.72	4.24	0-19
Hypomania relevant experiences	5.42	3.95	0-10
Depression relevant experiences	6.65	3.44	0-10
Rumination	34.07	12.00	11-67
Adaptive coping	17.89	9.08	0-42
Risk taking	2.92	2.91	0-16
Dysfunctional attitudes	94.45	27.40	37-161
Behavioural Activation	38.74	7.34	20-52
Impulsivity	67.61	11.07	43-105
Positive self-dispositional appraisals	24.96	7.79	10-40
Normalising scale for hypomania	24.34	6.90	10-38
Negative self-dispositional appraisals	19.49	7.45	10-36
Normalising scale for depression	27.19	6.84	10-40
BRQ BL total	**2394.57**	**455.11**	**1236-3273**
BRQ FU total (n=90)	**2476.74**	**444.52**	**1492-3310**
Change in BRQ	**55.18**	**272.62**	**-566-653**

Abbreviations: BL: Baseline; BRQ: Bipolar Recovery Questionnaire; FU: Follow-up; SD: Standard Deviation

4.4.2.2 Clinical and psychological factors

The mean age of onset was 17.55, which is in line with the literature reporting the peak onset periods between ages 15 and 25 (Baldessarini et al., 2012; Goodwin & Sachs, 2010). The mean length of time since self-reported first episode was 28.57 years (*SD* = 11.85) and more than half of the participants reported having over 20 depressive episodes (56%) and 41% experienced over 20 (hypo)manic episodes. This is in line with the literature reporting an average of 2.5-4 episodes per year (Judd & Schettler, 2010; Judd et al., 2003).

Despite the effort to target participants in euthymic phases the sample had relatively high rates of subsyndromal depression- with a mean value of 19.04 compared to the proposed cut-off point of 16 (Radloff, 1977), but lower rates of mania- *M* = 4.72, cut-off point = 5 (Altman et al., 1997). Means for the psychological measures and personal recovery were comparable to those reported in the scale development and validation papers (Jones & Day, 2008; Jones et al., 2006; Jones et al., 2013) and to previous studies on BD (Alloy, Abramson, Walshaw, et al., 2009; L.

Jones et al., 2005; Lam et al., 2004; Meyer et al., 2001; Perich et al., 2011; Strakowski et al., 2010; Swann et al., 2009; Van der Gucht et al., 2009). However, the sample had higher rates of rumination (M = 34.07) compared to previously reported means (13.43 and 19.43) in bipolar samples (Thomas et al., 2007; Van der Gucht et al., 2009).

4.4.3 Data exploration

Firstly, bivariate associations were examined, in order to acquire a greater understanding of how the examined factors interrelate. The multiple regression models are the formal assessment of the present study and this section solely aimed to provide a summary of factors, which are associated pairwise. The aims of the preliminary bivariate explorations were to i) consider pairwise associations between demographic, clinical and psychological factors (independent variables) ii) and consider bivariate associations between the examined factors and outcomes of the study-concurrent personal recovery, clinical outcomes (number of episodes) and changes in the recovery score.

4.4.3.1 Bivariate associations between independent variables

With regard to associations between demographic factors, individuals who lived alone were less likely to be in relationship X^2 (2, N = 107) = 62.96, p < .001; and had a lower education level (*Median* = 3, U = 1081, p = .032), compared to individuals who lived with others. Moreover, individuals who were employed had a higher educational level (*Median* = 3, U = 793, p =.015). Older participants reported later age of onset $r(105)$ =.263, $p \leq .001$; and men had longer time since first episode (M = 26.6 vs M = 31.76, t(105) = -2.225, p=.028) compared to women.

There were demographic differences in experiencing both manic and depressive symptomology in the present sample. Men reported significantly higher rates of manic symptoms compared to women: M = 6.15 vs M = 3.83, t(62) = 2.582, p =.012; and individuals who lived alone reported lower rates of hypomania relevant experiences in the preceding 3 months compared to individuals who lived with others: M = 4.43 vs. M = 6.06, t(105) = -2.122, p = .036. With regard to depressive symptoms, being employed: M = 16.90 vs M =2 5.37, t(105) =-3.337, p=.001; and having higher education level: rs(105) = -.311, $p \leq .001$; were associated with lower rates of depression and less depression-relevant experiences in the preceding 3 months: M = 6.21 vs M = 7.96, t(55) = -2.594, p=.012; rs(105) = -.235, $p \leq .05$, respectively.

Demographic and clinical differences were also identified in psychological processes. Single M = 37.11 vs M = 30.74, $t(2,105) = 2.842$, p = .005 and younger participants: $r(105)$ =.-.247, $p \leq .05$ exhibited higher rumination rates compared to individuals who were in a relationship or older. Unemployed participants reported significantly higher rates of negative self-dispositional appraisals: M = 18.41 vs M = 22.67, $t(105) = -2.636$, p = .010; rumination: M = 32.71 vs M = 38.11, $t(105) = -2.051$, p = .043; impulsivity M = 66.25 vs M = 71.63, $t(105)= -2.224$, p = .028; and lower rates of adaptive coping: M = 18.71 vs M = 15.44, $t(73.76) = 2.048$, p = .044. Similarly, individuals with higher educational levels exhibited lower levels of impulsivity: $rs(105) = -.234$, $p \leq .05$. Normalising appraisals for depression were higher for participants with a younger age $r(105) = -.230$, $p \leq .05$; earlier age of onset: $r(105) = -.222$, $p \leq .05$; and a higher number of hospitalisations: $rs(105) = .256$, $p \leq .001$. In addition, age of onset was negatively associated with adaptive coping $r(105) = -.317$, $p \leq .001$; risk taking: $r(105) = -.233$, $p \leq .05$; positive self-dispositional appraisals: $r(105) = -.254$, $p \leq .001$; and behavioural activation: $r(105) = -.229$, $p \leq .05$.

Table 11 shows the unique associations between symptom and psychological measures. Higher rates of manic symptoms and hypomania-relevant experiences in the past 3 months were associated with increased risk taking and increased behavioural activation; in addition, the latter was also associated with increased impulsivity and dysfunctional attitudes. Higher rates of depressive symptoms and more depression-relevant experiences in the preceding three months were both associated with elevated rumination, risk taking, impulsivity, dysfunctional attitudes, and negative self-dispositional appraisals. The different psychological processes showed some significant associations with each other (Pearson's correlation coefficients, r, ranged from .195 to .568) as presented in Table 11. The strongest association was observed between rumination and negative self-dispositional appraisals. However, none of these associations was strong enough to indicate multicollinearity.

Table 11. Pearson's correlation between symptom and psychological measures

	AMRS	CES-D	RSQ-AC	RSQ-R	RSQ-RT	HIQ H	HIQ-N	HIQ E	IDQ D	IDQ-N	IDQ E	IMP	DAS	BAS
AMRS	1	-.127	.090	-.078	**.276****	.131	-.068	**.454****	-.041	-.076	.052	.133	.007	**.340****
CES-D		1	.036	**.341****	**.374****	.087	-.006	.174	**.418****	.061	**.537****	**.386****	**.501****	.107
RSQ-AC			1	-.178	.020	.105	**.378****	-.035	-.183	**.368****	-.043	**-.213***	-.134	.162
RSQ-R				1	**.328****	**.375****	.019	.147	**.568****	.115	**.269****	**.310****	**.437****	.164
RSQ-RT					1	**.318****	-.054	**.338****	**.412****	.073	**.302****	**.455****	**.268****	**.439****
HIQ_H						1	-.101	.094	**.414****	**.219***	.110	**.265****	.177	**.296****
HIQ-N							1	-.023	-.060	**.484****	-.122	**-.269****	.015	.013
HIQ-E								1	.020	-.013	**.365****	**.332****	**.295****	**.330****
IDQ_D									1	-.087	**.230***	**.334****	**.484****	.022
IDQ-N										1	.066	-.098	-.003	**.195***
IDQ_E											1	**.299****	**.379****	.088
IMP-T												1	**.266****	**.368****
DAS-T													1	**.197***
BAS-T														1

AMRS: Altman Mania Rating Scale (Altman et al., 1997); CES-D: Center for Epidemiologic Studies: Depression Scale (Radloff, 1977); RSQ-AC: Adaptive Coping, RSQ-R: Rumination, RSQ-RT-Risk Taking (Knowles et al., 2005); HIQ-H: positive self-dispositional appraisals, HIQ-N: Normalising appraisals for hypomania relevant experiences, HIQ-E: Hypomania relevant experiences in the preceding 3 months (Jones et al., 2006); IDQ-D: negative self-dispositional appraisals; IDQ-N: Normalising appraisals for depression relevant experiences; IDQ-E: Depression relevant experiences in the preceding 3 months (Jones & Day, 2008); IMP-T: Barratt Impulsiveness Scale-Total score (Patton & Stanford, 1995); DAS-T: Dysfunctional Attitudes Scale-Total score (Power et al., 1994)

*p<.05 (2-tailed)

**p< 0.01(2-tailed)

4.4.3.2 Bivariate associations between independent and dependent factors

Table 12 presents the bivariate associations (tentative exploration) between the predictor and the outcome variables- personal recovery at baseline, change in personal recovery and clinical outcomes (number of depressive and manic episodes). The multiple regression models are the formal assessments in this study, this section solely presents that many are correlated when only pairs are considered. Firstly, being employed, having a higher education level, being in a relationship, and not living alone were associated with higher baseline personal recovery, while gender and age did not show bivariate association. With regard to clinical factors, the number of both previous manic and depressive episodes, current depressive symptoms, and depression-relevant experiences in the past 3 months before the assessment showed negative associations with baseline personal recovery, while the number of previous hospitalisations, age of illness onset, time since diagnosis, manic symptoms or hypomania-relevant experiences in the past 3 months before assessment did not. Furthermore, the assessed psychological factors also showed bivariate associations, indicating that higher levels of impulsivity, dysfunctional attitudes and negative self-dispositional appraisal were associated with lower baseline personal recovery, while higher levels of adaptive coping was identified as a pro-recovery factor in bivariate baseline analysis. We did not identify bivariate associations between baseline personal recovery and the following psychological factors: normalising self-appraisals, behavioural activation, risk-taking and positive self-dispositional appraisals.

With regard to the change in recovery at 6 months, none of the demographic variables showed bivariate associations. However, experiencing higher levels of depressive symptoms and reporting higher rates of rumination and negative self-dispositional appraisals at baseline were associated with higher change scores, indicating improvement between baseline and follow-up personal recovery scores.

Table 12. Bivariate association between demographic, clinical and psychological measures and personal recovery and clinical outcomes

Variables	**Statistic**	**BRQ BL Total** (n=107)	**BRQ change score** (n=90)	**Statistic**	**Number of depressive episodes** (n=107)	**Number of manic episodes** (n=107)
Age	*r*	.013	-.071	r_s	.180	.159
	t-test			*U-test*		
Gender	*M (SD)*			*Mdn (R)*		
Women		2434.26	70.45			
		(423.53)	(275.83)		3 (2)	2 (2)
Men		2330.68	30.044		3 (2)	3 (2)
		(500.60)	(269.43)			
	p	.175	.499	*p*	.420	.127
	t-test			*U-test*		
Employment	*M (SD)*			*Mdn (R)*		
Employed		2484.09	64.45		3 (2)	2 (2)
		(430.34)	(267.34)			
Unemployed		2129.31	29.69		3 (2)	2 (2)
		(428.93)	(291.02)			
	p	**.000**	.595	*p*	.138	.807
	t-test			*U-test*		
Living	*M (SD)*			*Mdn (R)*		
Alone		2276.02	87.74		3 (2)	2 (2)
		(418.52)	(242.92)			
With others*	*M (SD)*	2471.17	32.45		3 (2)	2 (2)
		(464.38)	(291.67)			
	p (t)	**.030**	.347	*p (U)*	.101	.385
	t-test			*U-test*		
Marital status	*M (SD)*			*Mdn (R)*		
Single		2277.50	83.89		3 (2)	2 (2)
		(425.74)	(248.86)			
In relationship		2523.12	22.38		3 (2)	2 (2)
		(455.53)	(297.10)		.189	.395
	p (t)	**.005**	.288	*p (U)*		
Highest education	r_s	**.200***	.120	r_s	-.172	-.037
Age of onset	*r*	.088	-.007	r_s	**-.205***	**-.334****
Time since first episode (year)	*r*	-.049	-.063	r_s	**.299****	**.382****
Number of depressive episodes	r_s	**-.248****	.190	r_s	-	**.447****
Number of manic episodes	r_s	**-.218***	.159	r_s	**.447****	-
Number of hospitalisations	r_s	.018	.086	r_s	-.101	-.104

Table 12 (continued)

Variables	Statistic	BRQ BL Total (n=107)	BRQ change score (n=90)	Statistic	Number of depressive episodes (n=107)	Number of manic episodes (n=107)
Depressive symptoms	*r*	**-.567****	**.294****	r_s	**.298****	**.242***
Manic symptoms	*r*	.046	-.207	r_s	-.10	.112
Hypomania relevant experiences	*r*	-.014	-.074	r_s	.006	**.217***
Depression relevant experiences	*r*	**-.335****	.039	r_s	**.206***	.102
Rumination	*r*	**-.371****	**.334****	r_s	.110	-.051
Adaptive coping	*r*	**.316****	.017	r_s	.019	.123
Risk taking	*r*	-.173	.133	r_s	**.283****	.158
Dysfunctional attitudes	*r*	**-.500****	.158	r_s	.138	**.232***
Behavioural Activation	*r*	.075	.093	r_s	.044	.002
Impulsivity	*r*	**-.295****	.015	r_s	**.202***	.161
Positive self-dispositional appraisals	*r*	-.122	.173	r_s	.082	.052
Normalising scale for hypomania	*r*	.127	.187	r_s	-.088	.079
Negative self-dispositional appraisals	*r*	**-.489****	**.283****	r_s	**.285****	**.204***
Normalising scale for depression	*r*	.175	.175	r_s	-.003	-.126
BRQ BL total	*r*	-	**-.257****	r_s	**-.248****	**-.218***
BRQ FU total (n=90)	*r*	**.805****	**.365****	r_s	-.142	-.160

*p<.05 (2-tailed)

**p< 0.01(2-tailed)

BL: baseline; FU: follow-up; BRQ: Bipolar Recovery Questionnaire; r: Pearson's correlation coefficient; r_s: Spearman's rank correlation; M: mean; SD: standard deviation; Mdn: median, R: range; U-test: Mann-Whitney U-test; t-test: Independent sample t-test

Similarly, none of the examined demographic factors were associated with clinical outcomes. Individuals with earlier age of onset, longer time since first episode, and higher rates of depressive symptoms reported higher numbers of both depressive and manic episodes. Furthermore, individuals who reported higher rates of depression-relevant experiences in the preceding 3 months, reported higher rates of depressive

episodes, while individuals who reported more hypomania-relevant experiences during the same period, reported higher number of manic episodes. In terms of psychological factors, impulsivity, risk taking, and negative self-dispositional appraisals showed positive associations with the number of depressive episodes, while the number of manic episodes was positively associated with the rates of dysfunctional attitudes and negative self-dispositional appraisals.

4.4.4 Predictors of personal recovery at baseline and change at 6 months follow-up

The primary aim of the analysis was to identify the best set of predictors of personal recovery at baseline and to identify factors that explained change in personal recovery at 6 months. To achieve this, stepwise multiple regression models with backward elimination were used. The models included all the demographic, clinical (including number of episodes) and psychological factors, and the follow-up model adjusted for baseline recovery.

Table 13 shows the factors included in the models and the statistics for the final obtained model. Multiple regression analysis was used to test if the psychological processes and demographic and clinical factors significantly predicted participants' ratings of personal recovery at baseline. The results of the regression indicated that seven predictors explained 55.7% of the variance: *Adjusted* R^2 = .557, $F(7, 99)$ = 20.058, $p < .001$). It was found that gender: female: β = 199.375, 95% CI: (70.92, 327.83); relationship status single: β = -186.54, 95% CI: (-304.97, -68.10); depressive symptoms: β = -15.252, 95% CI: (-21.360, -9.145); adaptive coping: β =12.656, 95% CI: (5.997, 19.315); risk taking: β = 27.737, 95% CI: (4.320, 51.153); dysfunctional attitudes: β = -3.805, 95% CI: (-6.503, -1.107) and negative self-dispositional appraisals: β = -14.503, 95% CI: (-24.622, -4.384) significantly predicted personal recovery at baseline. Psychological processes added an additional 20.4% to the explained variance of the demographic and clinical factors (35.3%).

A second multiple regression analysis was used to test if the psychological processes and demographic and clinical factors significantly predicted changes in participants' ratings of personal recovery between the baseline and follow-up assessment. The results of the regression indicated that three predictors explained 15.5% of the variance: *Adjusted* R^2 = .155, $F(3, 86)$ = 6.438, p = .001). It was found that being employed: β = 155.451, 95% CI: (20.754, 290.149); baseline personal

recovery: β = -0.171, 95% CI: (-0.316, -0.026); and rumination: β = 6.862, 95% CI: (2.086, 11.637) significantly predicted the change score between baseline and follow-up. Rumination explained an additional 7% to the explained variance of employment and baseline personal recovery (8.5%).

Table 13. Personal recovery baseline and follow-up models

	Baseline			Follow-up		
	BRQ Total score			BRQ change score		
	β (SE)	***t***	***p***	***β (SE)***	***t***	***p***
Intercept	2994.29 (139.57)	21.45	.000	121.61 (206.96)	0.59	.558
Demographic and clinical factors						
Age	-		-	-		-
Gender Women	199.36 (64.7)	3.08	**.003**	-		-
Age of onset	-		-	-		-
Number of depressive episodes	-			-		-
Number of manic episodes	-		-	-		-
Number of hospitalisations	-		-	-		-
Highest education	-		-	-		-
Employment status Employed	-		-	155.45 (67.76)	2.294	**.024**
Living status	-		-	-		-
Relationship status Single	-186.54 (59.69)	-3.13	**.002**	-		-
Depressive symptoms	-15.25 (3.01)	-4.96	**.000**	-		-
Manic symptoms	-		-	-		-
Hypomania relevant experiences	-		-	-		-
Depression relevant experiences	-		-	-		-
BRQ BL Total	n/a		n/a	-0.17 (0.07)	-2.34	**.022**
Psychological factors						
Rumination	-		-	6.862 (2.40)	2.86	**.005**
Adaptive coping	12.66 (3.36)	3.77	**.000**	-		-
Risk taking	27.73 (11.80)	2.35	**.021**	-		-
Dysfunctional attitudes	-3.80 (1.36)	-4.96	**.006**	-		-
Behavioural activation	-		-	-		-
Impulsivity	-		-	-		-
Positive self-dispositional appraisals	-		-	-		-
Normalising scale for hypomania	-		-	-		-
Negative self-dispositional appraisals	-14.50 (5.10)	-2.84	**.005**	-		-
Normalising scale for depression	-		-	-		-
R^2/Adjusted R^2	**.586/.557**			**.183/.155**		

Note: saturated `main effects' model (results in Appendix D*)*, β: unstandardized beta; SE: Standard error; t: t-test results, p: significance level; BRQ BL: Personal recovery total score measured on the Bipolar Recovery Questionnaire at baseline

4.4.4.1 Model diagnostic

The original follow-up sample included 92 participants; however, two participants were identified to report unusual change values and their responses were excluded from the analysis. The model including the omitted data points differed from the final follow-up model in terms of employment status being marginally non-significant at the 5% level. The residual plots of the final baseline and follow-up models did not show any underlying structure, the points were randomly dispersed around the horizontal (residual = zero) axis, and the normal linear model seemed appropriate for the data.

4.4.5 Comparison of predictors of personal and clinical recovery at baseline

The secondary aim was to compare baseline predictors of personal recovery and clinical outcomes, the latter operationalised as ordinal factors created from the number of depressive and manic episodes. To achieve this, the baseline personal recovery model presented in Table 13 was rerun without the number of depressive and manic episodes, and backward stepwise ordinal regressions were conducted to determine which factors significantly predicted the number of depressive and manic episodes. Table 14 shows the factors included in the models and reports statistics for the final obtained model.

Table 14. Models for comparing the predictors of personal and clinical recovery

	Personal recovery			Clinical outcome modelling					
	Baseline BRQ Total			Number of depressive episodes			Number of (hypo)manic episodes		
	β (SE)	***t***	***p***	***OR (SE)***	***Wald χ^2***	***p***	***OR (SE)***	***Wald χ^2***	***P***
Intercept/ Threshold	2891.02 (142.67)	20.26	.000	DE_1= 14.98 (0.83)	10.67	.001	HE_1= 502.88 (2.11)	8.73	.003
				DE_2=4 0.14 (0.87)	18.18	.000	HE_2= 1424.1 4 (2.14)	11.51	.001
Demographic and clinical factors									
Gender Female	176.10 (63.23)	2.79	**.006**	-		-	-		-
Time since diagnosis (year)	-	-	-	1.065 (0.02)	11.08	**.001**	1.09 (0.02)	15.99	**.000**
Number of hospitalisations	-	-	-	-	-	-	-	-	-
Highest education	-	-	-	-	-	-			**.006**
Further							13.30 (0.85)	9.31	.037
Higher							4.88 (0.76)	4.33	.002
Employment status Unemployed	-169.06 (73.81)	-2.29	**.024**	-		-	-		-
Living status	-		-	-		-	-		-
Relationship status Single	-178.10 (59.81)	-2.98	**.004**	-		-	-		-
Depressive symptoms	-13.45 (3.13)	-4.30	**.000**	1.041 (0.02)	4.25	**.039**	-		-
Manic symptoms	-		-	-		-	-		-
Hypomania relevant experiences	18.46 (7.94)	2.33	**.022**	-		-	1.25 (0.07)	10.60	**.001**
Depression relevant experiences	-		-	-		-	0.82 (0.08)	6.40	**.011**
Psychological factors									
Rumination	-		-	-		-	-		-
Adaptive coping	13.09 (3.37)	3.89	**.000**	-		-	1.08 (0.03)	7.03	**.008**

Table 14 (continued)

	Personal recovery			Clinical outcome modelling					
	Baseline BRQ Total			Number of depressive episodes			Number of (hypo)manic episodes		
	β (SE)	***t***	***p***	***OR (SE)***	***Wald χ^2***	***p***	***OR (SE)***	***Wald χ^2***	***P***
Risk taking	-		-	-		-	-		-
Dysfunctional attitudes	-5.82 (1.37)	-4.26	**.000**	-		-	1.02 (0.10)	6.89	**.009**
Behavioural Activation	-		-	-		-	0.89 (0.04)	9.82	**.002**
Impulsivity	-		-	-		-	1.06 (0.02)	5.95	**.015**
Positive self-dispositional appraisals	-		-	-		-	-		-
HIQ normalising scale	-		-	-		-	-		-
Negative self-dispositional appraisals	-		-	1.08 (0.03)	5.11	**.024**	-		-
IDQ normalising scale	-		-	-		-	-		-
Adjusted R^2/ Pseudo R-Square	**0.556**			**0.263**			**0.406**		

Note: β: unstandardized beta; SE: Standard error; t: t-test statistics; OR: Odds Ratio, Wald χ2: Wald test results, p: significance level; BRQ: Bipolar Recovery Questionnaire; DE_1: depressive episodes factor first category (0-7); DE_2: Depressive episodes factors second category (8-19); HE_1: Hypomanic episodes factor- first category (1-7); HE_2: Hypomanic episodes factor- second category (8-19).

The results of the personal recovery (multiple regression) model (excluding the number of episodes) indicated that seven predictors explained 55.6% of the variance: *Adjusted* R^2 = .556, $F(7, 99) = 19.940$, $p < .001$). It was found that being female: β = 176.099, 95% CI: (50.642, 301.556); being single: β = -178.103, 95% CI: (-296.786; -59.419); depressive symptoms: β = -13.445, 95% CI: (-19.647, -7.242); adaptive coping: β = 13.089, 95% CI: (6.407, 19.770); hypomania relevant experiences: β = 18.463, 95% CI: (2.705, 34.221); dysfunctional attitudes: β = -5.818, 95% CI: (-8.529, -3.106) and employment status: β = -169.057, 95% CI: (-315.507, -22.607) significantly predicted personal recovery. This model showed differences from the original best set of predictor model. When the number of depressive and manic episodes were not adjusted for, employment status and hypomania relevant

experiences became significant predictors of personal recovery; while negative self-dispositional appraisals and risk taking lost significance and dropped out of the model.

Ordinal regression models were used to test if the psychological processes, demographic and clinical factors significantly predicted the number of depressive and (hypo)manic episodes reported by study participants. *Nagelkerke's* R^2 indicated that the ordinal regression model explained 26.3% of the variation in the number of depressive episodes. The final model fitted for the number of depressive episodes, three factors remained significant: time since first episode (years): *OR* = 1.065; 95% CI: (1.026, 1.104); current depressive symptoms: *OR* = 1.041, 95% CI: (1.002, 1.082); and negative self-dispositional appraisals: *OR* = 1.075, 95% CI: (1.010, 1.146). An increase in time since first episode (expressed in years), in the current levels of depressive symptoms and negative self-dispositional appraisals was associated with an increase in the odds of the number of depressive episodes. *Nagelkerke's* R^2 indicated that the ordinal regression model explained 40.6% of the variation in the number of (hypo)manic episodes. The final model fitted for the number of (hypo)manic episodes included eight variables: time since first episode (years): *OR* = 1.085, 95% CI: (1.043, 1.130); highest level of education: further education: *OR*= 13.30, 95% CI: (2.524, 70.095); higher education: *OR* = 4.875, 95% CI: (1.096, 21.686); recent hypomania relevant experiences: *OR* = 1.247, 95% CI: (1.092, 1.424); recent depression-relevant experiences: *OR* = .819, 95% CI: (.702, .956); levels of adaptive coping: *OR* = 1.075, 95% CI: (1.019, 1.133); impulsivity: OR = 1.060, 95% CI: (1.012, 1.111); dysfunctional attitudes: *OR* = 1.024, 95% CI: (1.006; 1.043); and the behavioural activation system: OR = .889, 95% CI: (.826, .957). An increase in time since first episode (expressed in years), in hypomania relevant experiences (in the preceding three months), in adaptive coping, in impulsivity and in dysfunctional attitudes was associated with an increase in the odds of the number of (hypo)manic episodes. Moreover, the odds for individuals with further and higher educational level to report higher numbers of (hypo)manic episodes was higher compared to individuals with primary or secondary education. In contrast, an increase in depression-relevant experiences (in the preceding three months) and in behavioural activation system was associated with a decrease in the odds of the number of (hypo)manic episodes.

4.5 Discussion

The aim of the present study was to identify psychological factors impacting on concurrent personal recovery and predicting changes in recovery at six months, while adjusting for clinical and demographic factors. Moreover, the study aimed to compare these factors to factors impacting on clinical outcomes (operationalised as ordinal factors created from the number of depressive and manic episodes). Findings supported the theoretical frameworks of BD that emphasise individuals' mood experiences and interpretations and reaction to these experiences as important mechanisms, which may underpin both clinical and personal recovery outcomes. Figure 3 illustrates the results of each model.

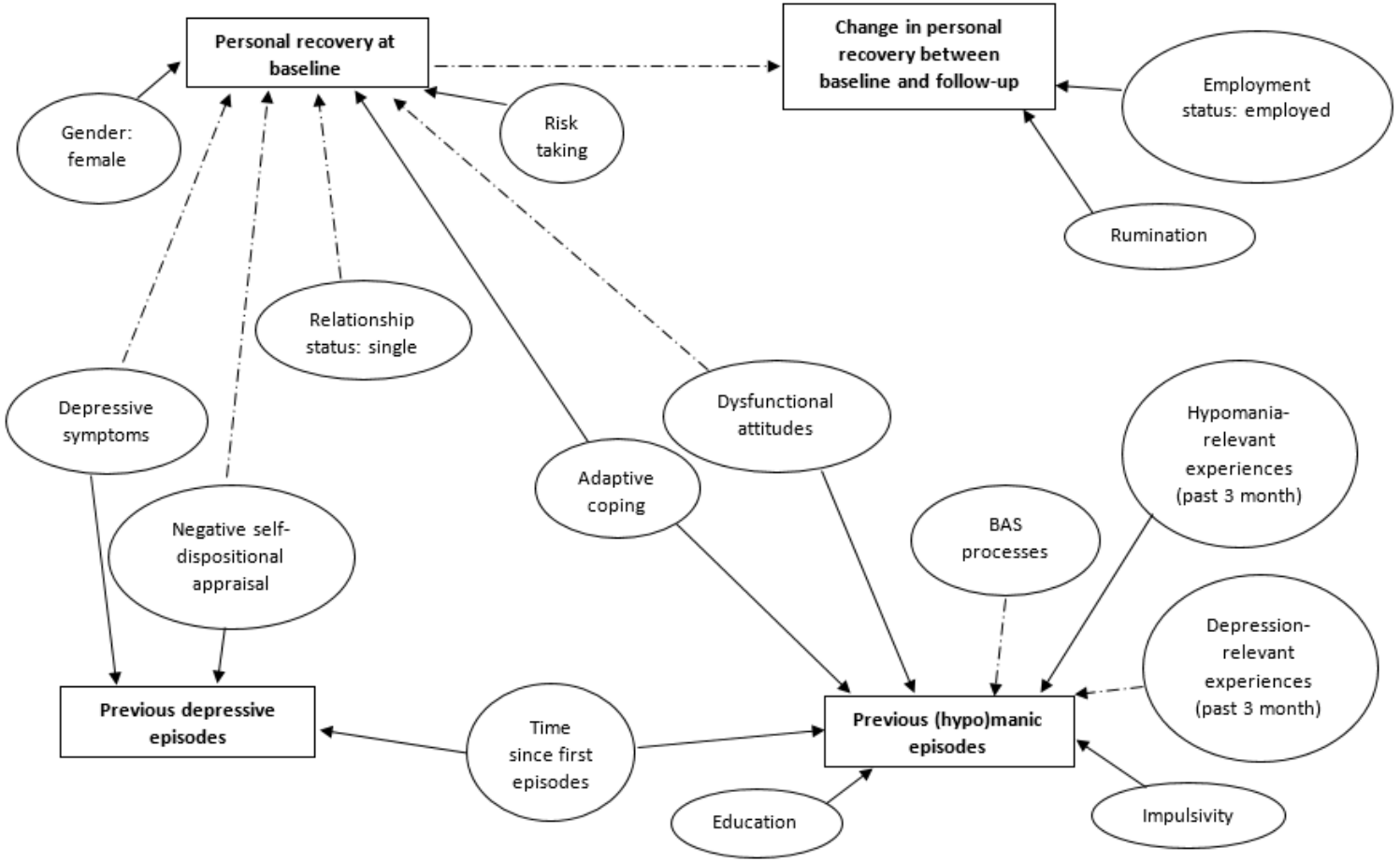


Figure 3. Factors predicting personal recovery and clinical outcome (solid lines represent positive, while dashed lines negative associations)

4.5.1 Predictors of personal recovery

With regard to the first aim, results indicate that depressive mood and reaction to depressive mood are important factors in personal recovery in BD. Lower levels of self-reported depressive symptoms and self-dispositional negative appraisals of depression-relevant experiences, along with higher rates of adaptive coping and risk-taking as response to depressive mood contributed to better personal recovery experiences. In contrast, elevated mood experiences and psychological processes previously associated with elevated mood, such as impulsivity and increased behaviour activation did not predict personal recovery in the present sample.

The present study found that individuals with lower subsyndromal depressive symptoms had better personal recovery at baseline, which is in line with previous research on personal recovery in BD (Dodd et al., 2017; Jones et al., 2013). This finding also corroborates findings that time spent with subsyndromal depressive symptoms are associated with psychosocial impairment in BD (Judd & Schettler, 2010). Furthermore, being in a relationship and female were also associated with better personal recovery, this is in line with previous research on psychotic disorders (including BD) indicating better personal recovery (Tse, Davidson, et al., 2014) and better functional recovery in females (Grossman, Harrow, Rosen, Faull, & Strauss, 2008) and married individuals with BD (Wingo, Baldessarini, Holtzheimer, et al., 2010). In the present sample, females had shorter illness duration and reported lower rates of manic symptoms, and these factors may contribute to the present findings. Moreover, individuals who were in a relationship were less likely to live alone and reported lower rates of rumination. The underlying mechanisms may include that females and individuals who are in relationships are more likely to enjoy the benefits of social, emotional and/or financial support which, in turn, may contribute to less maladaptive thinking processes and better recovery experiences.

Adaptive coping was positively associated in the present sample with recovery. This coping strategy includes distraction, such as engaging in enjoyable activities, and active problem solving (such as seeking help when needed) as responses to depression, which seems to contribute to better recovery experiences. This is in line with the conceptual framework and staging models of recovery in mental health problems, which have been mapped to the transtheoretical model of change. The most advanced stage in this model is described as *maintenance and growth*, which is

characterised by adaptive coping (rather than passive adjustment), self-reliance, and living beyond the disability (Leamy et al., 2011). Therefore, it is not surprising that applying adaptive coping contributes to better recovery.

Similarly, negative self-dispositional appraisals and dysfunctional attitudes were expected to be associated with diminished recovery experiences; this is in line with the literature indicating that such dysfunctional attitudes predispose individuals to have more severe course of illness (Lam et al., 2010). These attitudes focus on beliefs of striving to have positive affects all the time and complete control over feelings. being able to solve problems easily and quickly, and reflects the need of having to be validated by others and the need to achieve highly in order to be appreciated (Lam et al., 2004). When one fails to excel at the activities they undertook, it may result in self-criticism, hopelessness and depression, which in turn may impact negatively on personal recovery. Similarly, negative self-dispositional appraisals of depression-relevant experiences were found to be associated with personal recovery (Dodd et al., 2017). These factors remained in the model controlling for depression and other clinical and demographic factors, suggesting that dysfunctional cognitive styles are strong predictors of recovery, even after adjusting for clinical history and demographic characteristics.

The association between better personal recovery and higher levels of risk taking was unexpected. A risk-taking response style incorporates maladaptive, but enjoyable activities such as recreational drug use, excessive alcohol consumption, engaging in casual sexual relationships, and reckless driving that potentially can lead to further depression because of the negative consequences of the actions (Knowles et al., 2005). However, the present model adjusted for depressive symptoms and negative self-dispositional appraisals, which showed significant positive association with risk-taking. Therefore, it may be the case that risk-taking activities that are not associated with high levels of depression and negative self-appraisals, can be positive experiences and facilitate recovery by experimenting more in life and initiating new relationships by socialising more. In line with this, Tse and colleagues found that lifetime binge drinking was associated with more advanced stages of personal recovery (Tse, Murray, et al., 2014).

Another unexpected finding was that higher rates of baseline rumination were positively associated with the recovery change score between baseline and follow-up,

indicating an improvement in recovery. A potential explanation may be that the sample had generally higher rumination rates than reported by other studies (Thomas et al., 2007; Van der Gucht et al., 2009) and relatively high subsyndromal depression (Radloff, 1977). Rumination showed positive association with depression at baseline. One of the limitations of the study design is that at 6 months only recovery data was collected, and therefore is not known whether clinical and psychological variables changed at 6 months. It is possible that individuals with higher levels of rumination were more depressed at baseline, and their depression may have improved at 6 months, resulting in both reducing rumination and improving personal recovery outcomes. Another potential explanation may be provided by a more recent evaluation of the rumination subscale of the RSQ questionnaire (also used in the present study) which divided the original concept of rumination into two categories: brooding and reflective rumination (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). While brooding remains similar to the original definition, including directing one's attention to one's negative emotional state and passive comparison of one's current situation with some unachieved standard, reflective rumination was proposed as a thinking process whereby distance from emotions is maintained, while the individual purposefully turning inward to engage in cognitive problem solving to alleviate one's depressive symptoms (Treynor et al., 2003). It is therefore possible that individuals with high rumination scores engaged in reflective rumination as an active cognitive problem solving strategy, which supported their long-term recovery experiences. Either way, we can conclude that rumination was the only predictor of prospective personal recovery, indicating that it is more important than depression or any other clinical or psychological factors, which did not remain in the regression model.

Moreover, being employed (including any occupational status compared to being unemployed) at the time of the baseline assessment was also associated with improvement in recovery at 6 months' time. This is line with previous cross-sectional literature finding positive associations between being employed, having a meaningful role and personal recovery (Dodd et al., 2017; Grover, Hazari, Aneja, et al., 2016; Tse, Murray, et al., 2014). However, the present study extends on this finding and shows that being employed or having a meaningful occupational role, whether it is voluntary, student or retired is important in predicting recovery outcomes prospectively. In addition, unemployed individuals were more depressed and reported higher rates of

rumination at baseline, which suggest that being employed may act by moderating the level of rumination prospectively and so improve personal recovery outcomes.

4.5.2 Comparison of clinical outcomes and personal recovery

The secondary aim of the study was to compare predictors of personal recovery to predictors of clinical outcomes at baseline. The personal recovery model used for comparison did not allow for adjustment for the effects of previous manic and depressive episodes. It showed differences from the model adjusting for the effects of previous episodes: employment status and recent hypomania relevant experiences remained significant predictors in the model, while negative self-dispositional appraisals and risk taking dropped out. Exploratory bivariate analysis showed that individuals who were unemployed, had significantly higher rates of negative self-dispositional appraisals; and negative self-dispositional appraisals showed significant positive association with (and predicted in the regression model) the number of depressive episodes. Similarly, individuals who reported higher rates of recent hypomania relevant experiences also reported higher rates of risk taking, and hypomania relevant experiences showed positive association (and predicted in regression model) the numbers of hypomanic episodes. The number of hypomanic and depressive episodes both showed negative bivariate associations with personal recovery. This indicates that when episode history was not allowed for adjustment the effect of employment status was more important and potentially replaced the effect of negative self-dispositional appraisals, and the effect of recent hypomania relevant experiences replaced the effect of risk taking in the model. This highlights that demographic and clinical factors may act as potential confounders, and considering such factors for adjustment seem to be beneficial when examining the impact of psychological processes on personal recovery.

The number of depressive and manic episodes was relatively independent of demographic characteristics, with the exception of higher education levels being associated with higher number of (hypo)manic episodes while relationship and employment status and gender played important roles in personal recovery. In the present sample individuals with higher educational levels reported less current depression and depression-relevant experiences, which may mean that hypomanic experiences were more common in individuals with higher education. With regard to clinical factors, as expected, time since first episode was associated with higher

numbers of both episodes and higher depressive symptoms with more depressive episodes, while current experiences of hypomania and depression-related events were both associated with an increased number of manic episodes. This is in line with the literature evidencing that subsyndromal symptoms increase the risk of bipolar relapses (Judd et al., 2008).

An interesting finding was that the investigated outcomes showed unique and different associations with the examined psychological factors. This evidences the different trajectories to these outcomes, which is in line with the literature (Andresen et al., 2010). The only overlaps between the psychological predictors of the different outcomes were the role of adaptive coping and dysfunctional attitudes, both predicting the number of manic episodes and personal recovery. However, when number of episodes were added to the personal recovery models, negative self-dispositional appraisals explained variance in personal recovery. Negative self-dispositional appraisals also remained significant predictors of the number of depressive episodes. These findings indicate that interpretation of depression-relevant experiences may play an important role in depressive relapses, as well as in personal recovery. Higher rates of dysfunctional attitudes related to achievement and goal attainment can result in engagement in extreme pleasurable and goal oriented activities, such as extreme spending, overworking and irregularities in daily routine (Lam et al., 2004), leading to elevated mood, which is evidenced in the present sample by the association with increased number of manic episodes. None of the other examined psychological factors predicted the number of depressive episodes, indicating that psychological processes may play a more important role in personal recovery and in the number of hypomanic episodes.

With regard to the number of manic episodes, impulsivity, adaptive coping and behavioural activation played important roles. Higher rates of self-reported impulsivity were associated with higher numbers of manic episodes. This corroborates earlier research emphasizing the importance of impulsivity in the development of manic episodes (Swann et al., 2009). A more surprising result was that higher rates of self-reported behavioural activation were associated with the odds of fewer hypomanic episodes. This is in contrast with the literature emphasizing the importance of higher BAS-relevant cognitive styles in the development of (hypo)manic episodes (Alloy et al., 2008; Alloy, Abramson, Walshaw, et al., 2009). A potential explanation may be

that impulsivity and dysfunctional attitudes are more important factors underpinning the development of (hypo)manic episodes. The present study adjusted for impulsivity and dysfunctional attitudes of goal attainment and achievement, which showed positive bivariate association with the BAS scale. It is therefore possible that after adjusting for the negative impact of impulsivity and dysfunctional attitudes, increased behavioural activation associated with reward responsiveness, drive and fun seeking do not further increase the odds of manic episodes and they are associated with slightly reduced odds of developing manic episodes.

Higher rates of adaptive coping were associated with higher numbers of manic episodes. This is in line with the literature finding associations between adaptive coping and hypomanic traits in the general population and with (hypo)manic episodes in BD (Thomas & Bentall, 2002; Thomas et al., 2007). This finding supports the manic defence and depression avoidance hypothesis of BD (Abraham, 1911/1927; Thomas & Bentall, 2002), suggesting that excessive distraction as response to depressive mood and as an attempt to avoid depressive episodes can lead to over-stimulation and disruption to the circadian system and result in manic episodes (Thomas et al., 2007). In the present sample, adaptive coping showed positive association with normalising appraisals for depressive experiences. This may indicate an active attempt to normalise depressive experiences and avoid depressive relapses as an underpinning mechanism of adaptive coping.

4.5.3 Strengths and limitations

This is the first study that systematically and prospectively explored factors associated with personal recovery in BD. Moreover, this is the second study that focused on psychological processes in understanding variation in personal recovery outcomes, and addressed gaps in the literature highlighted by previous research by using prospective designs and considering the impact of response styles (Dodd et al., 2017). Moreover, to our best knowledge, this study is the first to compare predictors of recovery and clinical outcome within the same bipolar population and consider the potential impact of demographic, clinical and psychological factors in the interpretation of the results. Furthermore, the study did not restrict recruitment to specific UK areas or to people in mental health services, which may improve generalisability of the findings. Despite these attempts to improve generalisability, individuals who express interest in research projects are unlikely to represent all

individuals with BD experiences. For instance, 75% of participants were employed, which is much higher than the 40-60% employment rate reported in individuals with BD (Marwaha et al., 2013). In addition, the study retained high follow-up rates at 6 months, which reflects the service users' engagement and interest in this area of research.

However, the present study has several limitations. Firstly, psychological and clinical factors were not measured as part of the follow-up assessment. Therefore, it is not known whether there were changes in symptomology and psychological processes and if so, how these impacted on personal recovery. Moreover, despite the efforts to recruit individuals in euthymic states, high levels of depressive symptoms were reported in the present sample, which may have impacted on the study outcomes. A potential explanation for this is that there was a time gap between completing the baseline questionnaires and arranging the SCID interviews, during which participants may have developed more depressive symptoms. To control for this effect, depressive symptoms were adjusted for in the analysis. Furthermore, the sample size was smaller than targeted. The power calculation was based upon explaining a total of 28% of the variance in personal recovery, which is conservative and the present study explained over 55% of the variance. Less conservative assumptions would have resulted in smaller target sample size; therefore, it is believed, that the present study was sufficiently powered.

4.5.4 Clinical implications

Future refined recovery-focused interventions for individuals with BD are recommended to target the personalised needs of the individuals. These interventions should focus on enhancing balanced adaptive coping strategies and engagement in pleasurable activities, while diminishing depressive symptoms, dysfunctional attitudes of achievement, goal attainment, dependency and maladaptive reactions to depressive symptoms, such as rumination and negative self-dispositional appraisals. Behavioural-cognitive therapies have an evidence base regarding fostering adaptive problem solving processes, and challenging maladaptive cognitive vulnerability, and are recommended by the NICE guideline for BD (NICE, 2014). Moreover, mindfulness-based cognitive therapy also showed promise to target dysfunctional attitudes of goal attainment (Deckersbach et al., 2012; Perich et al., 2013). Furthermore, interventions helping individuals to return to suitable and meaningful employment roles may be

beneficial in improving longer-term recovery outcomes. For instance occupational rehabilitation is recommended by both the NICE guidelines and in emphasized in the five-year view of NHS England (NHS England, 2016; NICE, 2014).

4.5.5 Future research directions

Future prospective work is needed to assess whether changes in clinical and psychological factors are associated with changes in personal recovery outcomes and explore the pattern of these potential associations. Moreover, the present study was not powered to explore interactional effects between the examined psychological processes and recovery. The bivariate exploration indicated that the different psychological processes are associated, and a unique interaction of these processes may underpin variance in personal recovery. Investigating such interactions would require larger scale prospective studies. In addition, future clinical trials are required to assess whether refined recovery-focused interventions are effective in facilitating better recovery experiences in individuals with BD.

4.5.6 Conclusion

In conclusion, the present study found that balanced adaptive coping and risk-taking response styles impact positively on concurrent personal recovery experiences, while depressive symptoms, dysfunctional attitudes and negative self-dispositional appraisals had a negative association on recovery. Prospective findings were less conclusive, due to not examining changes in the psychological processes. However, rumination and employment status predicted changes in recovery at 6-month follow-up. The patterns of predictors in personal recovery and clinical outcomes showed great variance, indicating that there is a difference between the two types of outcome measures supporting the service users' claims that clinical measures do not assess important aspects of recovery (Andresen et al., 2010).

4.6 References

Abraham, K. (1911/1927). Notes on the psychoanalytic investigation and treatment of manic depressive insanity. In E. Jones (Ed.), *Selected papers of Karl Abraham*. London: Hogarth.

Alatiq, Y., Crane, C., Williams, J. M., & Goodwin, G. M. (2010). Dysfunctional beliefs in bipolar disorder: hypomanic vs. depressive attitudes. *Journal of Affective Disorders, 122*(3), 294-300. doi: 10.1016/j.jad.2009.08.021

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Cogswell, A., Grandin, L. D., Hughes, M. E., . . . Hogan, M. E. (2008). Behavioral approach system and behavioral inhibition system sensitivities and bipolar spectrum disorders: Prospective prediction of bipolar mood episodes. . *Bipolar Disorders, 10,* 310-322.

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Gerstein, R. K., Keyser, J. D., Whitehouse, W. G., . . . Harmon-Jones, E. (2009). Behavioral approach system (BAS)-relevant cognitive styles and bipolar spectrum disorders: concurrent and prospective associations. *Journal of Abnormal Psychology, 118*(3), 459-471. doi: 10.1037/a0016604

Alloy, L. B., Urošević, S., Abramson, L. Y., Jager-Hyman, S., Nusslock, R., Whitehouse, W. G., & Hogan, M. (2012). Progression along the bipolar spectrum: A longitudinal study of predictors of conversion from bipolar spectrum conditions to bipolar I and II disorders. *Journal of Abnormal Psychology, 121,* 16-27. doi: 10.1037/a0023973.supp

Altman, E. G., Hedeker, D., Peterson, J. L., & Davis, J. M. (1997). The Altman self-rating mania scale. *Biological Psychiatry, 42,* 948-955.

Andresen, R., Caputi, P., & Oades, L. G. (2010). Do clinical outcome measures assess consumer-defined recovery? *Psychiatry Research, 177*(3), 309-317.

Baldessarini, R., Tondo, L., Vazquez, G., Undurraga, J., Bolzani, L., Yildiz, A., . . . Tohen, M. (2012). Age at onset versus family history and clinical outcomes in 1,665 international bipolar-I disorder patients. *World Psychiatry, 11*(1), 40-46.

Barratt, E. S. (1993). Impulsivity: Integrating cognitive, behavioral, biological, and environmental data. In W. G. McCown, J. L. Johnson & M. B. Shure (Eds.), *The impulsive client: Theory, research and treatment* (pp. 39-56.). Washington, D. C.: American Psychological Association.

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67,* 319-333.

Deckersbach, T., Hölzel, B. K., Eisner, L. R., Stange, J. P., Peckham, A. D., Dougherty, D. D., . . . Nierenberg, A. A. (2012). Mindfulness-based cognitive therapy for nonremitted patients with bipolar disorder. *CNS Neuroscience & Therapeutics, 18*(2), 133-141.

Department of Health. (2011). *No health without mental health: A cross-government mental health outcomes strategy for people of all ages*. London: Department of Health.

Depue, R. A., & Iacono, W. G. (1989). Neurobehavioral aspects of affective disorders. *Annual Review of Psychology, 40*, 457-492.

Dodd, A. L., Mezes, B., Lobban, F., & Jones, S. H. (2017). Psychological mechanisms and the ups and downs of personal recovery in bipolar disorder. *British Journal of Clinical Psychology, 56*(3), 310-328. doi: 10.1111/bjc.12140

Field, A. (Ed.). (2009). *Discovering Statistics Using IBM SPSS Statistics* (3rd ed.)., London: SAGE.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders, research version, patient edition (SCID-I/P)*. New York: Biometrics Research, New York State Psychiatric Institute.

Gitlin, M. J., & Miklowitz, D. J. (2017). The difficult lives of individuals with bipolar disorder: A review of functional outcomes and their implications for treatment. *Journal of Affective Disorders, 209,* 147-154.

Goodwin, G., & Sachs, G. S. (2010). *Bipolar disorder [electronic resource]* (2nd ed. ed.). Abingdon: Health Press.

Gray, J. A. (1982). *The neuropsychology of anxiety : an enquiry into the functions of the septo-hippocampal system*. Oxford : Clarendon Press ; New York : Oxford University Press.

Grossman, L. S., Harrow, M., Rosen, C., Faull, R., & Strauss, G. P. (2008). Sex differences in schizophrenia and other psychotic disorders: A 20-year longitudinal study of psychosis and recovery. *Comprehensive Psychiatry, 49*(6), 523-529. doi: 10.1016/j.comppsych.2008.03.004

Grover, S., Hazari, N., Aneja, J., Chakrabarti, S., Sharma, S., & Avasthi, A. (2016). Recovery and its correlates among patients with bipolar disorder: A study from a tertiary care centre in North India. *International Journal of Social Psychiatry, 62*(8), 726-736. doi: 10.1177/0020764016676214

Hayden, E. P., Bodkins, M., Brenner, C., Shekhar, A., Nurnberger, J. I., Jr., O'Donnell, B. F., & Hetrick, W. P. (2008). A multimethod investigation of the behavioral activation system in bipolar disorder. *Journal of Abnormal Psychology, 117*(1), 164-170. doi: 10.1037/0021-843X.117.1.164

Henna, E., Hatch, J. P., Nicoletti, M., Swann, A. C., Zunta-Soares, G., & Soares, J. C. (2013). Is impulsivity a common trait in bipolar and unipolar disorders? *Bipolar Disorders, 15*(2), 223-227. doi: 10.1111/bdi.12034

Jones, L., Scott, J., Haque, S., Gordon-Smith, K., Heron, J., Caesar, S., . . . Craddock, N. (2005). Cognitive style in bipolar disorder. *British Journal of Psychiatry, 187*(5), 431-437. doi: 10.1192/bjp.187.5.431

Jones, S. H. (2001). Circadian rhythms, multilevel models of emotion and bipolar disorder—an initial step towards integration? *Clinical Psychology Review, 21*, 1193-1209.

Jones, S. H., & Day, C. (2008). Self appraisal and behavioural activation in the prediction of hypomanic personality and depressive symptoms. *Personality and Individual Differences, 45*(7), 643-648. doi: 10.1016/j.paid.2008.07.008

Jones, S. H., Mansell, W., & Waller, L. (2006). Appraisal of hypomania-relevant experiences: Development of a questionnaire to assess positive self-dispositional appraisals in bipolar and behavioural high risk samples. *Journal of Affective Disorders, 93*(1-3), 19-28. doi: 10.1016/j.jad.2006.01.017

Jones, S. H., Mulligan, L. D., Higginson, S., Dunn, G., & Morrison, A. P. (2013). The Bipolar Recovery Questionnaire: Psychometric properties of a quantitative measure of recovery experiences in bipolar disorder. *Journal of Affective Disorders, 147*(1-3), 34-43. doi: 10.1016/j.jad.2012.10.003

Jones, S. H., Smith, G., Mulligan, L. D., Lobban, F., Law, H., Dunn, G., . . . Morrison, A. P. (2015). Recovery-focused cognitive-behavioural therapy for recent-onset bipolar disorder: Randomised controlled pilot trial. *British Journal of Psychiatry, 206*(1), 58-66. doi: 10.1192/bjp.bp.113.141259

Judd, L. L., & Schettler, P. J. (2010). The long term course and clinical management of bipolar I and bipolar II disorders. In L. N. Yatham & M. Maj (Eds.), *Bipolar disorder: Clinical and neurobiological foundations*. Oxford : Wiley-Blackwell.

Judd, L. L., Schettler, P. J., Akiskal, H. S., Coryell, W., Leon, A. C., Maser, J. D., & Solomon, D. A. (2008). Residual symptom recovery from major affective episodes in bipolar disorders and rapid episode relapse/recurrence. *Archives of General Psychiatry, 65*(4), 386-394.

Judd, L. L., Schettler, P. J., Akiskal, H. S., Maser, J., Coryell, W., Solomon, D., . . . Keller, M. (2003). Long-term symptomatic status of bipolar I vs. bipolar II disorders. *International Journal of Neuropsychopharmacology, 6*(2), 127-137. doi: 10.1017/S1461145703003341

Kelly, R. E., Mansell, W., Wood, A. M., Alatiq, Y., Dodd, A., & Searson, R. (2011). Extreme positive and negative appraisals of activated states interact to discriminate bipolar disorder from unipolar depression and non-clinical controls. *Journal of Affective Disorders, 134*(1-3), 438-443. doi: 10.1016/j.jad.2011.05.042

Knowles, R., Tai, S., Christensen, I., & Bentall, R. (2005). Coping with depression and vulnerability to mania: a factor analytic study of the Nolen-Hoeksema (1991) Response Styles Questionnaire. *British Journal of Clinical Psychology, 44*(1), 99-112. doi: 10.1348/014466504X20062

Lam, D., Jones, S. H., & Hayward, P. (2010). *Cognitive therapy for bipolar disorder: A therapist's guide to concepts, methods and practice* (2nd ed. ed.). Chichester: Wiley-Blackwell.

Lam, D., Wright, K., & Smith, N. (2004). Dysfunctional assumptions in bipolar disorder. *Journal of Affective Disorders, 79*(1-3), 193-199. doi: 10.1016/s0165-0327(02)00462-7

Law, H., Shryane, N., Bentall, R. P., & Morrison, A. P. (2016). Longitudinal predictors of subjective recovery in psychosis. *British Journal of Psychiatry, 209*(1), 48-53.

Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: Systematic review and narrative synthesis. *British Journal of Psychiatry, 199*(6), 445-452. doi: 10.1192/bjp.bp.110.083733

Mansell, W., Paszek, G., Seal, K., Pedley, R., Jones, S., Thomas, N., . . . Dodd, A. (2011). Extreme appraisals of internal states in bipolar I disorder: A multiple control group study. *Cognitive Therapy and Research, 35*(1), 87-97. doi: 10.1007/s10608-009-9287-1

Marwaha, S., Durrani, A., & Singh, S. (2013). Employment outcomes in people with bipolar disorder: A systematic review. *Acta Psychiatrica Scandinavica, 128*(3), 179-193.

Meyer, B., Johnson, S. L., & Winters, R. (2001). Responsiveness to threat and incentive in bipolar disorder: Relations of the BIS/BAS scales with symptoms. *Journal of Psychopathology and Behavioral Assessment, 23*, 133-143.

Morriss, R., Lobban, F., Riste, L., Davies, L., Holland, F., Long, R., . . . Jones, S. (2016). Clinical effectiveness and acceptability of structured group psychoeducation versus optimised unstructured peer support for patients with remitted bipolar disorder (PARADES): A pragmatic, multicentre, observer-blind, randomised controlled superiority trial. *Lancet Psychiatry, 3*(11), 1029-1038. doi: 10.1016/s2215-0366(16)30302-9

Najt, P., Perez, J., Sanches, M., Peluso, M. A., Glahn, D., & Soares, J. C. (2007). Impulsivity and bipolar disorder. *European Neuropsychopharmacology, 17*(5), 313-320. doi: 10.1016/j.euroneuro.2006.10.002

NHS England. (2016). *The five year forward view for mental health: Mental health taskforce strategy*. Retrieved, from https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf

NICE. (2014). *Bipolar disorder (update): the management of bipolar disorder in adults, children and adolescents in primary and secondary care. Guideline (CG185)*: National Institute for Health and Clinical Excellence

Nicholson, T., Cutter, W., & Hotopf, M. (2008). Assessing mental capacity: The Mental Capacity Act. *British Medical Journal 336,* 322-325.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*(4), 569-582.

Patton, J. H., & Stanford, M. S. (1995). Factor structure of the Barratt impulsiveness scale. *Journal of Clinical Psychology, 51*, 768-774.

Perich, T., Manicavasagar, V., Mitchell, P. B., & Ball, J. R. (2011). Mindfulness, response styles and dysfunctional attitudes in bipolar disorder. *Journal of Affective Disorders, 134*(1-3), 126-132. doi: 10.1016/j.jad.2011.06.004

Perich, T., Manicavasagar, V., Mitchell, P. B., Ball, J. R., & Hadzi-Pavlovic, D. (2013). A randomized controlled trial of mindfulness-based cognitive therapy for bipolar disorder. *Acta Psychiatrica Scandinavica, 127*(5), 333-343.

Power, M. J., Katz, R., McGuffin, P., Duggan, C. F., Lam, D., & Beck, A. T. (1994). The Dysfunctional Attitude Scale (DAS): A comparison of forms A and B and proposals for a new subscaled version. *Journal of Research in Personality, 28*, 263-276.

Radloff, L. S. (1977). The CES-D Scale. *Applied Psychological Measurement, 1*(3), 385-401. doi: 10.1177/014662167700100306

Reilly-Harrington, N. A., Alloy, L. B., Fresco, D. M., & Whitehouse, W. G. (1999). Cognitive styles and life events interact to predict bipolar and unipolar symptomatology. *Journal of Abnormal Psychology, 108*, 567-578.

Senn, S. (2006). Change from baseline and analysis of covariance revisited. *Statistics in Medicine, 25*(24), 4334-4344. doi: doi:10.1002/sim.2682

Slade, M. (2009). *Personal recovery and mental illness: A guide for mental health professionals*. Cambridge: Cambridge University Press.

Strakowski, S. M., Fleck, D. E., DelBello, M. P., Adler, C. M., Shear, P. K., Kotwal, R., & Arndt, S. (2010). Impulsivity across the course of bipolar disorder. *Bipolar Disorders, 12*(3), 285-297. doi: 10.1111/j.1399-5618.2010.00806.x

Swann, A. C., Lijffijt, M., Lane, S. D., Steinberg, J. L., & Moeller, F. G. (2009). Increased trait-like impulsivity and course of illness in bipolar disorder. *Bipolar Disorders, 11*, 280-288.

Thomas, J., & Bentall, R. P. (2002). Hypomanic traits and response styles to depression. *British Journal of Clinical Psychology, 41*, 309-313.

Thomas, J., Knowles, R., Tai, S., & Bentall, R. P. (2007). Response styles to depressed mood in bipolar affective disorder. *Journal of Affective Disorders, 100*(1-3), 249-252. doi: 10.1016/j.jad.2006.10.017

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*(3), 247-259.

Tse, S., Davidson, L., Chung, K. F., Ng, K. L., & Yu, C. H. (2014). Differences and similarities between functional and personal recovery in an Asian population: A cluster analytic approach. *Psychiatry, 77*, 41-56.

Tse, S., Murray, G., Chung, K. F., Davidson, L., Ng, K. L., & Yu, C. H. (2014). Exploring the recovery concept in bipolar disorder: A decision tree analysis of psychosocial correlates of recovery stages. *Bipolar Disorders, 16*(4), 366-377. doi: 10.1111/bdi.12153

Van der Gucht, E., Morriss, R., Lancaster, G., Kinderman, P., & Bentall, R. P. (2009). Psychological processes in bipolar affective disorder: Negative cognitive style and reward processing. *British Journal of Psychiatry, 194*(2), 146-151. doi: 10.1192/bjp.bp.107.047894

Wingo, A. P., Baldessarini, R. J., Holtzheimer, P. E., & Harvey, P. D. (2010). Factors associated with functional recovery in bipolar disorder patients. *Bipolar Disorders, 12*(3), 319-326. doi: 10.1111/j.1399-5618.2010.00808.x

Chapter 5: A qualitative investigation of personal recovery experiences in bipolar disorder (BD)-intrapersonal factors

Intended for submission to Journal of Abnormal Psychology

5.1 Abstract

Objective: The importance of personal recovery, as opposed to solely focusing on clinical recovery, has been recognised internationally and mental health policies foster the delivery of recovery-oriented services. Despite this, research focusing on personal recovery in BD is limited. This study aims to explore the views of individuals with BD on the utility of a widely used personal recovery definition, on factors seen to be important in recovery and potential links between day-to-day and longer-term recovery experiences.

Methods: Semi-structured interviews were used to collect qualitative data from 21 participants with BD. Participants were purposively sampled across a range of personal recovery scores collected in a previous quantitative study. A thematic analysis was used to identify key themes in relation to each of the research aims.

Results: Participants' views on definition varied extensively; participants with lower personal recovery scores identified more strongly with the clinical recovery model compared to participants with higher recovery scores, who found the personal recovery concept more applicable and useful. With regard to important factors supporting or hindering personal recovery, three intrapersonal themes emerged: behavioural self-monitoring and management strategies (holistic approach, engagement in activities and medication); cognitive coping strategies (coping styles and psychotherapy); and philosophical stances (self-acceptance and normalisation and religion and spirituality). Individual variation within each theme was explored and clinical implications are presented.

Conclusion: Results indicate that there is a complex, multifaceted relationship between intrapersonal factors and personal recovery in BD. The themes enhance the current understanding of the underlying mechanisms linking self-management and coping strategies to personal recovery in BD and emphasize the importance of exploring individuals' coping styles when developing recovery plans.

5.2 Introduction

The recovery concept in mental health problems, including BD, has been transformed in the last two decades. BD has been traditionally characterised as an enduring and severe condition with no or limited possibilities for recovery- primarily defined as being asymptomatic (Whitwell, 2005). However, this clinical recovery conceptualisation has been challenged by service users in the last two decades, defining recovery as a personal process, rather than a clinical outcome, and emphasizing the importance of quality of life, social and functional improvements, among many other aspects (Slade, 2009). Anthony (1993) defines personal recovery as "a deeply personal and unique process of changing ones attitudes, values, feelings, goals, skills and/or roles' and as 'a way of living a satisfying, hopeful and contributing life even with the limitations caused by the illness" (p. 527.). The personal recovery orientation has received increased attention and been adopted by mental health policies and services internationally (Department of Health, 2011; Mental Health Commission of Canada, 2012; New Freedom Commission on Mental Health, 2003). Despite this, research in personal recovery has been limited, particularly in BD.

Previous qualitative studies in recovery have primarily focused on how individuals, with minimum 2 year episode-free periods, managed to stay well and avoid relapses (Mansell et al., 2010; Russell & Browne, 2005). These studies found that accepting the diagnosis and education about BD are cornerstones for identifying triggers and warning signs and avoiding relapses (Mansell et al., 2010; Russell & Browne, 2005). Furthermore, lifestyle fundamentals including developing a regular routine, healthy diet, exercise and adequate sleep, along with social support are important factors in staying well (Mansell et al., 2010; Russell & Browne, 2005). While the importance of medication was also highlighted in mood-management; Mansell and colleagues identified that this was an ambivalent approach due to the attached adverse side effects (Mansell et al., 2010). Whilst these studies are important in learning about relapse prevention in BD they overlook the personal aspects of the recovery process. Exploring both clinical and personal recovery experiences is important, as there is evidence there is not always a relationship between the two (Macpherson et al., 2016).

A further qualitative investigation explored the nature of personal recovery in people with early BD (less than 5 years) (Morrison et al., 2016). In line with the

'staying well' studies, understanding and managing mood experiences was also found to be important. In contrast to the 'staying well' studies, developing resources and independence in managing BD and engaging in meaningful activities were emphasized as important components of personal recovery; however, medication did not emerge as a key theme (Morrison et al., 2016). While this study provides important information about the nature of personal recovery in BD, the sample was very small (*N*=9) and the population very specific, focusing on individuals with early BD (limited lived experiences). Furthermore, this research focused on the nature of recovery and did not explore potential factors and mechanisms that may facilitate or hinder personal recovery in BD.

The present study extends the current knowledge by interviewing individuals with BD, who were purposively selected based upon their quantitative recovery scores to explore variation in views on personal recovery in BD. The present study aimed to answer the following research questions:

i) What are the views of participants about the utility of a widely used personal recovery definition (Anthony, 1993), and its relevance to participants' own personal experiences?

ii) Which factors do participants think support or hinder their personal recovery day-to-day and longer-term and how do these interrelate?

iii) How do participants describe potential links between day-to-day and longer-term recovery experiences?

5.3 Method

5.3.1 Design

One-to-one semi-structured qualitative interviews were used to explore the unique personal recovery experiences of individuals with BD, allowing the interviewer to seek clarification of what is an intensely personal and complex process (Lewis, 2003).

5.3.2 Sampling and recruitment

This qualitative investigation was the second phase of a larger mixed methods study. The first phase (Chapter 4) used prospective quantitative data collection to assess personal recovery in individuals with BD. Participants for both phases were

recruited via clinical referral in NHS Mental Health Services in Northwest England, and self-referral via social media (Twitter and Facebook), Spectrum Connect (a panel of individuals who had expressed an interest in taking part in research at Lancaster University), and the voluntary sector (e.g., Bipolar UK), using convenience sampling. Bipolar UK distributed study flyers nationwide via their support groups. The flyers invited participants to take part in a mixed method study exploring their personal recovery experiences. Participants were included in the first phase if they: i) had a primary research diagnosis of bipolar (I or II) disorder, confirmed using Structured Clinical Interview for DSM-IV (SICD) (First et al., 2002) ii) were aged over 18; iii) had sufficient English language skills and residing in the UK; iv) had capacity to consent; assessment of this was based on the procedures outlined by (Nicholson et al., 2008). Participants were excluded if they i) were experiencing a current episode of (hypo)mania or depression and/or being treated under a section of the Mental Health Act; ii) or showed actively suicidal behaviour or primary alcohol and drug problems.

Quantitative baseline recovery data from participants, who expressed interest in the second phase of the study, was used to inform purposive sampling. A subsample of individuals from phase 1 was selected based upon their baseline recovery score measured on the Bipolar Recovery Questionnaire (Jones et al., 2013). The subsample included individuals across the range of recovery scores in an attempt to explore, and where applicable, contrast, views on factors influencing recovery and so deepen our understanding of the range of recovery experiences. Emerging codes were continuously monitored to inform sampling, and data collection was continued until the research team deemed that sufficient repetition occurred in participants' personal accounts with limited divergence from the developed coding framework.

5.3.3 Measures

5.3.3.1 Personal recovery

Personal recovery was assessed as part of the first phase of the study by the Bipolar Recovery Questionnaire (BRQ) (Jones et al., 2013). The BRQ has 36 items; each item is marked on a 100mm visual analogue scale from 0 to 100. The scale is anchored at four points by 'strongly disagree' (0), 'disagree' (25), 'Agree' (75) and 'Strongly agree' (100). The scores range from 0-3600 and higher BRQ scores indicate a higher degree of self-rated personal recovery.

5.3.3.2 Demographic and clinical history

A *demographic questionnaire* was used to collect demographic information, including age, gender, employment, education and relationship status. *Structured Clinical Interview for DSM-IV (SCID)* (First et al., 2002) was used for verifying BD research diagnosis and for identifying and excluding individuals with current mood episode, suicidal behaviour and/or with a primary psychiatric research diagnosis other than BD. The following modules were administered: A (Mood Episodes), B (Psychotic and Associated Symptoms), C (Psychotic Disorders), D (Mood Disorders) and E (Substance Use Disorders).

5.3.3.3 Qualitative interview schedule

The interview topic guide was developed in consultation with a service-user advisory panel, comprising individuals with lived experiences of BD. The interview started with providing participants with Anthony's (1993) widely used personal recovery definition to provide a starting point for discussion about the concept and open a dialogue about whether the definition reflected their own experiences. This definition and interview section was originally not part of the schedule, however, the panel members felt that for some people it might be difficult to talk about personal recovery and adding a definition would ensure that participants were familiar with the personal recovery concept and the potential differences in their views were not due to various levels of familiarity. As a response to this request, one of the most widely used definitions of personal recovery in mental health problems was selected and two panel members volunteered to participate in a pilot interview and they found the definition and questions easy to follow and suitable to answer the research questions.

Following the exploration of participants' views on the widely used personal recovery definition, the interview schedule used a hybrid or funnel structure, starting with open research questions to explore participants' views on the process of recovery and factors impacting on personal recovery experiences on both day-to-day and long term (inductive part). The open questions were followed by a set of narrower, a priori questions (prompts), deriving from previous literature and interest of the research team, to explore how participants felt that i) activities, ii) life events, iii) social network, iv) mood changes, and v) psychological processes (thinking and behaviour) impacted on their personal recovery experiences day-to-day and long term. Although

the prompts derived from a deductive approach, they were used systematically after the exploration of answers to the open research questions. Starting with open research questions followed by more specific questions, was advantageous, because participants first expressed their own thoughts and experiences, which helped to develop rapport and explore the extent to which the a priori topics were already part of the participants' thinking/experiences before they were prompted to think in these terms. The topic guide was flexible to accommodate other factors not originally outlined in the topic guide (Appendix C). The interview concluded by exploring participants' views on links between day-to-day and longer-term recovery experiences. The topic guide was flexible to accommodate other factors not originally outlined in the topic guide (Appendix C). The interview concluded by exploring participants' views on links between day-to-day and longer-term recovery experiences.

5.3.4 Procedure

NHS Research Ethics Committee approval was obtained (Ref: 14/LO/1170). Participants at Phase 1 consented to be informed about the qualitative follow-up study (Phase 2) and provided additional informed written consent prior to taking part in the qualitative interviews. The SCID questions to assess current symptoms were repeated at the start of the interview to screen for any current episodes. The researcher administering the SCID interview (BM) was fully trained and attended regular clinical supervision. To maximise geographical participation interviews were conducted over the phone. Interviews lasted between 45-60 minutes, were conducted by the principal investigator (BM), were audio recorded with the consent of participants, and transcribed for analysis. Participants were informed that they could withdraw their data within 2 weeks of participating in the interview. This 2 week time frame was given because of difficulty withdrawing data once qualitative analyses had begun. All data was anonymised, including audio-files and transcripts.

5.3.5 Data analysis

The analysis had two separate components; the first component focused on reviewing participants' views on the provided definition and on the link between day-to-day and long-term personal recovery using a narrative summary (presented in sections 5.4.2 and 5.4.4). Secondly, exploring participants' views on factors influencing personal recovery, using a hybrid thematic analysis, with a major

inductive element, following the recommended steps of Braun and Clarke (Braun & Clarke, 2006). Thematic analysis is reliable approach to qualitative analysis, which enables researcher to capture both manifest (directly observable) and latent (more implicit) content in relation to the studied phenomenon (Joffe, 2012). Therefore, themes describing factors that influence personal recovery in BD can be captured and interpreted. The first stage included familiarisation with the transcripts, followed by initial line-by-line inductive coding to develop a coding framework based upon the complete dataset. The approach somewhat diverged form the steps of Braun and Clarke (2006), as participants' experiences that were related to the a priori interview questions were coded under a priori codes, while answers that did not relate to these questions were coded as a posteriori codes (as outlined by Swain, 2018).

BM repeatedly read and initially coded each transcript and the other research team members (SJ and FL) independently read and assigned codes for a subset of the interviews. Following this, the coding framework was discussed and refined by the team and BM applied the refined codes to the data and started to draw out preliminary subthemes by collapsing a priori and a posteriori codes into subthemes. Further team discussions were used to create a final set of overarching themes and subthemes by identifying patterns and associations within the data that reflected participants' views and experiences on personal recovery. Within this approach, a priori and a posteriori codes were represented in both subthemes and overarching themes. For instance, activity supporting personal recovery (a priori code) was a subtheme under behavioural self-monitoring and management (a posteriori code); and psychological processes (a priori code) formed an overarching theme of cognitive coping strategies, where subthemes were formed by a posteriori codes (such as response style and challenging negative thoughts). Where applicable, views of participants with different recovery experiences were contrasted.

5.3.6 Reflexivity

BM is a PhD student and SJ and FL are academic clinical psychologists with a research background and interest in mental health research investigating psychosocial factors underlying mental health problems, including BD. The team members assumed that personal recovery is a useful concept, and find this conceptualisation more empowering than solely focusing on symptomatic clinical recovery. This may have introduced bias and impacted on the data analysis and

interpretation, especially since qualitative interviews based upon constructivist ontological approach, where interpretation of a phenomenon is co-constructed by both the participant and researcher (Darlaston-Jones, 2007). For instance, we may have looked specifically for where participants' views on the personal recovery concept differed from the research team's assumptions, and we may have concentrated strongly on the variation along this construct.

To mitigate such impacts, a reflective log was used to monitor the interview and analysis process, with the aim of identifying potential risks for bias. BM's observations were used to make changes to the topic guide where this was needed. For instance, a widely used definition of personal recovery was added to the guide, as a few participants were not familiar with the personal recovery model and found it difficult to talk about the subject of the interview. Adding the definition was helpful to ensure that their identification with the different recovery concepts were not solely based upon different levels of familiarity. Furthermore, interview questions were phrased and presented in an open and neutral way, encouraging participants to express a comprehensive range of views (e.g. "What do you think about the definition? What is important for you in recovery?"). BM conducted practice interviews with individuals with lived experiences of BD and asked for feedback after each interview to ensure that participants had the opportunity to express their views in comfortable and supportive interview setting. A further attempt to minimise the impact of BM's biases was that each research step, from generating questions to collecting and interpreting data, was conducted in a team where differences in interpretation were discussed. Interpretations that were consistent with the identified biases of the research team were particularly questioned and alternative interpretations considered.

5.4 Results

5.4.1 Data collection and participant characteristics

Participants were selected based upon their recovery scores from Phase 1 to represent a broader spectrum of recovery experiences: participants who had the lowest (n=4) and highest (n=8) scores of personal recovery scores in the sample were invited; along with others whose score were closest to the sample mean (n=7). Thematic saturation was reached very early among individuals, who reported low recovery scores and therefore only four participants were recruited from the low end of the personal recovery spectrum. Among other individuals, reaching thematic saturation

was more challenging and while there was sufficient repetition in participants' views about the factors underpinning personal recovery, which formed the overarching themes, there were also examples of specific issues or factors that seemed to have unique importance to particular individuals. This is due to the nature of the idiosyncratic experiences underpinning personal recovery. For these individuals saturation was achieved at data level in each particular interview, and data collection was continued until the research team deemed that sufficient insight had been reached about both the commonalities and individual differences, and until it was feasible considering the limited time and resources of the present PhD project. Seventeen participants were recruited from the middle and higher end of the personal recovery spectrum and commonalities and particular issues raised are both presented in Table 16. This number is higher than the recommended number of interviews for reaching thematic saturation in inductive qualitative research, ranging from 13 to 16 (Coenen, Stamm, Stucki, & Cieza, 2012; Guest, Bunce, & Johnson, 2006; Namey, Guest, McKenna, & Chen, 2016).

Table 15 shows the demographic and clinical characteristics of the sample. The *mean* age of participants was 46.1 (*range*: 30-77). The majority of the participants were female (62%), employed part-time or full-time (67%), in a relationship (married or cohabiting, 57%), educated to degree level (87%), and had BD type I SCID diagnosis (87%). The mean time since first episode was 26.3 years (*range*: 9-46). The patterns of previous depressive and (hypo)manic episodes varied considerably (see Table 15). Episodes were categorised based on previous research (Morriss et al., 2016), due to many participants with high number of episodes were not able to report exact numbers of previous episodes. There was considerable range in the patterns of lifetime mood episodes (Range: 1->20 episodes).

Table 15. Demographic and clinical characteristics of the sample

ID	Gender	Age	Relationship status	Highest education	Employment status	Time since first episode (years)	SCID BD diagnosis	Number of depressive episodes	Number of (hypo)manic episodes	Recovery Score*
7	F	35	Single	PG	Employed (PT)	18	BD-I	>20	7-11	3031
15	M	33	Divorced	Secondary	Unemployed	20	BD-I	>20	>20	1236
25	F	30	Single	PG	Employed (FT)	18	BD-II	>20	1-7	2943
26	F	51	Divorced	UG	Retired	43	BD-II	0-7	1-7	2330
32	F	45	Single	UG	Employed (PT)	21	BD-I	0-7	1-7	1584
33	F	57	Married	PG	Retired	42	BD-I	>20	>20	1457
38	M	60	Cohabiting	PG	Employed (FT)	41	BD-I	>20	>20	2357
47	F	58	Married	UG	Retired	35	BD-I	0-7	8-19	3157
51	F	37	Married	PG	Employed (FT)	14	BD-I	0-7	1-7	2305
53	M	39	Single	PG	Employed (PT)	27	BD-I	0-7	1-7	2350
62	M	38	Married	UG	Employed (FT)	24	BD-I	>20	>20	3106
63	F	44	Married	UG	Employed (FT)	15	BD-I	0-7	1-7	3182
77	F	77	Married	Further	Retired	46	BD-I	0-7	1-7	2980
85	M	33	Cohabiting	PG	Employed (FT)	18	BD-I	0-7	1-7	3040
89	M	67	Married	UG	Voluntary	48	BD-II	>20	>20	2350
91	F	40	Married	UG	Employed (FT)	23	BD-I	8-19	1-7	3146
103	M	59	Divorced	PG	Employed (FT)	43	BD-I	>20	8-19	2313
119	F	45	Married	UG	Employed (FT)	33	BD-I	>20	>20	3107
129	F	32	Single	Further	Employed (PT)	21	BD-I	8-19	8-19	1557
131	M	51	Cohabiting	UG	Retired	37	BD-I	>20	1-7	2948
132	F	37	Single	PG	Employed (FT)	9	BD-I	0-7	1-7	2325

* The distribution of the BRQ recovery scores in the original sample of 107 participants with BD were *M*=2394.57 and *SD*=455.11, *Range:* 1236-3273.

F: female, M: male, UG: Undergraduate, PG: postgraduate, BD: Bipolar Disorder

5.4.2 Participants view on the recovery definition

The first aim was to understand what participants' interpretation of the recovery concept was and to generate a discussion about the topic. This was an important step before we could further explore views on influential factors in recovery. Opinions about the definition varied and seemed to show interesting links to recovery scores.

Participants from the lower end of the personal recovery spectrum were more likely to disagree with the definition presented to them, and emphasized that in their view BD is a lifelong illness without permanent recovery. Their recovery conceptualisation seemed to be more in line with the clinical recovery model, describing recovery as a temporary process of regaining stability and functioning between episodes. Remission and self-management were identified as more applicable terms.

Study participants generally emphasized that having control over their lives was an important step towards recovery. However, individuals with lower recovery scores generally felt that they had no control over bipolar episodes, and highlighted the important role of services in supporting recovery:

"don't think you ever recover from bipolar (…) you go through phases of where you are alright but it is always at the back of your mind that (…) it is going to happen again… extreme lows or highs (…) going to creep up on you (…) it really isn't recovery because it is a lifelong illness."(15)

"…proper recovery depends on having the right services and supports…" (129)

A further difference across the spectrum emerged; individuals, who reported lower rates of personal recovery tended to express that developing new meaning and achieving contributing life was not part of recovery; instead, they seemed to feel that the definition missed that the person must learn that full potential can never be reached and recovery was solely accepting limitation:

"…learning to accept that you are never really going to reach your full potential (…) I am not sure about (…) the development and new meaning, and purpose

(…) I think that's too positive (…) it is more about (…) accepting your limitations (…) rather than anything more than that." (32)

In contrast, participants with higher recovery scores were more likely to agree with the definition and thought that it corroborated their own experiences and valued that it did not solely focus on clinical recovery. They tended to describe recovery as a permanent process that incorporated learning about ones' condition and experiences, developing self-awareness and self-confidence and reducing the impact of mood changes on personal recovery. For most, episodes were setbacks, making the process fluctuating, but seen to be particularly present at early stages of the recovery process:

"…with experience it has taken a steady (…) pathway into the positive more than having some setbacks and jumping back." (91)

Individuals with higher recovery scores also emphasized the importance of minimising limitations and taking responsibility and control over own recovery:

"…long process that takes a lot of (…) commitment and dedication on the part of a person and actual willingness to accept that you are in control rather than something external being in control of you."(25)

"…it is all about trying to minimise those limitations" (7)

In addition, participants seemed to discuss that recovering from an episode (regaining stable mood and functioning) was the beginning and basis for the recovery process that went beyond self-management:

"I view myself as…having recovered from bipolar disorder (…) I have recovered from the illness part, but the process (…) is an ongoing thing (…) obviously (…) stay relatively well but… the most important thing… for me is to (…) continue (…) the personal growth." (25)

Some participants, particularly those scoring in the mid-range of recovery scores, particularly emphasized that 'adjustment' and 'acceptance' were missing from the definition; primarily referring to the acceptance of BD diagnosis. However, acceptance was seen to fluctuate, making the recovery process changeable and challenging:

"The acceptance really fluctuates (…) when I am completely well (…) I either don't think about the diagnosis or I just (…) get on with it and (…) with my life but as

soon as I start to (…) reflect and analyse the events of the night when I was diagnosed for example, … suddenly there is a rebuttal for every single thing that happened" (132)

These participants also talked about the challenging process of building BD into their identity as part of recovery:

"…the condition changes you, you wonder about which is your identity because when you are depressed you are in a certain (…) feeling and state (…) and then when you are up, you are in a completely different paradigm (…) is that really me or is it somebody else (…) I have to say that the identity is quite an important aspect"(38)

To sum up, participants had varied views on the personal recovery definition. Individuals who had lower scores on the personal recovery measure tended to identify more strongly with the clinical recovery model and those with higher recovery scores with the personal recovery model and definition provided (Anthony, 1993). Maintaining control, normal mood and functioning was important to all study participants, whilst for those with lower recovery scores, this seemed to represent a hoped-for outcome, and those with higher scores seemed to see it as the beginning of the recovery process. Views on the predictability of episodes seemed to influence participants' views on how much control and responsibility the individual should take for their own recovery. The varying views showed that personal recovery experiences are on a spectrum rather than forming distinct categories.

5.4.3 Thematic analysis- intrapersonal factors supporting or hindering personal recovery

After establishing the varied views of individuals on personal recovery, the interviews focused on exploring factors that participants found influential in their recovery experiences. The interviews provided a rich dataset, incorporating a broad range of experiences grouped into 1) interpersonal factors and 2) intrapersonal factors impacting on recovery. This paper focuses on the most outstanding and novel themes of the intrapersonal factors, while the interpersonal factors (focusing on the role of employment, mental health services, and connectedness- peer support, community and family and friends) will form a separate publication. Presenting interpersonal factors separately was necessary, due to the rich and deep data, which would have been

overlooked should we have attempted to merge into one manuscript. Since the thesis primarily focused on psychological processes underpinning personal recovery, the presentation of intrapersonal factors here was felt more suitable. Thematic analysis of interview data generated three intrapersonal themes and eight subthemes: Three key themes included: i) Cognitive coping strategies ii) Behavioural self-monitoring and self-management techniques and iii) Philosophical stances and recovery. A diagram of the themes and associated subthemes is presented in Figure 4.

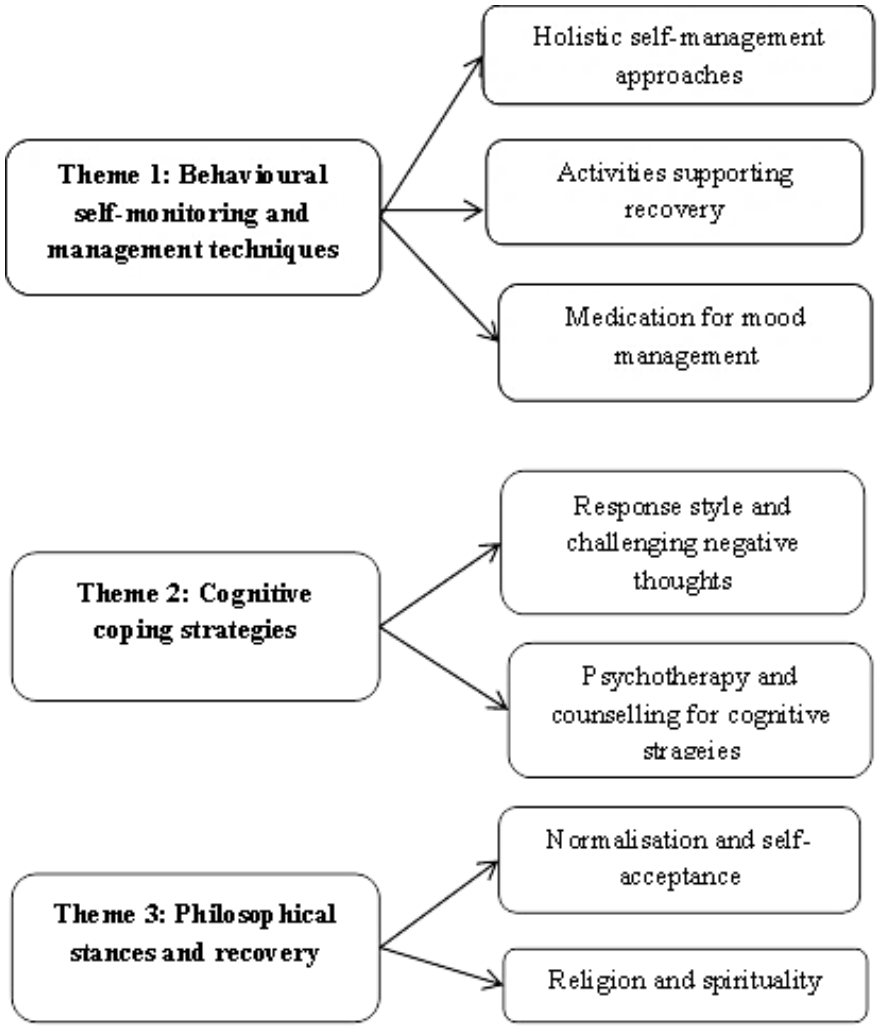


Figure 4. Diagram representing main themes and subthemes

5.4.3.1 Theme 1: Behavioural self-monitoring and self-management techniques

As discussed above, self-management with the aim of maintaining normal mood and functioning played an important role in participants' recovery process, but for some, self-management meant the outcome and for others as the beginning of recovery. The identified self-management strategies (lifestyle fundamentals, engagement in activities and medication) are in line with previous studies (Mansell et al., 2010; Morrison et al., 2016; Russell & Browne, 2005). However, the underpinning mechanisms of why these strategies may support personal recovery have been less extensively explored, and therefore, it is in the focus of the first theme.

Subtheme 1: Holistic self-management approaches

Most participants highlighted the need for holistic self-management and maintaining physical wellness. Participants felt that focusing on their physical health on a daily basis would in the long-term strengthen their mental health and recovery:

"*holistic approach (…) trying to do well physically (…) as well as mentally because (…) if you are physically well, you will be mentally better." (103)*

The discussion focused on three specific areas: diet, exercise, and sleep. There were additional mechanisms individuals identified as ways in which diet, sleep and exercise can support recovery and we found some differences across individuals with different recovery experiences. For instance, some participants, primarily with higher self-reported recovery, valued the inherent enjoyment from eating good quality food and felt that it was a symbol of taking responsibility for own wellbeing. On the other hand, a participant with lower self-reported recovery added that dietary decisions were indicators of personal control when control had been diminished in other areas:

"While there are some things I can't control, in terms of recovery (…) those are things that I do have control over so, when I am well enough to make the right decisions around those, I know that it will help recovery"(129)

Control over other substances was also valued by individuals, including reducing the amount of stimulants and depressants, which was found useful in daily mood monitoring and avoiding mood destabilisation:

"I think eating well and avoiding stimulants and depressants (…) work really well (…) because then you are not going to be confused by your moods you are going to know that it is part of what is going on without a sort of chemical influence" (51)

However, several participants with lower recovery scores seemed to link excessive alcohol consumption to low self-esteem and spiralling negative thoughts:

"…alcohol… could start the downward thoughts (…) might make you feel bad about yourself (…) which causes a spiral again."(33)

Secondly, most participants agreed that exercise supported recovery by reducing stress levels, balancing energy levels, distracting from negative thoughts, and improving mood via increasing endorphin:

"when you are exercising you are just concentrating on the immediate things like your breathing (…) and you are not thinking about the bigger things in life."(33)

Some individuals predominantly with higher self-reported recovery tended to identify additional mechanisms linking exercise to recovery and some revealed that exercise contributed to a sense of achievement, which built self-esteem, and a sense of belongingness by providing opportunity for socialising.

"…what I actually get that is really valuable from exercising is …a sense of achievement" (25)

"you get into some kind of negative spiral (…) if I have these heavy thoughts I would go for a run or play tennis (…) by the time I have done that, met some people and had a laugh, the thoughts will have disappeared by then."(38)

However, recognising the value of exercise, and actively engaging in it were clearly not the same thing and understanding the differences was found crucial in supporting people in recovery:

"Well there is an activity that I wouldn't cover and that will be exercise, a lot of people find that as something quite positive, but I don't partake in much in that respect to be honest. I am not going to pretend I go swimming week to week because I think it is a nice healthy activity" (26)

Exercise was also seen helpful in fostering adequate sleep; however, the timing and type of exercise seemed to be important, more specifically a link between competitive sports played in the evening and sleep was established:

"I used to play (...) tennis at night (...) the problem with that was it made me higher (...) my mood went up (...) and then I couldn't sleep at night because I was so hyped up from the exercise."(38)

Sleep in general was found to be important in recovery by stabilising mood and enabling normal functioning; however, no other mechanisms were identified and participants recommended further research in this area:

"For me one of the main things is sleep (...) that is a very important aspect (...) I think research needs to be done on that…overall I can function better" (26)

"…when I am very stressed I find it difficult to sleep and it has a huge impact on my moods" (32)

To sum up, participants generally highlighted the need for holistic self-management and health-focused proactive behavioural techniques, including having a healthy diet, exercising and getting adequate sleep. These techniques were not only symbol of being well, but also participants felt that in the long term strong physical health would support their mental health and recovery. Most participants found that physical health is a focal point of their recovery experiences. However, there were some differences in the identified underlying mechanisms across individuals with different recovery experiences, which were highlighted, where applicable.

Subtheme 2: Activities supporting recovery

Most participants talked about additional activities supporting personal recovery, such as having a regular routine and engaging in meaningful, enjoyable and goal focused activities. A regular routine was seen to confer many benefits; in addition to facilitating physical wellbeing through exercise, diet and sleep (as outlined above), it was also seen as a structure and framework for regulating social rhythm and focusing self-monitoring, which was seen as a sense of security and control over mood management.

"…periods of stability appear to give me a concrete foundation that is less easily shaken by changes in my mood (...) doing the same thing for a period of time, appears to help keep my mood more stable."(33)

However, some individuals with higher recovery seemed to indicate daily self-monitoring was not only important for stabilising mood, but also to develop self-

awareness and being able to distinguish between normal and extreme mood changes and adjust self-management strategies accordingly:

"(...) knowing what is a normal mood for you (...) it involves a (...) daily (...) readjustments (...) it is a reflective process (...) the more self-aware you are (...) understanding of your own spectrum of emotions (...) then you can make the activity or the medication changes that you need to make to adjust to that."(51)

Some individuals also mentioned other factors, such as extended lived experiences of BD, mood monitoring tools and attending self-management training as ways to enhance self-awareness:

"I have lived with the diagnosis of bipolar for the last 22 years, so I am a veteran (...) dealing with mental illness (...) I know myself, my circumstances, my illness well (...) I know the things I need to do to stay well."(53)

Improved self-awareness was also seen important in fostering balanced self-monitoring- not becoming over-worried, afraid of new episodes and catastrophizing experiences. Maintaining vigilance without being afraid of episodes was felt as the right self-monitoring approach:

"I think what is key is a balance between being aware of your mood (...) trying to (...) recognise them early but (...) at the same time not necessarily analysing every single mood change" (132)

Maintaining balance was not only discussed in self-monitoring, but also in activity levels for individuals with higher recovery. In line with this, participants valued a flexible routine- adjusting activities to needs and moods, and occasionally deviating from routine without feeling guilty was seen important to ensure not overwhelm themselves:

"...it is important to not be too hard on yourself if you want to (...) stay up until 3 o'clock playing scrabble with your friends (...) once in a while, then it is ok (...) I just need to be aware that that doesn't become (...) a routine that could be harmful." (132)

Some recommended strategies to organise activities around key events in diary and set boundaries to social or other commitments. For longer-term, some recommended planning activities in advance to minimise stress and anxiety, and

having a written well-being plan and monitor whether and why the person diverted from the plan.

"I put events in my diary so if I am going to do something like an appointment then that is a priority in my week, and then I work around that so, I don't put too much on myself because if I do, sometimes if I do too much I can literally start getting hyped up. So I have to sort of monitor myself quite a lot."(26)

There was a general agreement that engagement in enjoyable activities (art and craft, outdoors, music, reading etc.) and working towards achievable goals supported recovery by indicating wellbeing, providing relaxation, a sense of achievement, and distracting from negative thoughts:

"…it is just a sense of achievement (…) if you set yourself little goals each day (…) they become like projects (…) once it is done … it does provide just a sense of achievement and satisfaction which I think fuels my recovery. It is (…) assurance that I am functioning..." (132)

"Doing art or in fact any craft (…) because the mind has been focussed on an activity and it can't do its crazy thoughts, and so I found that very helpful" (119)

However, participants with higher recovery scores emphasized that these activities must be built in their flexible routine and the additional mechanism of activities as having time out of social demands:

"nature had a huge influence (…) it is a space that (…) I didn't feel that I had to answer to anybody, I found it quite a gentle space compared with (…) being indoors in a human space (…) I felt the pressures of the human world and it wanted me to (…) be proficient in work and be able to communicate well and live up to whatever expectations but I found that the natural environment wasn't asking that of me."(91)

Some participants explained that financial difficulties could hinder their engagement in enjoyable and relaxing activities and impact negatively on recovery:

"If I have money to do more of the things I enjoy doing that's great, my mood is likely to improve, my behaviour is likely to be more consistent and regular and positive, but if I find that I am struggling financially then that's gonna impact on every aspect of my life. I am not gonna be able to do the things that I wanna do..."(53)

In addition, some participants, with higher self-reported recovery, seemed to use activities for consciously combating high or low mood, for instance increasing relaxing activities, such as spending time alone, walking, reading etc. when they experienced elevated mood, and increasing stimulating activities, for instance exercising or socialising, when their mood dropped:

"you are going down you know right, I have got to just like running a race, you have got to like push yourself to do some activity, go for a walk, go for a bike ride (…) I know now from experience that that is just going to cheer me up and lift me out of the low."(62)

In summary, participants in general emphasized the importance of developing regular routine and engaging in meaningful, enjoyable and goal-oriented activities. Developing a regular routine was important for most because of the framework it provides for mood monitoring and regulating social rhythms. Having this framework was seen to improve control over mood management and sense of security. Similarly, participants agreed that engaging in meaningful, enjoyable or goal-oriented activities could act as indicators of wellbeing, distraction from negative thoughts and enhance the sense of achievement, all playing important roles in personal recovery. However, there were some differences and participants with higher recovery scores also emphasised the development of self-awareness as the result of their self-monitoring techniques, and using this self-awareness to distinguish between normal and extreme mood changes. They also discussed the importance of selecting activities intentionally to combat high or low mood and maintain a flexible routine that enabled them to maintain balanced activity levels.

Subtheme 3: Medication for mood-management

Pharmacological treatment as a self-management technique was also discussed. Many participants valued the use of antidepressants to reduce symptoms of depression and anxiety, and benzodiazepine for anxiety and insomnia, but the potential risk of antidepressants causing (hypo)manic episodes was also highlighted:

"The positive is I don't get any severe depressions now (…) but the negative effect is it can push me the other way. The antidepressants (…) that is a bit unpleasant as well". (38)

For some however, the hesitance of the medical team to prescribe antidepressants meant that no alternative treatment option was offered, which had a severe impact on long-term recovery experience:

"I was clinically depressed for 2 years but I couldn't get any treatment because they wouldn't give me antidepressants because they were worried about a high occurring so I just struggled for 2 years by myself with nothing and eventually they give me some antidepressants because I was so ill" (131)

Some participants also found that adjusting antipsychotics was helpful in combating hypomanic episodes and supporting recovery:

"If I notice my mood is going up (…) I put my antipsychotic tablets up for a few nights, and then once I am stabilised I will bring them back down again (…) that is going to influence my recovery because if my mood went up and I didn't do anything about it (…) I would become hypomanic and (…) ill"(47)

Views on the impact of mood stabilisers varied, for some lithium and valproate were helpful in avoiding relapses, but lamotrigine was viewed less positively:

"I was on a combination of lamotrigine (…) and antidepressants, for quite a number of years and then (…) we have abandoned the lamotrigine. And we haven't noticed any effect whatsoever."(38)

It is worth to note, that while medication was helpful for many in mood management, it did not come up in every interview, and one participant with higher self-reported recovery expressed an opposing view:

"we haven't touched on medication… but I don't think it is helpful (…) I came off it under supervision (…) and I haven't noticed (…) any significant changes in my mood since coming off it (…) it wasn't doing anything (…) that is why it doesn't feature in my important list." (25)

Variation in participants' views included that concerns about medication side effects and the need for increased control over dosage tended to be expressed only by individuals with higher self-reported recovery:

"I have always been (…) very light, actually underweight (…) until the point of having to take lithium (…) I am very concerned about my physical health (…) it does have quite a negative effect when you feel you are not really able to have much

impact over that. You feel (…) powerless (…) it is disappointing (…) and disheartening." (91)

"….finding the right medication (…) is be-all and end-all (…) not being sort of directed to (…) a certain amount of medication (…) you should be able to control that (…) I don't think there is a lot of people who have (…) control over what medication does for their wellbeing." (131)

In contrast, the reliance on health professionals in decisions around treatment was more explicit in the narratives of individuals, who reported lower rates of personal recovery:

"…support from… the mental health team and (…) GPs that has been (…) very helpful (…) they are reviewing my medication and (…) tweaking your meds" (15)

In general, the importance of adhering to effective medication regime was found fundamental in maintaining stable mood and avoiding relapses. However, individuals who reported higher rates of personal recovery tended to reveal their longer-term aims of reducing medication doses or coming off medication (due to side effects) and finding alternative coping strategies:

"I am quite concerned about the fact that I take medication and it has adverse effects on my body (…) in the long term I would like to reduce my medication and sort of deal with my mental health issues in a way that I don't have to take so much medication."(85)

In summary, most participants found medication helpful in their day-to-day mood management and supporting recovery. However, some participants (with higher self-reported personal recovery) were concerned about the adverse side effects and aimed in the longer-term to get more control over both medication dosage and BD by finding alternative coping strategies. The views on such helpful and less helpful coping strategies formed the next key theme.

5.4.3.2 Theme 2: Cognitive coping strategies

Participants revealed concerns about the effect of negative (stressful and traumatic) life events on their personal recovery. Such events were seen as to potentially put self-management strategies (outlined above) on the side and lead to spiralling negative thoughts, for instance, feeling worthless, stuck/lost, or suicidal.

Participants found that such negative thoughts could potentially develop into episodes and hinder recovery. Therefore, adaptive coping strategies targeting negative thoughts were seen as key factors supporting recovery:

"how do you do in recovery is how do you deal with these circulating thought processes."(103)

Subtheme 1: Response style and challenging negative thoughts

Firstly, some participants emphasized that ruminating over negative life events or thoughts impeded their recovery process:

"…it is very easy for us to assume that our old patterns can't change…and get caught up (…) feeling powerless to do anything about it (…) it is usually unhelpful (…) that kind of rumination."(119)

Instead, the most prevalent recommended strategies were emotion-focused coping strategies, such as distraction and in some cases avoidance. Distraction was manifested as a behavioural (outlined above) or as cognitive strategy, with the common aim of unhooking from a ruminative narrative. Cognitive distraction included refocusing thoughts beyond self and extending to external world, being optimistic about the future and focusing on positive events, achievements as ways to minimise the impact of negative thoughts on recovery:

"I (…) do like a distraction and a refocussing on the world beyond me which is a useful thing to do (…) when I am getting over obsessed with my own things." (51)

Avoidance, another emotion-focused strategy, seemed to be discussed by some of the individuals with lower self-reported recovery. Dismissing negative thoughts and feelings, as a primary response, in order to reduce their impact on personal recovery was seen as helpful:

"*…the best in the long term is not to have a thought (…) I get down and I just ignore I just shut down (…) not to think much, particularly negative things, and not to get into your feelings too much."(38)*

By some participants, avoidance was specifically revealed as a strategy to deal with traumatic life events. One participant explained that pretending that traumatic life events did not happen had an adverse effect on her long-term recovery:

"…the way my mind had coped with it was to (…) pretend that it wasn't happening, (…) I had created a whole pseudo life for myself… it was a coping mechanism. (…) I don't think it helps in recovery (…) it has been probably a hindrance." (132)

While this participant found that avoidance was unhelpful, it was clear from her narrative that she still used avoidance as a coping strategy with traumatic events, but in the form of avoiding situations and people associated with the event, which she found helpful in recovery:

"I needed to address that [abuse] (…) just cutting them out of my life helped me to refocus on me and you know almost start to heal."

Active and problem-focused coping strategies, such as identifying negative thoughts and trying to challenge them by gathering evidence against or dealing with problems, as they arise, and not allowing them to accumulate to the point at which they felt overwhelming, were also revealed:

"I was taught about all or nothing thinking (…) challenging that and stopping myself from using words like all, never, always (…) that dramatically helped"(33)

"…dealing with problems as they arise (…) in perspective (…) putting things into sort of almost like compartments, so you can differentiate between one thing and another rather than building it into one massive problem." (63)

However, some participants only engaged in active problem-focused coping when dismissing negative thoughts was not possible:

"…when you get negative thoughts and it festers and you worry about stuff, (…) I tend to try and dismiss those things from my mind and try and ignore them (…) but if I have to deal with them I try and deal with them in a very rational way" (53)

Several participants added that sharing problems with others (friends or family members) as opposed to keeping to themselves was a good way to diminish their negative effects:

"…if I have got a problem if I keep it to myself, it magnifies so I have to speak to somebody about it (…) by speaking about it just helps (…) I feel like it is out of my head and (…) it is shared so it becomes less".(47)

The importance of maintaining control over thoughts by fostering calmness and not reacting to negative thoughts or using positive affirmations to replace negative thoughts with positive thoughts were also highlighted:

"You have got these thoughts coming in all the time into your head, and they haven't really got such a power over you as you think they have."(38)

"...positive affirmations (...) instead of thinking today is going to be another bad day I was saying (...) today is going to be a good day (...) replacing any negative thought with a positive one."(7)

To sum up, participants talked about both emotion and problem-focused coping strategies to deal with negative life events and thoughts; distraction was the most commonly mentioned strategy. Participants, who reported higher recovery scores tended to emphasize distraction and active problem-focused coping, and did not discuss dismissal or avoidance. Some of these cognitive strategies are actively fostered by psychotherapy, and the next theme derived from participants' views on psychotherapy.

Subtheme 2: Psychotherapy and counselling for cognitive strategies

Most interview participants valued the support of psychotherapy in identifying and challenging negative thoughts:

"...it [CBT] helps a lot with my recovery (...) it taught me (...) that my thoughts weren't always true, and to question them and to reflect on them (...) a way of labelling the thoughts (...) it also helped me construct (...) a recovery plan (...) thinking about things what my triggers are (...) what I should be doing and shouldn't be doing" (62)

Some also revealed that psychotherapy provided a platform for off-loading problems without burdening family or friends, and resolving interpersonal conflicts, which was seen to foster relapse prevention:

"I have had CBT (...) I was given quite a few techniques which dramatically changed my moods and I would say dramatically helped my recovery (...) for example, I used to have a lot of arguments with my husband and during CBT we talked about thoughts, watching my thoughts, knowing what my thoughts were, recognising them and then challenging them and I have not had arguments with my husband since (...)

which then stops the downward spiral, so it has prevented lots of episodes from happening" (33)

Individual sessions were seen as particularly supportive for some of the participant:

"…they were all sort of one-to-one discussions which seemed to work for me far better than the NHS therapy [group] *sessions" (89)*

However, issues around limited access to psychological treatments via NHS and not being able to afford private sessions were highlighted:

"…therapy would help it but I don't have it because I can't afford it and the NHS won't give it to me" (129)

Even when participants accessed therapy, they felt that its impact was time-limited and highlighted the need for maintenance sessions when well, in order to prevent relapses:

"…I have had sessions on the NHS, and I have had private sessions (…) it has always been very helpful (…) every time I have responded really well to it and it has been excellent (…) but these things are time limited and what I would really benefit from is (…) just to touch base on a regular basis, to keep me on an even keel, rather than waiting until I am really ill and then offering me some help. It would be like more preventative" (129)

Using alternative platforms to provide broader access to therapies was found beneficial and recommended:

"the NHS is looking to promote and develop their own apps (…) to offer more therapy to people (…) and in a more efficient way, and make them more accessible which is a good thing I think." (62)

In contrast, participants, who used avoidance as a coping mechanism, did not find psychotherapy helpful due to the difficulties of dealing with intense emotions brought up:

"…having tried (…) CBT sort of counselling type interventions (…) while they may work for some people I just don't think it was particularly helpful for me. I found it incredibly draining and almost destructive to my mental health." (132)

Individuals, who reported higher recovery scores, seemed to value additional benefits of psychotherapies in their recovery, including normalising mood experiences and realising normal reactive mood changes, developing balance in self-monitoring, and reducing self-criticism and enhancing self-acceptance:

"it is helping to make sense of the experiences that I have. So if I have you know a really down time it doesn't necessarily mean it is related obviously to bipolar disorder but it helps me to understand ok this is normal, it is you know reactive, life isn't easy at the moment"(119)

"I was keeping (...) slightly neurotic eye on my mood every single day (...) which was pointed out to me, by a psychologist (...) I was able to (...) move onto (...) the next stage which was, not to be unaware (...) but (...) I wasn't like neurotically monitoring every single thing."(25)

"the original goals of therapy were to reduce the distress (...) and help you to become less self-critical and develop this smoothing self. That is really what has been a success" (89)

To sum up, most participants found psychotherapy helpful and revealed an extensive list of beneficial skills they have acquired from therapy. In contrast, individuals who used avoidance as a coping mechanism found therapies unhelpful to deal with intense emotions and memories. Issues around limited access and a potential solution of using online interventions were also discussed. Individuals with higher recovery scores tended to emphasize that therapies can also facilitate a normalisation and acceptance process, which they found helpful for recovery. This led to the final theme- the role of philosophical stances in supporting personal recovery.

5.4.3.3 Theme 3: Philosophical stances and recovery

This theme was much smaller compared to the previous themes; the narratives focused on two key topics: normalisation of experiences and self-acceptance, and spirituality and religion.

Subtheme 1: Normalisation and self-acceptance

Participants often expressed that acceptance was important in personal recovery; but their views varied greatly. Acceptance for participants with low recovery scores seemed to concentrate on accepting the limitations caused by the illness

(discussed above). However, for individuals with higher recovery the meaning of acceptance seemed to be twofold: accepting mood fluctuations as part of the human experiences and accepting self. As touched upon before, the importance of differentiating between normal reactive and severe mood fluctuations were important for many. As a further step, participants also emphasized that normalising reactive mood experiences, rather than pathologising them, supported recovery:

"…it might just be part of your normal fluctuations in response to whatever is going on in life. (…) life has ups and downs (…) hanging onto that notion every day is now one of my fundamental recovery things." (25)

Furthermore, anger and self-blame for having BD was discussed as unhelpful emotions in recovery. Instead, the importance of reducing self-blame and accepting that other people have other conditions to live with was seen reassuring and supportive in personal recovery:

"If you are gentle with yourself, you have to be more accepting (…) it is not easy and it takes ages (…) you are not judging yourself, and then you have got a better chance of recovering quicker." (26)

The tension between taking responsibility, but at the same time not self-blaming when becoming unwell, was also highlighted:

"I was viewing a potential mood episode (…) a sign of failure and weakness, (…) which is like the so far beyond the medical model…I thought it was my fault that I had gone a little bit destabilised (…) because I haven't been (…) implementing (…) things that I normally do (…) but fortunately that wasn't a sort of thinking pattern that lasted for too long." (25)

As discussed above, psychotherapy was seen for these individuals, as one helpful way to work towards normalisation and acceptance. However, participants also emphasized the role of spirituality and religion in fostering acceptance and in turn supporting recovery.

Subtheme 2: Religion and spirituality

The supportive role of religion, particularly Christianity and Buddhism, in personal recovery was revealed in challenging negative and suicidal thoughts. Participants highlighted that religion and spirituality provided them with guidance and

support for the future. More specifically, giving hope, reassurance, and values to work towards, for instance being compassionate and helping others, which in turn contributed to enhanced feelings of self-worth:

"is important going forward that no matter what happens, you know God is good and his got me in the palm of his hand, and (…) that gives me great comfort going forward (…) having faith (…) God really is a corner stone of my existence" (53)

"it reassures me that there is value in what I am doing (…) spiritual life would tell you going out and helping other people (…) it gives me a value system to help me move towards better values"(33)

Buddhist teaching was seen to support recovery by fostering stepping back and a calm approach to problems via using meditation and mindfulness.

"I think the most important tools are the way I have retrained my mind (…) which has very much come from Buddhist philosophy and meditation, taking a step back and a much calmer approach rather than a reactive approach to things." (91)

Particularly the role of meditation as distraction from negative thoughts to physiological functioning was found helpful:

"I think it slows down the mind, the mind can't do both things (…) thinking, I am a disgusting horrible person, at the same time as thinking oh look my breathing is slow, stop the mind from its spiral either its spiral up or its spiral down, (…) it takes it away from that activity and gives it another focus." (33)

In addition, participants with higher self-rated personal recovery tended to discuss that Buddhism and Christianity were helpful tools to reinforce thinking processes learnt in therapy, such as mindfulness, normalising mood experiences and accepting life with its ups and downs:

"I would give a lot of credit to, in helping me actually make the most of what I learnt in therapy and apply it on an ongoing basis and add to it as well. So, yes mindfulness basically and that kind of attitude to life and to yourself is something that has been hugely helpful."(25)

And one participant added that phone apps can be helpful in maintaining meditation on a day-to-day basis, however accessing such tools without expenses was recommended:

"I use a paid for application which is called Headspace. It is quite a popular one, but you do pay for it (…) but other people in the group and certainly psychiatrist leading it would recommend just free recordings or silence." (62)

In addition, it was seen to support both problem-focused (sharing problems with others) and emotion-focused coping strategies (distraction), for instance, reading the Bible and thinking about richer ideas or attending religious events, as ways to distract from ruminative thinking. The sense of community belonging and important opportunity for socialising at religious events were also noted:

"mindfulness is very like religion but it is without the morals to it, so what the religion adds is when you go to church you are with other people like you (…) it has got music and singing and things that also helps (…) something else to go round your mind, to distract your mind from mulling over things that and you know blowing things out of proportion" *(62)*

Mindfulness-based psychological interventions, on the other hand, were only found to be partially useful:

"mindfulness is nice but it is, it is a bit sort of hollow, and so just reading some bible notes or something can it is just a bit richer something to think on." *(62)*

"I once went on a mindfulness course (…) I didn't find it that useful (…) but there was one little thing that helped me (…) if you are sitting on a train and (…) the scenery flashes by, and it is like you know you get these thoughts that come into your head which could be a bit destructive but then you just imagine (…) a thought, like on a train it is like it is something that just flits by and then it goes."(38)

In summary, participants with higher recovery scores particularly emphasized the importance of self-acceptance and normalising bipolar relevant mood experiences, in addition to behavioural and cognitive strategies supporting recovery. They emphasized that such approaches could be acquired via both psychotherapy or following religious and spiritual teachings. Spirituality and religion were also valued by many participants, and it was seen as helpful in enhancing relaxation, distraction, learning to let thoughts go without reacting to them, and actively solving problems with support from the religious community.

5.4.4 Participants views on links between day-to-day and long term recovery

The final aim was to explore whether and how participants felt that day-to-day and longer-term recovery experiences were associated. The views varied, but two primary opinions were revealed. Some of the participants found it difficult to distinguish between day-to-day and longer-term recovery and expressed that the two were linked by maintaining day-to-day self-management strategies, especially regular routine, longer-term:

"I think they are very similar to all the day-to-day ones really. Because it is the day-to-day recovery is all those steps that then lead to the longer term you know it is like, they just lead one from the other, so everything that gets you through the day is the same ones that will eventually get you through the 6 months and the 2 years"(129)

Others used metaphors for long-term recovery, such as house, jigsaw or tapestry. The different building blocks or pieces represented the different areas of life, including mood management, and participants felt that the basis or foundation must be right, stable and continuously monitored, evaluated in order to link pieces together and see if it works, and whether adjustments were needed in order to achieve longer-term recovery aims. During this process day-to-day recovery was seen as important in how people think about their recovery, however, it was highlighted that longer-term recovery aims (building, picture) must be born in mind too.

"you have to make sure that you are building the house with the right bricks, so that you build it out of stone, if you build it out of marshmallows, then it is gonna wash away as soon as the rain comes out (…) these walls I am building in my life, and sometimes you have to break through walls and you have to knock them down and you have to rebuild." (53)

5.5 Discussion

5.5.1 Overview of key findings and related clinical implications

The aims of the present study were to explore participants views on i) the utility of a widely used personal recovery definition, ii) factors perceived as supporting or hindering personal recovery day-to-day and long term iii) potential links between day-to-day and longer-term recovery experience. Table 16 summarises the key findings and relevant clinical implications.

Table 16. Summary of key findings and relevant clinical implications

Study aims and identified themes	Similarities across the spectrum of recovery experiences	Differences across the spectrum of recovery experiences	Clinical implications
Views on personal recovery definition	-Maintaining control, normal mood fluctuation and functioning is important in recovery. -Acceptance of BD and adjustment of life to live with illness are important	Definition: from disagreement with definition (support for clinical recovery definition) to strong identification with the personal recovery definition. Process: from temporary (between episodes) to permanent (episodes- setbacks in longer process, and clinical recovery from mood episodes provides basis for personal recovery). Control: from feeling of lack of control over relapses to taking responsibility for own recovery and using experience to develop self-awareness and control over relapses. Limitations caused by BD: from accepting limitations and not being able to reach full potential due to BD, to minimise limitations as part of personal recovery. Particular issues for some: -Challenges to build BD into identity.	-Services and service users should work in collaboration to challenge the inherent pessimism about recovery in BD. -Views on episode predictability seem to influence the sense of control and responsibility-services and psychological interventions should encourage participants to learn about BD, and individual triggers to enhance sense of self-awareness and control over relapses. -Stable mood and functioning seem to provide basis for personal recovery-support should be available post mood-stabilisation. -Psychological interventions should support acceptance of BD as part of identity and experiences.
Theme 1: Behavioural self-monitoring and	Holistic self-management strategy: maintaining physical health to support mental health	Diet and recovery: -From dietary decisions being indicators of personal control to indicators of taking responsibility for own wellbeing.	- Education and promoting healthy lifestyle, including regular exercise, healthy diet, adequate sleep and relaxation seem to be beneficial. -Psychological interventions promoting balanced self-monitoring and engagement in meaningful

Table 16 (continued)

Study aims and identified themes	Similarities across the spectrum of recovery experiences	Differences across the spectrum of recovery experiences	Clinical implications
management techniques	Diet and recovery: reducing substances can support daily mood monitoring/ stabilisation. -Exercise and recovery: reducing stress levels, balancing energy levels, distraction from negative thoughts, and improving mood Sleep and recovery: fosters normal moods and functioning Regular routine: framework for regulating social rhythm and self-monitoring-sense of security and control Activities: engagement in enjoyable and goal oriented activities were seen as sign of wellbeing, distraction from negative thoughts, and sense of achievement Medication: adherence to medication that works for the person	-For some individuals with lower recovery, excessive alcohol consumption also seems to be linked with diminished self-esteem and spiralling negative thoughts. Exercise and recovery: towards the higher end of the recovery spectrum, exercise was also seen to contribute to a sense of achievement, improved self-esteem, sense of belongingness, and opportunity for socialising Regular routine: towards the higher end of the recovery spectrum: -flexibility in routine was emphasized, and routine was seen to improve self-awareness, balanced self-monitoring and ability to distinguish between normal and extreme moods -the importance of filling regular routine with meaningful activities seemed to receive stronger emphasis. Activities: towards the higher end of the recovery spectrum: -calming and excitable activities were described as tools for combating high and low mood -and enjoyable activities as fostering relaxation and time out of social demands. Medication: from stronger reliance on mental health team to make pharmacological decisions, to concerns about side	and goal-orientated activities, as behavioural distraction strategies may be beneficial. -Attending self-management training and utilising mood-monitoring tools seem to be beneficial in improving self-awareness. -Alternative therapeutic approaches may help to enhance relaxation and distraction, including eco-therapy and art-therapy. -Medical team to work in collaboration with service users to establish the right type and dosage of medication to improve adherence. -Services should offer alternative treatment options, including psychotherapy.

Table 16 (continued)

Study aims and identified themes	Similarities across the spectrum of recovery experiences	Differences across the spectrum of recovery experiences	Clinical implications
		effects, and wish to enhance control over and reduce medication dosage. Particular issues for some: Financial difficulties can hinder engagement in enjoyable and relaxing activities	
Theme 2: Cognitive coping strategies	-Important to deal with stressful life events and negative thoughts. Emotion-focused coping: cognitive and behavioural distraction. Problem-focused coping: acknowledging and challenging negative thoughts, not allowing problems to accumulate, maintaining control over thoughts and using positive affirmations Psychotherapy: -was seen helpful in challenging negative thoughts, off-loading and resolving interpersonal conflicts -Individualised sessions were seen more beneficial	Emotion-focused coping: towards the lower end of the spectrum dismissing and avoiding negative events or thoughts tended to be discussed Psychotherapy: towards the higher end of the recovery spectrum participants tended to express that psychotherapy was also helpful in normalising mood experiences, balancing self-monitoring, reducing self-criticism and enhancing self-acceptance. Particular issues for some: -Avoidance was also used by some to cope with traumatic life events – pretending that events did not happen was seen as unhelpful, avoiding reminders of the event helpful. However, for these participants, psychotherapy triggered intense emotions related to traumas, and therefore they did not find psychotherapy helpful.	-Individualised psychological interventions, developing self-awareness to distinguish between normal and extreme mood changes and fostering cognitive strategies, such as distraction and active problem solving skills. -Increasing free access to psychological interventions and reminder sessions for individuals with BD would be beneficial, one way to achieve this by using technology-based interventions. -While individuals using avoidance to deal with traumatic life events and intensive emotions did not find psychotherapy helpful, it would probably be a more adaptive way to cope with such events by learning to deal with intense thoughts and feelings related to the trauma instead of being afraid and avoiding them.

Table 16 (continued)

Study aims and identified themes	Similarities across the spectrum of recovery experiences	Differences across the spectrum of recovery experiences	Clinical implications
	-Issues around limited access to therapy, the need for reminder sessions and using alternative (digital) platform to make psychotherapy more accessible were discussed.		-Third wave psychological interventions, such as DBT and ACT showed promise in targeting avoidance coping styles.
Theme 3: Philosophical stances and recovery	Acceptance is important in recovery Religion (Buddhism and Christianity): was seen helpful in providing values to work towards, distracting and challenging negative and suicidal thoughts, fostering calm approach to problems via using meditation, and providing a sense of community belonging and opportunity for sharing problems with others	Acceptance: from accepting limitations caused by the illness to accepting self and mood experiences as part of the human experience Religion: towards the higher end of the recovery participants also seemed to highlight that religion helped to maintain skills and thinking processes learnt in therapy, such as mindfulness, normalising experiences and acceptance of mood fluctuations and self, day-to-day. Particular issues for some: -Tension between taking responsibility for recovery and self-blame when relapse. -Acceptance fluctuates, which hinders recovery.	-Access to meditation and mindfulness via free applications were recommended. -Third wave psychological interventions: Acceptance and Commitment Therapy, Mindfulness-based cognitive therapy, Compassion-focused therapy to support self-acceptance, mindfulness and normalisation. -Interventions supporting spirituality. -Mental health professionals should also explore the spiritual and religious experiences of individuals and its potential supportive role when developing individualised recovery plans.
Association between day-to-day and		Views varied from finding it difficult to distinguish between day-to-day and longer-term recovery, by seeing longer-term recovery as maintaining day-to-day self-management	-Day-to-day experiences and strategies are important in evaluating the current recovery process, but they also provide basis for longer-

Table 16 (continued)

Study aims and identified themes	Similarities across the spectrum of recovery experiences	Differences across the spectrum of recovery experiences	Clinical implications
long term recovery		strategies longer-term, to using metaphors of house, jigsaw and tapestry to describe a reflective process as the basis of longer-term recovery.	term improvements. Interventions and services should facilitate a reflective process working towards both day-today and long term achievable recovery goals.

As presented in Table 16 participants expressed varied views on the recovery definition, process and influential factors in recovery. Recovery experiences seemed to be on a continuous spectrum and the narratives of individuals revealed both similarities and differences in potential factors supporting or hindering recovery. Firstly, individuals at the lower end of the spectrum identified much stronger with the clinical model of recovery, while individuals at the higher end with the personal recovery concept. Therefore, the presented similarities across the spectrum (Table 16) seem to represent factors that individuals find important in both clinical and personal recovery outcomes. While the identified differences across the spectrum (Table 16) can provide information about factors that may play more important roles in the recovery experiences of individuals, who more strongly identified with either the personal recovery or clinical recovery concepts. For instance, normalising mood experiences tended to be discussed by individuals, who self-reported higher personal recovery and who found the personal recovery concept useful and applicable. Participants' views on the recovery concept also seemed to influence how much control and responsibility the individuals were willing to take for their own recovery and/or rely on services, which has clinical implications as discussed in Table 16.

Moreover, the views on acceptance varied across participants. In individuals with lower recovery, acceptance seemed to focus on accepting limitations caused by BD and that full potential cannot be reached. In contrast, individuals with higher recovery highlighted the need for self-acceptance and accepting mood fluctuations as normal human experiences. Some participants revealed that acceptance of BD diagnosis was an important step toward recovery, but recognising BD diagnosis as part of their identity was seen as a challenging and fluctuating process, due to the changes in personal characteristics when experiencing extreme high or low mood. This may be a hindrance in the recovery process for some individuals with BD. However, interventions supporting the identity component of the recovery framework are limited (Slade & Wallace, 2017).

While participants (across the spectrum) discussed adaptive coping strategies, including distraction and active problem solving, the importance of self-acceptance and normalising mood experiences in supporting recovery seemed to receive attention and emphasis from individuals with higher self-reported recovery. They also seem to utilise behaviour strategies more actively to maintain stable mood and provide a

platform for adaptive coping strategies, self-acceptance, and normalisation of experiences. There is a difference between actively challenging negative thoughts, such as CBT fostered strategies, and acknowledging thoughts without reacting to them, for instance, mindfulness-based strategies. While both strategies can be helpful, they may benefit individuals differently, which highlights the importance of flexibility and providing access to different interventions, depending on the need of the individual. Indeed, most participants highlighted the importance of accessing psychotherapies and support, and engaging in meaningful activities, although some felt that their opportunities to do so were limited and some identified financial restraints. Improving access to psychotherapies and support, even when one is well, seemed to be important to participants in their personal recovery experiences and would potentially benefit many other people with BD.

In line with previous research, behavioural self-monitoring and management was also identified in the present study, including lifestyle fundamentals and the role of medication (Mansell et al., 2010; Russell & Browne, 2005), further indicating that such strategies potentially contribute to both clinical and personal recovery experiences. While all participants found normal mood and functioning important, this was seen as the beginning of the recovery journey, as opposed to an outcome for some with higher-rated personal recovery. Moreover, the ambivalent role of medication only appeared in the narrative of participants with higher recovery scores. These participants tended to express concerns about the side effects of medication and discuss the importance of additional coping strategies in order to be able to actively take control and reduce medication dosage in the longer-term. The lack of expressed concerns by individuals with lower personal recovery may also indicate that avoiding relapses was very important for these individuals and strongly reliant on medication, which potentially overpowers their concerns about side effects. Morrison et al. (2016) did not identify medication as a theme in relation to personal recovery, however, the population was different (individuals with early BD). In the present study, all participants had longer experiences living with BD, indicating that the importance of pharmacological treatment for mood management may be more salient for individuals with longer lived experiences.

The importance of understanding and managing mood experiences and engaging in meaningful activities to support personal recovery in BD is also in line

with previous research in this area (Morrison et al., 2016). This study adds to this knowledge by identifying that engagement in activities not only seems to impact on how individuals see themselves, helping them to feel productive and realise their own self-worth, as previously and also here identified. Engaging in activities also seems to contribute to coping with negative thoughts, by fostering distraction and relaxation. The importance of balance in self-monitoring and activity levels was also discussed, indicating it may be particularly important in BD. Participants with higher recovery also revealed using relaxing and stimulating activities as strategies to combat mild depression and hypomania. Adjusting behaviour as a response to changes in internal states are in line with the integrative models of BD (Jones, 2001; Mansell et al., 2007).

The identified cognitive and behavioural strategies were in line with the coping theory of Lazarus and Folkman, distinguishing between emotion (focus on reducing negative emotions and thoughts caused by stressful life events) and problem-focused (dealing with stressors directly) strategies to cope with stress (Lazarus & Folkman, 1984). Emotion-focused strategies used by our participants, included behavioural and cognitive distraction, for example exercising, praying, meditating, and using mindfulness. Examples of problem-focused strategies included dealing with problems as they arise, planning activities in advance to avoid overstretching the self, and sharing problems with others, as opposed to keeping them to the self. The combined use of these strategies are in line with a recent qualitative study focusing on coping styles to self-manage BD in non-adherent to medication population (Blixen, Levin, Cassidy, Perzynski, & Sajatovic, 2016), indicating that similar coping strategies may be helpful in both clinically-focused self-management and personal recovery.

However, there were also some differences across participants. Individuals with lower recovery used both adaptive (distraction), and maladaptive (avoidance) emotion-focused strategies, and many of them only engaged in problem-focused coping when avoidance was not possible. Avoidant coping strategies did not derive from the narratives of people with higher self-reported recovery. The findings of a meta-analysis indicated that problem-focused strategies had positive impact on physical and psychological outcomes in general population, and emotion-focused strategies were often less effective, or avoidance, for instance, had a negative impact (Penley, Tomaka, & Wiebe, 2002). It is not always possible to target and change stressors directly, and therefore, adaptive emotion-focused strategies are also

important. Therefore, targeting maladaptive emotion-focused strategies, and encouraging individuals with BD to engage in more adaptive ways of emotion-focused coping, and where possible active problem-focused coping, seems to support personal recovery.

Finally, spirituality and religion are often neglected coping strategies by clinicians and researchers (De Fazio et al., 2015). However, based on limited research, spirituality and religious coping seem to be linked to better quality of life and lower depressive symptomology (Michalak, Yatham, Kolesar, & Lam, 2006; Stroppa & Moreira-Almeida, 2013), and in a primarily Hindu sample to better personal recovery in BD (Grover, Hazari, Aneja, et al., 2016). These findings corroborate our results, as the supportive role of religion emerged from the narratives of participants.

5.5.2 Strengths and limitations

This study is novel in terms of exploring views of individuals with varied recovery experiences and focusing on individuals' understanding of the underlying mechanisms and psychological processes between the identified factors and recovery. To our knowledge, this is the first study that attempted to explore the views of people with BD on a widely-used personal recovery definition and its real-life utility for service users. However, the study has several limitations. Firstly, the number of participants who had been exposed to psychological interventions and the extent of exposure were not recorded. Participants expressed views on CBT and other interventions, indicating past experiences. Due to this limitation, the type of psychotherapy and the extent to which helpful cognitive and behavioural strategies were derived from therapy cannot be fully determined. Due to the unique and personal nature of recovery, data saturation was reached in each interview to gain an in-depth account of personal experiences. Reaching thematic saturation among individuals with higher self-reported recovery was challenging, which is often the case for studies focusing on idiosyncratic experiences (for review on the conceptualisation of saturation, see Saunders et al., 2018). Despite this challenge, it is believed, that the collected data showed sufficient commonalities across the individual accounts, and it was ensured that unique views were not overlooked and were incorporated in the interpretations (presented in Table 16).

Despite attempts being made to select participants with varied recovery experiences in order to ensure that the findings are comprehensive, representativeness may have been a further limitation of the study. Participants primarily identified as white British and therefore the perceptions of individuals from different cultural and potentially varied religious backgrounds may have been underrepresented. Moreover, the interview started with reviewing a widely used personal recovery definition from Anthony (1993). The definition was added to the interview topic guide after consulting the advisory panel and before piloting the interview with service users. The members of the panel emphasized that some people might be less familiar with the personal recovery concept and definition, and without introducing the concept, they might find it difficult to talk about the subject of the interview. Anthony's definition was chosen because it is the most influential and widely used personal recovery definition in the UK. Furthermore, this definition has formed the basis for personal recovery research in bipolar disorder and in other mental health problems to date and using this definition enhanced the comparability of the study to other research in this field. However, it is recognised that the selection and addition of the definition may have influenced participants' conceptualisation of personal recovery. Finally, the research team have interest and experience in research regarding BD and recovery. Whilst it was intended that potential biases were reduced by consulting the team and the use of reflective diary notes, it is important to acknowledge that the interest and experience of the research team may have influenced the interpretation of the findings.

5.5.3 Future research directions

Future research would benefit from recording participants' history of exposure to different psychological interventions. This would help to determine the extent to which individuals use strategies acquired from psychological interventions to cope with adversity and support recovery, and the types of psychological intervention they found most helpful. Moreover, future research should identify the presence of each theme in more representative samples in order to validate their applicability to people with BD more generally, including across different cultural and religious backgrounds. Religious, adaptive emotion and problem-focused coping seem to be beneficial; however, further prospective studies are needed to determine the therapeutic implications of these findings. Two further areas of research were recommended by study participants. Firstly, to explore the underlying mechanisms of sleep and its

impact on mood destabilisation and recovery in BD. Secondly, the importance of technology-based tools to facilitate self-monitoring, management, meditation and accessing psychological interventions were highlighted. Therefore, developing new technology-based personal recovery-focused interventions and assessing the effectiveness of already existing tools via definite trials are recommended.

5.5.4 Conclusion

The present study explored participants' views on the definition, process and influential factors of personal recovery in individuals with varied self-reported personal recovery experiences. Recovery experiences seemed to be on a continuous spectrum; one end tended to characterise recovery in line with the clinical model, whilst the other end seemed to show stronger support for the personal recovery concept. Accordingly, longer-term recovery seemed to concentrate on maintaining mood-management strategies for some, and a reflective and adaptive process for others. With regard to influential factors, participants emphasized behavioural, cognitive, and religious coping strategies to support personal recovery. Self-monitoring and behavioural self-management to regain and maintain normal mood and functioning was important to all participants. However, stabilising mood and functioning seemed to be the outcome for individuals with lower recovery, and the beginning of the recovery process for people with higher self-rated personal recovery. Individuals with higher recovery also tended to express the need for self-acceptance and normalisation of mood experiences and valued the roles of both psychotherapies and religion to work towards these aims. In contrast, avoidance, a maladaptive coping strategy only emerged in some individuals with lower recovery, and these participants did not find psychotherapies helpful.

5.6 References

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal, 16*, 11-23.

Blixen, C., Levin, J. B., Cassidy, K. A., Perzynski, A. T., & Sajatovic, M. (2016). Coping strategies used by poorly adherent patients for self-managing bipolar disorder. *Patient preference and adherence, 10*, 1327-1335. doi: 10.2147/PPA.S110199

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1191/1478088706qp063oa

Coenen, M., Stamm, T. A., Stucki, G., & Cieza, A. (2012). Individual interviews and focus groups in patients with rheumatoid arthritis: a comparison of two qualitative methods. *Quality of Life Research, 21*(2), 359-370. doi: 10.1007/s11136-011-9943-2

Darlaston-Jones, D. (2007). Making connections: The relationship between epistemology and research methods. *The Australian Community Psychologist, 19*, 19-27.

De Fazio, P., Gaetano, R., Caroleo, M., Cerminara, G., Giannini, F., Jaén Moreno, M. J., . . . Segura-García, C. (2015). Religiousness and spirituality in patients with bipolar disorder. *International Journal of Psychiatry in Clinical Practice, 19*(4), 233-237. doi: 10.3109/13651501.2014.1000929

Department of Health. (2011). No health without mental health: A cross-government mental health outcomes strategy for people of all ages. London: Department of Health.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders, research version, patient edition (SCID-I/P)*. New York: Biometrics Research, New York State Psychiatric Institute.

Grover, S., Hazari, N., Aneja, J., Chakrabarti, S., Sharma, S., & Avasthi, A. (2016). Recovery and its correlates among patients with bipolar disorder: A study

from a tertiary care centre in North India. *International Journal of Social Psychiatry, 62*(8), 726-736. doi: 10.1177/0020764016676214

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods, 18*(1), 59-82. doi: 10.1177/1525822X05279903

Joffe, H. (2012). Thematic analysis. In D. Harper & A. R. Thompson (Eds.), *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners* (pp. 209-223). Chichester: Wiley.

Jones, S. H. (2001). Circadian rhythms, multilevel models of emotion and bipolar disorder—an initial step towards integration? *Clinical Psychology Review, 21*, 1193-1209.

Jones, S. H., Mulligan, L. D., Higginson, S., Dunn, G., & Morrison, A. P. (2013). The Bipolar Recovery Questionnaire: Psychometric properties of a quantitative measure of recovery experiences in bipolar disorder. *Journal of Affective Disorders, 147*(1-3), 34-43. doi: 10.1016/j.jad.2012.10.003

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.

Lewis, J. (2003). Design issues. In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice: A guide for social science students and researchers*. london, UK: SAGE.

Macpherson, R., Pesola, F., Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2016). The relationship between clinical and recovery dimensions of outcome in mental health. *Schizophrenia Research, 175*(1-3), 142-147. doi: 10.1016/j.schres.2015.10.031

Mansell, W., Morrison, A. P., Reid, G., Lowens, I., & Tai, S. (2007). The interpretation of, and responses to, changes in internal states: An integrative cognitive model of mood swings and bipolar disorders. *Behavioural and Cognitive Psychotherapy, 35*(5), 515-539. doi: 10.1017/S1352465807003827

Mansell, W., Powell, S., Pedley, R., Thomas, N., & Jones, S. A. (2010). The process of recovery from bipolar I disorder: A qualitative analysis of personal

accounts in relation to an integrative cognitive model. *British Journal of Clinical Psychology*, *49*, 193-215. doi: 10.1348/0144665O9X'451447

Mental Health Commission of Canada. (2012). *Changing directions, changing lives: The mental health strategy for Canada*. Calgary, Alberta: Mental Health Commssion of Canada,.

Michalak, E., Yatham, L., Kolesar, S., & Lam, R. (2006). Bipolar Disorder and Quality of Life: A Patient-Centered Perspective. *An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation - Official Journal of the International Society of Quality of Life Research, 15*(1), 25-37. doi: 10.1007/s11136-005-0376-7

Morrison, A. P., Law, H., Barrowclough, C., Bentall, R. P., Haddock, G., Jones, S. H., . . . Dunn, G. (2016). *Programme Grants for Applied Research: Psychological approaches to understanding and promoting recovery in psychosis and bipolar disorder: A mixed-methods approach*. Southampton (UK): NIHR Journals Library.

Morriss, R., Lobban, F., Riste, L., Davies, L., Holland, F., Long, R., . . . Jones, S. (2016). Clinical effectiveness and acceptability of structured group psychoeducation versus optimised unstructured peer support for patients with remitted bipolar disorder (PARADES): A pragmatic, multicentre, observer-blind, randomised controlled superiority trial. *Lancet Psychiatry, 3*(11), 1029-1038. doi: 10.1016/s2215-0366(16)30302-9

Namey, E., Guest, G., McKenna, K., & Chen, M. (2016). Evaluating bang for the buck: A cost-effectiveness comparison between individual interviews and focus groups based on thematic saturation levels. A*merican Journal of Evaluation, 37*(3), 425-440.

New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America: Final report.* Rockville, MD: Department of Health and Human Services.

Nicholson, T., Cutter, W., & Hotopf, M. (2008). Assessing mental capacity: The Mental Capacity Act *British Medical Journal* (Vol. 336, pp. 322-325).

Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine, 25*(6), 551-603.

Russell, S. J., & Browne, J. L. (2005). Staying well with bipolar disorder. *Australian and New Zealand Journal of Psychiatry, 39*(187-193.).

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., . . . Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity, 52*(4), 1893-1907. doi: 10.1007/s11135-017-0574-8.

Slade, M. (2009). *Personal recovery and mental illness: A guide for mental health professionals*. Cambridge: Cambridge University Press.

Slade, M., & Wallace, G. (2017). Where are we now? Recovery and mental health. In M. Slade, L. Oades & A. Jarden (Eds.), *Wellbeing, recovery and mental health* (pp. 24-34). Cambridge: Cambridge University Press.

Stroppa, A., & Moreira-Almeida, A. (2013). Religiosity, mood symptoms, and quality of life in bipolar disorder. *Bipolar Disorders, 15*(4), 385-393. doi: 10.1111/bdi.12069.

Swain, J. (2018). A Hybrid Approach to Thematic Analysis in Qualitative Research: Using a Practical Example. Sage Research Methods.

Whitwell, D. (2005). *Recovery beyond psychiatry*: Free Association Books.

Chapter 6: General discussion

6.1 Rationale of the thesis

The introductory chapter of this thesis highlighted the complexity of the recovery concept and provided a rationale for the present thesis. Accordingly, the systematic review was conducted with the aim of synthesising ways in which recovery had been operationalised, and reviewing whether different operational definitions may have been linked to different factors influencing recovery. Therefore, the aim of the first study (Chapter 3) was to conduct a comprehensive systematic review in an attempt to provide clarity and structure to the current recovery literature in BD and to identify factors of interest that had been assessed for association with recovery. While the available evidence, in general, was weak in quality and diverse in methods and results, the review confirmed key gaps in the literature, which I aimed to begin to address with the subsequent studies in this thesis. Firstly, while an extensive range of demographic, clinical, neurocognitive and other factors were examined in association with recovery, potential underpinning psychological processes of personal recovery were not examined cross-sectionally or prospectively to the date of the review. This was an important finding since the presence and impact of such processes in clinical recovery outcomes have been extensively identified (as outlined in Chapter 4).

This finding of the systematic review informed the aims of the quantitative phase (Chapter 4), by exploring the extent to which psychological process linked to clinical recovery are also associated with personal recovery, cross-sectionally and prospectively over 6 months, whilst controlling for demographic and clinical factors. Moreover, there were no qualitative studies that met inclusion criteria for the systematic review, which highlighted the lack of high quality qualitative research specifically focusing on factors supporting or hindering personal recovery in BD; the qualitative investigation presented in Chapter 5 aimed to begin to address this limitation of the literature. It was felt that a mixed methods approach was important to triangulate evidence in relation to understanding personal recovery due to the conceptual challenges previously reflected on in Chapter 1 and 2.

6.2 Review of the key findings

This chapter integrates the findings of the studies presented, discussing the key aims with their theoretical and clinical implications and limitations of the research as

a whole. The core aim of the present thesis was to explore factors influencing personal recovery in BD, with special focus on the potential role of BD-relevant psychological processes underpinning personal recovery. By bringing together the findings of a systematic review and a mixed methods approach across two studies, it is hoped that a step has been made towards this aim. The overall findings of the present study indicate that some psychological process involved in clinical outcomes play an important role in personal recovery in BD, including dysfunctional attitudes, negative self-dispositional appraisals and response styles to negative life events and spiralling negative thoughts. These findings are potentially important for refining psychosocial models of personal recovery and also for further development of clinical approaches designed to enhance personal recovery. Prior to integrating the findings of the different phases, Table 17 presents a summary of the aims and related findings for each study.

Table 17. Summary of aims and key findings of the thesis

Chapters	Aims	Key findings
Chapter 3 **Systematic literature review of personal recovery in BD: operationalisation and predictors**	To provide an overview of the operational definitions of recovery in BD (excluding clinical recovery).	-Based upon the categorisation of the reviewed literature three recovery concepts were identified: social-functional, occupational and residential and personal recovery. -Social-functional and occupational and residential recovery were primarily assessed by health professionals, while personal recovery by self- rated tools. -The quality of the literature in general was weak and operational definitions of recovery were diverse. -Definitions were often arbitrary and circular (some factors operationalised as outcomes in some, and predictors in others) reflecting the complexity of the recovery concept. -There was a lack of research on psychological factors influencing recovery, and only one study that investigated personal recovery prospectively.
	To provide a review of factors assessed for	-Due to the weak quality of the evidence and diverse approaches to definition and

Table 17 (continued)

Chapters	Aims	Key findings
	association with the different recovery concepts	measurement of recovery the identified predictors were diverse. The reviewed literature indicated that some of the clinical and demographic factors may influence recovery but specific predictors were inconsistent. -Based upon the unique association patterns both between different recovery concepts and factors, social-functional recovery showed more similarity to personal recovery compared to occupational and residential recovery.
Chapter 4 **Cross-sectional and longitudinal predictors of personal recovery and comparison to clinical outcomes in BD**	To explore associations between BD-relevant psychological processes and concurrent personal recovery while allowing for adjustment for demographic and clinical factors.	-The best predictor model of personal recovery at baseline included seven variables: gender, relationship status, depressive symptoms, adaptive coping, risk taking, dysfunctional attitudes, and self-dispositional negative appraisals; each making a unique contribution to explain variance in the personal recovery scores. In combination, the seven variables explained 55.7% of variance in the total BRQ scores. Psychological processes added an additional 20.4% to the explained variance of the demographic and clinical factors (35.3%). -This indicates that being woman, being in relationship, experiencing less depressive symptoms, reporting higher rates of adaptive coping and risk taking, and lower rates of dysfunctional attitudes and negative self-dispositional appraisals were associated with better personal recovery.
	Explore whether bipolar relevant psychological processes predict changes in personal recovery over a follow-up period of 6 months (controlling for baseline recovery scores and allowing for adjustment for demographic and clinical factors).	-Two factors predicted change in personal recovery: rumination and employment status. Together with baseline personal recovery scores they explained 15.5% of the variance in the personal recovery change score; rumination explained an additional 7% of the variance after adjusting for the employment status and baseline recovery score (8.5%). -Participants who were employed and reported higher rumination rates at

Table 17 (continued)

Chapters	Aims	Key findings
		baseline, showed improvement in their recovery scores at 6 months.
	Secondary aim was to compare factors impacting on personal recovery and clinical outcomes (operationalised as ordinal factors of the numbers of lifetime depressive and (hypo)manic episodes) at baseline.	<u>Similarities in associates of personal recovery and clinical outcomes:</u> *Clinical factors:* Depressive symptoms were associated with both personal recovery (negative association) and with depressive episodes (positive association). Recent hypomania relevant experiences were associated with the number of (hypo)manic episodes; and personal recovery (only when episode history was not adjusted for). -*Psychological factors:* Adaptive coping showed positive association with both personal recovery and (hypo)manic episodes. Dysfunctional attitudes were associated with both personal recovery (negative) and with hypomanic episodes (positive). Negative self-dispositional appraisals were associated with both the number of depressive episodes and personal recovery (when the effect of episode history was allowed for adjustment). <u>Differences in associates of personal recovery and clinical outcomes:</u> -*Demographic factors*: Personal recovery was associated with gender and relationship status; also with employment status when episode history was not added to the model. The number of previous hypomanic episodes was positively associated with educational level. Depressive episodes were not associated with demographic factors. -*Clinical factors:* The number of (hypo)manic episodes was associated with recent experiences of depression (negative association).The numbers of both (hypo)manic and depressive episodes were predicted by the time since first episode. *Psychological factors:* Personal recovery showed positive association with risk

Table 17 (continued)

Chapters	Aims	Key findings
		taking. The number of (hypo)manic episodes were positively associated with impulsivity and negatively associated with BAS-processes.
Chapter 5 **A qualitative investigation of personal recovery experiences in BD-intrapersonal factors**	To explore participants views on a widely used personal recovery definition.	-Participants' views varied and seemed to be linked to their scores on the personal recovery measure. -Participants who scored lower as part of the quantitative phase of the study tended to think about recovery more in line with the clinical recovery model, while participants with higher scores seemed to focus more on a personal recovery definition.
	To explore factors that may support or hinder personal recovery day-to-day and long term	-The thematic analysis identified three key themes capturing intrapersonal factors influencing personal recovery: i) Behavioural techniques focusing on mood monitoring and management, including holistic self-management, activities supporting recovery and the role of medication in self-management. ii) Cognitive coping strategies, including response styles and ways to challenge negative thoughts (emotion-focused strategies: distraction and avoidance and problem-focused strategies: active problem solving) and the role of psychotherapy and counselling in personal recovery was discussed. iii) Philosophical stances and recovery, including normalisation and self-acceptance and religion and spirituality. -Balanced mood monitoring, normalisation of mood experiences, self-acceptance were primarily discussed by individuals, who had higher recovery score in phase 1.
	To explore potential links between day-to-day and long term recovery experiences	- Participants described two ways in which they thought day-to-day and long term recovery were linked: i) Maintaining day-to-day self-management strategies to provide basis for

Table 17 (continued)

Chapters	Aims	Key findings
		long term stable periods; for some this was also an essential step to work towards personal growth and recovery goals (as part of long term recovery). ii) Metaphors of house, tapestry, and jigsaw were used to describe a reflective constructive process: pieces or building blocks represent everyday life areas, to be, monitored and evaluated and often adjusted to build the building or the picture (represented long-term recovery).

6.3 Integration of findings concerning psychological processes and personal recovery

The quantitative phase of this mixed methods study examined association patterns between BD-relevant psychological processes and personal recovery in a sample of individuals with BD, while the qualitative phase paid more attention to the individuals' in-depth accounts of their idiosyncratic experiences. A number of similarities have emerged across the different phases of the study, despite the different designs and methods used, although there were also variation in the findings depending on study designs. The next section will discuss the results related to the investigated BD-relevant psychological processes, including response style to depression, dysfunctional attitudes, self-dispositional appraisal, BAS-relevant psychological processes and impulsivity, and personal recovery, and relate these findings to literature.

6.3.1 Response styles to negative experiences

Response styles and coping strategies in response to negative life events and thoughts seemed to play an important role in personal recovery as it emerged from both the quantitative and qualitative results. Firstly, adaptive coping (distraction and active problem solving), assessed with the revised version of RSQ (Knowles et al., 2005), was positively associated with concurrent personal recovery after adjusting for the potential effects of demographic, clinical, and other psychological variables.

Consistent with this finding, both emotion-focused (distraction) and problem-focused coping strategies (active problem solving) were discussed by study participants in the qualitative study. Participants in general highlighted the importance of using behavioural and cognitive distraction as a way to challenge negative spiralling thoughts triggered by stressful life events. Examples of the former included engagement in meaningful and relaxing activities, such as reading, spending time outdoors, or stimulating activities, such as socialising or exercising. Examples of the latter included refocusing the word beyond self, thinking of positive life events, achievements, being grateful and hopeful for the future. Furthermore, active and problem-focused coping strategies were also discussed by study participants, and illustrated by particular strategies, such as dealing with problems in isolation as they arise and not allowing them to accumulate, sharing problems with others (as opposed to keeping them to self) and challenging negative thoughts by acknowledging them and trying to dismiss, rationalise or gather evidence against them. These findings corroborate and extend the findings of a recent study, indicating that adaptive coping was associated with positive outcomes, such as improved mood and self-esteem in individuals with BD (Pavlickova, Varese, Smith, et al., 2013).

The secondary aim of the quantitative phase was to explore whether there are similarities and/or differences in psychological processes underpinning clinical outcomes and personal recovery. Higher rates of adaptive coping were associated with higher numbers of (hypo)manic episodes. This is also in line with the literature finding association between adaptive coping and hypomanic traits in the general population and with manic episodes in BD (Thomas & Bentall, 2002; Thomas et al., 2007). This finding supports the depression avoidance hypotheses of BD (Thomas & Bentall, 2002), suggesting that excessive distraction as response to depressive mood and as an attempt to avoid depressive episodes can lead to over-stimulation and disruption to the circadian system and result in manic episodes (Thomas et al., 2007). It is therefore possible, that balanced level of distraction or engagement in relaxing activities as opposed to stimulating activities may be an effective coping strategy with depressive experiences, while stimulating, extreme or personally triggering distraction attempts may lead to circadian rhythm and mood disturbances. One example of this view was revealed in the qualitative study, where a participant explained that he generally used exercise as a distraction strategy, however, playing competitive sports in the evening

often led to over-excitement, sleep disturbances and (hypo)manic episodes for this person. Interview participants generally valued active problem-focused coping strategies; however, the RSQ subscale of adaptive coping incorporates both active problem solving and distraction. Therefore, collapsing distraction and problem solving into a single adaptive coping theme may be unhelpful, and future quantitative studies may benefit from separating distraction and active problem solving to explore their impact on both clinical and personal recovery independently.

Risk taking, another response style investigated in the present thesis, is considered a maladaptive coping strategy, incorporating activities such as recreational drug use, excessive alcohol consumption, engaging in casual sexual relationships, and reckless driving. Risk taking is usually linked to hypomanic traits in the general population and elevated mood states in BD (Knowles et al., 2005; Thomas & Bentall, 2002; Thomas et al., 2007; Van der Gucht et al., 2009). However, our analysis failed to identify associations between risk taking response style and the number of (hypo)manic episodes. Unlike previous studies, here risk-taking was evaluated alongside other psychological processes, such as impulsivity and dysfunctional attitudes, both showing positive association with the number of (hypo)manic episodes. Therefore, these processes may have been more important in factors underpinning the development of (hypo)manic episodes, and after adjusting for these processes, risk taking may not have had further explanatory power.

In contrast, the present study identified higher risk taking as a predictor of higher personal recovery after adjusting for potential confounders. A similar finding was reported by Tse and colleagues (2014), who found that lifetime binge drinking was associated with more advanced stages of personal recovery in BD. Potential underlying mechanisms between risk taking and personal recovery need to be further investigated. These results are to some extent surprising, since risk-taking behaviour had been considered by some to lead to further depression because of the negative consequences of the actions (Knowles et al., 2005). However, the present study controlled for subsyndromal depressive symptoms and negative self-dispositional appraisals, which showed significant positive bivariate association with risk taking and negative associations with personal recovery, and all of these factors remained significant in the regression model indicating roles in personal recovery. Therefore, a potential explanation may be that risk taking activities that are not associated with high

levels of depression and negative self-appraisals, such as increased engagement in activities, initiating new relationships and socialising more, may be positive experiences and facilitate recovery. It is challenging to separate pleasurable social engagement as adaptive coping from risk taking. Interview participants mentioned engagement in pleasurable activities as a positive factor in their personal recovery, which may support this explanation.

Based upon the same logic, risk-taking activities that are associated with high levels of depression and negative self-dispositional appraisals may lead to worse clinical outcomes such as depressive episodes, and may have a negative impact on personal recovery. The only obvious risk taking activity (in line with the RSQ risk-taking subscale) discussed as part of the interviews, was excessive alcohol consumption. Participants generally felt that excessive alcohol consumption had negative impact on their recovery via impacting negatively on their mood and making mood monitoring more difficult. However, excessive alcohol consumption is only one component captured by the risk taking scale.

The different types of evidence may play an important role in the varied findings. While the quantitative data represents a sample as a whole, the qualitative data provides an in-depth account of individual experiences. It may be the case that risk taking, when not linked to depression and negative self-dispositional appraisals, for many supports recovery, as it may be associated with attempts to increase activity levels and distract from negative experiences. However, at the individual level, and focusing on the particular activity of alcohol consumption, risk-taking could be related to negative experiences, which were voiced as part of the interviews. Advantages of using quantitative research to explore psychological processes in personal recovery include that potential confounding factors can be adjusted for as outlined above, and data is collected in a non-identifiable way, making individuals more like to reveal engagement in such behaviour. On the other hand, interviews can provide insight in the underlying mechanisms linking risk taking to personal recovery in a way that cannot be reached by using questionnaire design. This illustrates a methodological strength, as the qualitative study suggests a subtle adjustment to the overall quantitative pattern.

The third response style investigated in the present study was rumination. Some literature indicated that rumination had been present in all mood states (Van der

Gucht et al., 2009); however, other studies found that increased depressive symptomology was associated with higher rates of rumination (Knowles et al., 2005; Thomas & Bentall, 2002). I did not find an association between rumination and the number of depressive or hypomanic episodes or concurrent personal recovery in multiple regression models. However, rumination was the only psychological factor that remained significant predictor of change in personal recovery, with higher levels of rumination at baseline predicting improvement in personal recovery at 6 months. In contrast, participants in the qualitative interviews expressed that rumination in the long term had a very negative impact on personal recovery.

Two potential explanations were proposed for this finding in Chapter 4. The first indicated that the sample at baseline had high rates of subsyndromal symptoms and higher rates of rumination compared to previous studies, and both of these variables showed negative bivariate associations with personal recovery. One of the limitations of the present study is that symptoms and psychological processes were not measured at 6 months follow-up. Therefore, we do not know if improvement in personal recovery was also linked to reduced concurrent rumination and/or subsyndromal depression.

The second potential explanation is that the concept of rumination has been reconsidered by the authors, dividing the original concept of rumination into two categories: brooding and reflective rumination (Treynor et al., 2003). While brooding remains similar to the original definition and to the process individuals described in the interviews - directing one's attention to one's negative emotional state and passive comparison of one's current situation with some unachieved standard - reflective rumination was proposed as a thinking process whereby distance from emotions is maintained, with the individual purposefully turning inward to engage in cognitive problem solving to alleviate one's depressive symptoms (Treynor et al., 2003). Attempts to rationalise and challenge negative thoughts have been discussed by study participants during the interviews, and these attempts were generally felt to be helpful strategies that supported personal recovery. Therefore, future research may benefit from distinguishing between the two sub-concepts of rumination, exploring their role in personal recovery, and examining the association between changes in symptomology and rumination and how these changes may be linked to changes in personal recovery.

6.3.2 Dysfunctional attitudes and appraisals of hypomanic and depressive experiences

The role of dysfunctional attitudes of dependency, achievement and goal attainment have been indicated in the development and course of BD; however results investigating associations between dysfunctional attitudes and clinical states or mood symptoms showed mixed results (Alatiq et al., 2010; Goldberg, Gerstein, Wenze, Welker, & Beck, 2008; Jabben et al., 2012; Johnson & Fingerhut, 2004; Lam et al., 2004; Lex, Hautzinger, & Meyer, 2011; Lex, Meyer, Marquart, & Thau, 2008; Perich et al., 2011; Reilly-Harrington et al., 1999; Reilly-Harrington et al., 2010; Scott & Pope, 2003; Thomas, Bentall, Knowles, & Tai, 2009; Wright et al., 2005). Chapter 4 contributes to this literature and supports the findings of studies of a positive association between depressive symptoms and dysfunctional attitudes (Johnson & Fingerhut, 2004; Lee, Lam, Mansell, & Farmer, 2010; Reilly-Harrington et al., 2010) and lack of associations with manic symptoms and dysfunctional attitudes (Johnson & Fingerhut, 2004; Thomas et al., 2009).

Studies focusing on the relationship between previous mood episodes or relapses and dysfunctional attitudes did not find associations (Johnson & Fingerhut, 2004; Mansell et al., 2011). In contrast, in the present study higher total scores of dysfunctional attitudes were associated with higher rates of hypomanic episodes, but not with depressive episodes, in multiple regression models. It is therefore possible that subsyndromal depressive symptoms may trigger higher rates of dysfunctional attitudes that result in extreme goal striving behaviour leading to (hypo)manic episodes. This is line with the depression avoidance hypothesis, discussed above (Thomas & Bentall, 2002; Thomas et al., 2007).

With regard to personal recovery, achievement and goal attainment were generally described in interviews as positive factors, supporting personal recovery by indicating wellbeing, providing a sense of achievement, and giving content for distraction from negative thoughts. However, the quantitative study found that dysfunctional attitudes were associated with lower personal recovery and higher number of (hypo)manic episodes, and remained significant in the multivariate regression models after adjusting for potential confounders; indicating that dysfunctional attitudes played an important role in both personal recovery and contributed to higher number of (hypo)manic episodes. Bringing together the findings

of these two studies highlights the importance of setting realistic and achievable personal goals and working towards these goals in a balanced way, as opposed to engaging in extreme striving behaviour that may lead to hypomanic episodes and impact negatively on personal recovery.

Appraising hypomanic experiences, as related to personal characteristics (positive self-dispositional appraisals), have been found to positively predict hypomanic traits and was elevated in individuals with BD compared to healthy controls (Jones et al., 2006). Similar appraisals of depression (negative self-dispositional appraisals) relevant experiences have been found to predict depressive symptoms in previous literature (Jones & Day, 2008). A more recent study examined the role of appraisal styles in personal recovery in a sample of individuals with BD and found that negative self-dispositional appraisals showed negative bivariate association, while normalising appraisals of mood experiences from both poles positively associated with personal recovery. However, none of these psychological processes remained significant when a multiple regression was performed that controlled for subsyndromal depressive symptoms (Dodd et al., 2017).

In contrast, the study presented in Chapter 4 found that negative self-dispositional appraisals remained significant and negatively predicted personal recovery and positively predicted previous depressive episodes after controlling for depressive symptoms and other potential confounders. This indicates that the way in which individuals appraise depressive experiences is important in both their personal recovery experiences and in the development of depressive episodes. Participants in the study of Dodd et al. and the study presented in Chapter 4 showed similar demographic and clinical characteristics; however, one potential explanation for this difference in findings may be that the sample size was larger in the present study. The analysis of Dodd et al. (2017) may have been underpowered to detect this effect. While the quantitative study used a combined sample of people with varied views and experiences of personal recovery, the qualitative study enabled us to look into more refined and personalised views on factors emphasized by study participants. The final theme of the qualitative interviews (philosophical stances) illustrates that study participants, who reported higher rates of personal recovery quantitatively, seemed to emphasize the importance of normalising mood experiences.

6.3.3 Impulsivity and Behavioural Activation System

Psychological processes typically linked to elevated mood, such BAS relevant processes (high drive, fun seeking, incentive motivation and reward sensitivity) and impulsivity did not relate to personal recovery in the present study, and the narratives of interview participants did not reveal particular links between these processes and personal recovery. However, interview participants valued engagement in enjoyable and goal-focused activities, which may be related to BAS relevant processes. Individuals indicated that working and achieving goals was helpful in their recovery process as it contributed to a sense of achievement. However, as outlined above, it seems to be important that goals are achievable and that individuals do not have dysfunctional attitudes about goal attainment, such as feeling the need to excel and achieve everything they undertake.

The bivariate exploration of the quantitative phase found that the BAS total score was positively associated with manic symptoms, while the impulsivity total score was associated with depressive symptoms. Both processes were associated with the number of previous (hypo)manic episodes. While higher impulsivity was linked to more episodes, higher BAS processes were linked to less (hypo)manic episodes. Our results regarding impulsivity corroborate the literature emphasizing the importance of impulsivity in the development of manic episodes (Swann et al., 2009). The latter, on the other hand, is in contrast with previous literature highlighting the importance of higher BAS relevant cognitive styles in the development of manic episodes (Alloy et al., 2008; Alloy, Abramson, Walshaw, et al., 2009). A potential explanation was also provided in Chapter 4; impulsivity and dysfunctional attitudes of goal attainment and achievement showed positive bivariate associations with the BAS scale. It is therefore possible that after adjusting for the negative impact of impulsivity and dysfunctional attitudes, increased reward responsiveness, drive and fun seeking did not further increase the odds of (hypo)manic episodes and was associated with slightly reduced odds of developing (hypo)manic episodes.

6.3.4 Other potential factors in personal recovery

The final model at baseline explained 55.7% and the follow-up model 15.5% of the variance in personal recovery. This indicates that current psychological processes have stronger influence on current recovery experiences than prospective

recovery (however, changes in psychological processes and other factors were not assessed as part of this study). Furthermore, it indicates that other factors not investigated in the present quantitative study also play an important role in personal recovery.

One advantage of using a mixed methods design was the ability to collect data from different perspectives (Baum, 1995; Steckler et al., 1992). Due to the open questions of the interviews, a broader set of factors impacting on recovery could be explored and we were able to generate hypotheses for future research. The interview participants identified both intra- and interpersonal factors important in personal recovery. The interpersonal factors will form a future publication and provide further guidance on additional factors potentially influencing personal recovery (such as employment, mental health services, and connectedness- peer support, community and family and friends). The intrapersonal factors included three themes and cognitive coping strategies (psychological processes) were only one of them. Other intrapersonal themes included behavioural mood-monitoring and management techniques, including the subthemes of holistic self-management approaches, activities supporting recovery and the role of medication in self-management; and philosophical stances, with the subthemes of normalisation (outlined above) and self-acceptance, and religion and spirituality. All of these and potential other factors may explain personal recovery in more detail and therefore it is important to further explore the role of the above-mentioned factors in personal recovery.

6.4 Implication for theory

6.4.1 Recovery paradigm in mental health

Recovery in serious mental health problems remains a complex concept. The literature considering the recovery paradigm in serious mental health problems primarily focused on contrasting health professional-rated clinical recovery outcomes and self-rated recovery experiences (Andresen et al., 2010; Leonhardt et al., 2017; Macpherson et al., 2016). Some of these studies indicated that different processes underpinned the two recovery concepts and found different trajectories of improvement as measured on both outcomes, highlighting a qualitative difference between the two concepts (Andresen et al., 2010; Macpherson et al., 2016). A recent review, on the other hand, identified that the two processes are at least partially linked

as the indicators of emotional distress (clinical recovery) were found to be related to personal recovery experiences (Leonhardt et al., 2017). The authors also identified that a sense-making process underpinned both recovery outcomes. With regard to clinical recovery, this includes recognising the condition and making decisions about treatment options accordingly. In personal recovery outcomes, this process requires making sense of a broader range of experiences attached to the mental health condition (Leonhardt et al., 2017).

Both the quantitative and qualitative interviews contribute to knowledge in this area, specifically relevant to BD. In Chapter 4, potential demographic, clinical and psychological factors were examined for explaining variance in personal recovery and clinical outcomes (operationalised as the number of lifetime episodes). The findings of this study were consistent with research that has indicated both similarities and differences in the underpinning clinical factors and psychological mechanisms of personal recovery and clinical outcomes. While negative self-dispositional appraisals of depression-relevant events, dysfunctional attitudes and subsyndromal depressive syndromes contributed to both poorer personal and clinical outcomes, other factors showed unique associations with the examined clinical and personal recovery outcomes. This indicates that there is some overlap in potential underpinning mechanisms. However some processes, for instance response styles to negative experiences, seem to be more important in personal recovery, whilst others, such as impulsivity or BAS-relevant processes, seem to be more important in clinical outcomes (as operationalised in the present study). This finding also has implications for the psychological models of BD as presented in the Introductory Chapter. Research in this field has primarily examined psychological processes in relation to the development and course of BD, focussing on clinical outcomes, such as relapses and clinical states. The present study adds to this field by finding that some of the proposed BD-relevant process also underpin the personal recovery experiences of individuals with BD (as outlined above).

The qualitative study (Chapter 5) helped to further clarify the link between the two concepts by identifying that individuals seem to be on a broad spectrum of recovery, and participants, with lower rates of personal recovery quantitatively, were likely to endorse the personal recovery concept and definition less strongly. On the other hand, they tended to show stronger identification with the medical model of BD

and the clinical recovery outcomes. Other higher rates of personal recovery were linked to greater qualitative agreement with the personal recovery definition. For some of these individuals, clinical recovery, as characterised by stable mood, seemed to provide basis for personal growth and recovery aims. This is in line with the conclusion of Leonhardt et al. (2017), indicating that emotional states are important in both outcomes. The findings also add to this area of research, by clarifying that emotional stability plays a potential important role in personal recovery by providing a basis for working towards personal recovery aims.

Based upon the varied interpretation of the recovery concept (outlined above), we can conclude that some interview participants talked about recovery as a clinical outcome, while others as a personal process. However, regardless of these differences, individuals discussed several themes (for instance, behavioural and cognitive strategies, as discussed in Chapter 5) in common indicating that similar mechanisms may be important in different recovery concepts. In addition, normalising experiences, self-acceptance, mindfulness and spirituality, and balanced mood monitoring tended to be discussed as more relevant to individuals who identified more with the personal recovery concept.

To our knowledge, this has been the first study that investigated psychological processes underpinning personal recovery in BD prospectively. We assessed personal recovery quantitatively at two different time points and also used the qualitative phase to explore participants' views on longer-term recovery. The quantitative study, presented in Chapter 4, indicated that only two factors played important roles in longer-term recovery: rumination and employment status. The qualitative interviews provided further information of the role of both of these factors. Participants' views on the role of employment in longer-term recovery will be presented in a separate publication focusing on interpersonal factors in recovery (as discussed earlier in this thesis); the role of rumination in longer-term recovery has been identified both quantitatively and qualitatively. The studies in this thesis resulted in contrasting findings, as higher baseline rumination was associated with improvement in personal recovery quantitatively, whilst interview participants revealed that ruminating over negative life events and thoughts may have a negative impact on personal recovery longer-term. Potential reasons for this are outlined above; however, it seems clear that

the role of rumination in longer-term personal recovery of individuals with BD must be further explored in future research.

One of the advantages of using qualitative design is being able to explore participants' views on the relationship between day-to-day and longer-term recovery experiences. Participants' narratives revealed two potential links between day-to-day and longer-term recovery experiences. For some, day-to-day and longer-term experiences were very similar, referring to longer-term recovery as maintaining day-to-day self-management strategies and stable mood. Others described and illustrated their longer-term recovery experiences with metaphors of a house, jigsaw or tapestry. The different building blocks or pieces represented the different areas of life, including mood management, and participants felt that the basis or foundation must be right, stable, and continuously monitored and evaluated. This was described as a necessary reflective process to link pieces together and see whether adjustments in different areas of life are needed in order to achieve long-term recovery aims.

6.4.2 Implications for the conceptual framework of personal recovery

The conceptual framework of personal recovery in serious mental health problems in general identified that the most extensively used metaphor for longer-term recovery is the journey metaphor (Leamy et al., 2011). This is used to describe a gradual long-term process. In line with this, individuals who identified and talked about the personal recovery concept in the interview phase of the present study, also emphasized that recovery is a long-term permanent process. This study however extends the current knowledge on long-term recovery by identifying that recovery was often described as a reflective process. This reflection included both the development of self-awareness and constant adjustments to live with BD. Individuals valued their extended lived experiences to effectively monitor and adjust the different areas in their lives, and develop self-awareness. Furthermore, extended experiences may potentially facilitate other intrapersonal factors that were emphasized by study participants, such as self-acceptance and normalisation processes.

The personal recovery conceptual framework also incorporates five recovery processes, including connectedness, hope and optimism about the future, identity, meaning in life, and empowerment (Leamy et al., 2011). Each component emerged when participants talked about influential factors in their personal recovery. The

component of connectedness will be further discussed in the interpersonal factors in recovery paper (future publication). However, the quantitative results of the thesis indicated that being in relationship and being employed contributed to better personal recovery experiences, which highlights the importance of social support and broader connectedness in the recovery process.

Participants emphasized the importance of being hopeful and optimistic about the future and grateful for things in one's life, as helpful forms of cognitive distraction. For instance, thinking about future or positive life events, as a way to distract thoughts from negative life events or from intrusive negative thoughts. Moreover, the identity component of the conceptual framework incorporated processes - such as developing a positive sense of identity and over-coming stigma - also emerged in the present study. However, for individuals with BD there seems to be an additional aspect in this process. Some of the interview participants talked about a tension between their original identity and changes in their identity that they experience due to depressive or elevated mood, which they described as a feeling of being a different person. Resolving such tension, seems to be particularly relevant and important in the personal recovery process of individuals with BD compared to other mental health problems that are not characterised by severe mood disruptions.

The final two components were also discussed by interview participants. Firstly, the meaning in life process includes aspects, such as quality of life and spirituality. The final theme of philosophical stances incorporated participants' views on spirituality as a factor supporting recovery (as opposed to describing spirituality as a component of recovery). Participants emphasized that religion and spirituality were important in their personal recovery experiences, as they served as tools to challenge and distract from negative thoughts, facilitate self-acceptance, mindfulness, and maintain the strategies acquired from psychological interventions, such as normalising mood experiences, and learning not to react, but step back and have a calm approach towards problems. Secondly, the process of empowerment incorporates components such as having control over one's life, based upon the conceptual framework. Interview participants also emphasized important factors that contribute to enhanced control, some of which were interpersonal factors (discussed in a future publication). With regard to intrapersonal factors, participants highlighted that behavioural self-monitoring and self-management techniques are important for increasing control over

mood changes and supporting personal recovery. For example, it was important to be involved and have control over decisions related to the type and dose of prescribed medication, or have control over dietary decisions when control in other life areas are diminished.

The present thesis extends the conceptual framework of personal recovery by finding that for individuals with BD how they respond to negative life events and deal with spiralling negative thoughts is essential, highlighting that psychological processes underpin personal recovery. Moreover, the qualitative study found that developing balanced self-monitoring and improved self-awareness, adjusting activity levels accordingly, and normalising as opposed to pathologising mood experiences are also important factors in personal recovery in BD.

6.5 Clinical and service implications

The present thesis has clinical implications for both mental health services and psychological interventions for individuals with BD. Due to its focus on intrapersonal and psychological processes, implications for psychological interventions are more explicit. The interviews provided rich data and implications for mental health services will be further addressed in a future publication focusing on individuals' views on interpersonal factors in recovery (reasons for this were outlined in Chapter 5).

6.5.1 Mental health services

As outlined above, the concept of personal recovery is complex and individuals interpret recovery in various ways, which has two key implications for services. Firstly, some participants in the present study felt that recovery was not possible and these participants tended to score lower on the self-report personal recovery questionnaire. This finding is important, since mental health services internationally are required to implement the personal recovery orientation and are being evaluated on the basis of personal recovery outcomes. Moreover, not only individuals with BD, but also often health professionals are pessimistic about recovery outcomes due to the primary reliance on clinical and pathogenic models of mental health problems. Such models aim to identify and treat the cause and/or symptom of the illness, as opposed to focusing on factors that support health and well-being.

This leads mental health services to primarily focus on relapses, but participants felt that accessing support when they had been well would be beneficial

for their longer-term recovery. To address this, services should work in collaboration with service users to challenge the inherent pessimism about recovery in severe mental health problems, such as BD, by focusing on research findings and individual experiences demonstrating that personally defined and meaningful recovery is possible. Moreover, alternative access to support should be provided, such as drop-in services, to support individuals who are not under secondary mental healthcare. Secondly, the complexity of the concept has implications for assessing recovery outcomes. Services attempting to assess recovery must first identify what recovery means to the individual and apply measures that capture a broad spectrum of recovery, including both symptomology and personal recovery experiences. It is possible that different tendencies towards clinical or personal recovery descriptions result from differences in treatment experiences, which may also suggest that engaging people in ongoing and reflective discussion about recovery could be beneficial.

Moreover, the five year forward plan for mental health stipulates services to support a holistic treatment approach that focuses on both physical and mental health problems (NHS England, 2016). Interview participants in the present study seemed to agree with this approach and felt that maintaining physical health would strengthen their mental health longer-term. Similarly, the strategy highlights the importance of supporting individuals to return to employment, which is in line with the findings of the quantitative study as being in employment predicted personal recovery in BD prospectively.

However, considering the inherent complexity and idiosyncratic nature of the recovery concept, a one-size-fits-all approach is unlikely to be beneficial for all individuals. Recovery-focused services should aim to develop personally meaningful recovery plans, which consider the unique recovery aims of the individual and identifies recovery-supporting strategies and activities accordingly. Based upon the qualitative findings of the present study, developing recovery plans should be reflective process to ensure that it is working for the individuals with BD. Moreover, services should consider (in addition to supporting physical health and returning to employment) encouraging individuals to develop a regular, but flexible, routine that contains personally meaningful activities to facilitate relaxation and enjoyment; strategies to maintain balance in mood-monitoring and activity levels to reduce anxiety, stress and relapses; including individuals in decisions considering medication

and psychological treatment to improve the sense of control and empowerment; and spiritual beliefs and experiences of individuals and whether such experiences can benefit recovery.

6.5.2 Psychological interventions

The NICE guideline for BD recommends access to structured and evidence-based psychotherapy, and identified stronger evidence for CBT and psychoeducation in improving clinical outcomes (NICE, 2014). The results of the present study additionally indicate that educational and cognitive behavioural approaches may improve personal recovery experiences too. The quantitative study identified that negative cognitive styles, such as dysfunctional attitudes and self-dispositional negative appraisals played an important role in predicting personal recovery. Interview participants also revealed that the ways in which they deal with negative thoughts and experiences is especially important in their recovery process. Adaptive coping strategies, such as distraction and active problem solving, were also found helpful in personal recovery both quantitatively and qualitatively. Cognitive vulnerability is generally targeted by CBT interventions. Based on the results of the present study, CBT interventions should provide individuals with problem-focused coping skills, such as actively challenging negative thoughts and resolving problems in isolation to avoid a cumulative effect, as well as fostering adaptive emotion-focused coping strategies, such as distraction and risk taking in balanced and monitored ways.

Moreover, a special focus of interventions for individuals with BD may be the targeting of appraisal processes, helping individuals to normalise as opposed to pathologise or internalise mood experiences. Interview participants also highlighted the importance of educating themselves about BD, personal triggers, and warnings signs to develop balanced self-monitoring skills. They also tended to prefer individualised sessions, due to the variance in potential triggers and helpful strategies. For these reasons, individualised recovery focused-interventions that incorporate elements of CBT and psychoeducation may be more beneficial than group interventions, for example, the recovery-focused CBT for early BD developed by Jones and colleagues (2015). In addition, interview participants emphasized the importance of developing a regular routine, getting adequate sleep, and the helpfulness of psychotherapies in resolving interpersonal conflicts. Developing a regular routine is a common target across psychoeducational and CBT approaches, recommended by

the NICE guideline for BD. Other interventions targeting these areas include family-focused psychotherapy and ISRT. While there is evidence for family-focused interventions in psychosis, there is less empirical support for such psychotherapies in BD (Oud et al., 2016). However, it may be beneficial for some individuals who struggle with these areas in their lives (Frank et al., 2000; Miklowitz et al., 2003).

An important element of most interventions is to set and work towards personal goals. Setting and working towards goals and focusing on achievements were valued by interview participants in the present study. However, the quantitative phase identified that dysfunctional attitudes of goal attainment and achievement were associated with higher number of manic episodes and had a negative impact on personal recovery (outlined above). For these reasons, interventions should work with achievable goals and monitor psychological processes and life events associated with goal attainment. Mindfulness-based cognitive interventions showed promise in targeting such dysfunctional attitudes and rumination (Deckersbach et al., 2012; Perich et al., 2013), which is significant given that rumination played an important role in personal recovery in the present study. Individuals in the interviews valued mindfulness supported by their spiritual activities, and found mindfulness-based interventions partially helpful in supporting recovery. Mindfulness-based interventions are recommended to individuals with major depressive disorder, but are currently not recommended for individuals with BD by NICE guidelines (NICE, 2009, 2014). This is due to non-definitive evidence so far that suggests some possible merit, but only for particular aspects such as anxiety.

Furthermore, the qualitative interviews identified that individuals who used avoidance as a coping mechanism with traumatic life events and extreme emotions felt that psychological interventions were not helpful for them, due to bringing up emotions and memories. However, some of the third wave psychological interventions, such ACT and DBT (outlined in the Introduction) target and have recently showed promise in reducing avoidance and facilitating acceptance of emotionally challenging situations or uncomfortable feelings and thoughts in other mental health populations (Hayes et al., 1999; Linehan, 1993; Murray et al., 2017; Pankowski et al., 2017). Such psychotherapies may benefit some individuals with BD who use maladaptive coping strategies such as avoidance. This highlights the

importance of flexibility in offering psychological interventions tailored to the needs of individuals

While interview participants in general emphasized the benefits of psychological interventions, they also raised issues regarding being unable to access psychological interventions via the National Health Services and being unable to afford private sessions. Even participants who accessed psychological interventions in the past felt that they would benefit from reminder sessions. One potential solution, which was also recommended by interview participants, was developing effective digital interventions and providing free access to service users. For instance, the web-based Enhanced Relapse Preventions for BD showed promise in feasibility and acceptability of such intervention (Lobban et al., 2017). However, future definite trials are required to test whether digital interventions are also effective in improving outcomes for individuals.

Finally, as outlined in the Introductory chapter, recovery-focused intervention in mental health problems have primarily focused on targeting specific processes as identified in the conceptual framework, such as connectedness, hope, identity, meaning in life, and empowerment (Leamy et al., 2011). The ways in which the findings of the present study link to this conceptual framework have been outlined above. These results support interventions that focus on occupational rehabilitations to target the connectedness component indirectly, and interventions focusing on enhancing control, spirituality, realistic goal settings and hope may all contribute to improved personal recovery in BD (Clarke et al., 2009; Crowther et al., 2001; Henderson et al., 2008; Huguelet et al., 2011; Schrank et al., 2012; Yaara et al., 2017). However, these interventions target specific processes and therefore may not benefit everyone. Moreover, the current evidence base for these interventions is weak, and further research is needed to evaluate their effectiveness. The present research found that targeting psychological processes may also be beneficial for individuals with BD in improving not only clinical but also personal recovery outcomes, which has typically received less attention from researchers and clinicians.

6.6 Strengths and limitations

The present study has several strengths and limitations, which will be discussed in the next section.

6.6.1 Methodology

As outlined in Chapter 2, integrating findings from studies using quantitative and qualitative designs can be challenging due to the epistemological and ontological assumptions traditionally associated with each design. It is recognised that methodological decisions may have impacted on the results of the study. Each approach has limitations and strengths, and using a mixed methods design can help to overcome these limitations. A further strength of mixed methods designs is the ability to combine data from different perspectives and review different layers of evidence, which is especially helpful for researching complex concepts, such as personal recovery (Baum, 1995; Steckler et al., 1992). The present study fully utilised these strengths. Firstly, the systematic review provided a broad, but high-level overview of the current research conducted on recovery in BD. This was an essential starting point and provided rationale for the subsequent phases of the study.

Secondly, combining the qualitative and quantitative approaches have indicated that the relative endorsement of personal and clinical definitions of recovery is important to consider. As identified in the qualitative study, individuals interpret recovery in various ways. Therefore, summarising such diverse views across one sample and analysis inevitability homogenises unique experiences of individuals. Furthermore, some of the interview participants expressed that they did not believe that recovery was possible and did not identify with the personal recovery concept. Therefore, it is questionable how meaningful it is to measure personal recovery quantitatively, as it may be a concept that does not resonate with all service users. The qualitative study, on the other hand, explored the idiosyncratic meanings and experiences linked to recovery. Typically, lower rates of personal recovery quantitatively led to less convergence on the personal recovery definition. Therefore, the self-report measure of personal recovery, not only seems to indicate how far individuals are in their recovery journey, but also seem to have implications for whether they interpret recovery in line with the personal recovery concept.

A methodological limitation of the present study is that follow-up data on psychological processes and symptom measures were not collected. Therefore, it was not possible to explore whether changes in subsyndromal symptoms and psychological processes may have impacted on personal recovery outcomes. Moreover, personal recovery was assessed at two time points, which provides a snapshot of experiences

but possibly does not capture the dynamic nature of the recovery process. This limitation could not be addressed by the qualitative interviews. The present PhD project also included a weeklong experience sampling method (ESM) study with repeated measures of personal recovery, symptoms, and psychological processes, which aimed to address this limitation. However, the restricted capacity of the PhD thesis did not allow the incorporation of this ESM study and the second qualitative study, which will form future publications. Furthermore, the study presented in Chapter 4 compared the potential predictors of personal recovery and clinical outcomes, the latter operationalised as ordinal factors of the number of lifetime depressive and manic episodes. It is recognised, that there are limitations associated with this approach, more specifically related to the link between chronicity, age and recurrence. As an alternative approach, using the depressive and manic symptom scales for clinical outcome assessment was considered. However, participants in the present study were specifically recruited in euthymic clinical states, for this reason using symptom measures as clinical outcomes, would suffer from floor effect. To mitigate the impact of chronicity and age on the number of lifetime episodes the models adjusted for time since first episode, which was computed by subtracting the participants' age at their first episode from their current age.

6.6.2 Sample and researcher related biases

As outlined in Chapter 2 there are potential biases attached to the researcher and to the study participants, which may have impacted on the outcomes of the present thesis. Firstly, the research team has a primary interest in the psychosocial models of BD and highly values the concept of personal recovery, which may have impacted on both the data collection and analysis. While the desire of the study population to focus on personal recovery experiences was considered in the selection of outcome measures and design of the qualitative interview questions, it seems that not all individuals identify strongly with the personal recovery concept. Therefore, the data collection tools may have been more suitable to explore the views of individuals who lay strong emphasis on personal recovery.

Secondly, while all efforts were made to select individuals who did not experience current mood episodes, symptom measures indicated high levels of subsyndromal depression at baseline assessment for the quantitative study. This is especially important as periods spent with subsyndromal depressive symptoms were

found to be strongly associated with psychosocial impairment in BD (Judd & Schettler, 2010). Therefore, it is likely that it influenced the ways in which participants reported on their recovery process and may have also intensified maladaptive dysfunctional thinking processes. To attempt to account for this, mood symptoms were controlled for in the modelling and depressive symptoms remained in the regression model indicating their role in concurrent personal recovery.

Another possible limitation of the quantitative study is that the sample was smaller than hoped. The baseline assessment included 107 individuals with BD, and approximately 86% of them completed the follow-up assessment, which is a respectable sample size and retention rate considering the limited resources of a PhD project and the difficulties of recruiting clinical populations for research studies. In total, 139 individuals expressed interest in the present study and the target sample size was 130. This in itself indicates that people with BD disorder are keen to talk about their recovery experiences. However, many participants had to be excluded due to current depressive and/or (hypo)manic episodes. Including participants with current mood episodes would have introduced further bias into the study. While the smaller sample size may be a limitation, it is believed that the study still had sufficient power to detect association between psychological processes and personal recovery. The power calculation was based upon explaining a total of 28% of the variance in personal recovery and the variables in our regression model explained over 55%. Using less conservative estimations in the power calculation would have resulted in smaller target sample size.

Moreover, the qualitative study may have been exposed to potential biases as well, which we tried to make as explicit as possible. The interpretation of individual narratives strongly relies on the researcher, and therefore it is likely that the research interest of the team impacted on the identified themes. It is known that purely objective research is not possible, but all efforts were made to minimise the researcher's bias by conducting the analysis as a team.

The qualitative interviews included a heterogeneous group of individuals with BD, which has both strengths and limitations. A broader view of the recovery spectrum has been represented, which we believed made the themes richer, as opposed to focus solely on individuals who strongly support the personal recovery definition. However, heterogeneity in qualitative samples can make identification of common themes more

challenging. Due to the idiosyncratic and complex nature of recovery, it was important to attempt to gain a deeper insight into such varied experiences, despite the challenges.

In addition, individuals in the qualitative interviews revealed that many of them had exposure to psychological therapies. However, the type and dose of psychological interventions are not known. This information would helpful to determine the extent to which helpful behavioural and cognitive strategies discussed by study participants derive from psychological intervention or from their own lived experiences.

Finally, generalisability is a limitation attached to the study sample. As a PhD student, I did not have the resources to use stratified sampling. Despite the attempt to cover a broad geographic area and collect data remotely, individuals who express interest in research projects are unlikely to represent all individuals with BD experiences. For instance, 65% of study participants were educated to degree level, and 75% of them were employed, which is much higher than the 40-60% employment rate reported in individuals with BD (Marwaha et al., 2013). Furthermore, the sample primarily included individuals who identified as white British, and therefore the perceptions of individuals from different cultural and potentially varied religious backgrounds were potentially underrepresented. This may be a particularly relevant limitation for the qualitative study, as many participants discussed religion and spirituality as a supportive factor in personal recovery.

6.6.3 Patient and public involvement

A further strength of the present study is that the Advisory Panel (service users and relatives) at the Spectrum Centre for Mental Health Research were consulted on a regular basis. The panel reviewed study materials, including the information sheet, study flyer and consent forms and contributed to the interview topic guide. However, due to the educational nature of the project, individuals with lived experiences of BD did not have the opportunity to form the questions of the present research. Future research should consult individuals on the selection of measures and questions to explore.

6.7 Future research

The present study was exploratory in its nature due to the infancy of personal recovery research in BD and the fact that research on personal recovery lags behind

service adaptation. Therefore, several hypotheses have been generated and presented for future research, which will be recapped in this section.

Firstly, due to the complexity of the recovery concept and based upon the findings of the systematic review, consensus research with stakeholders is recommended to identify key recovery concepts and core set of measures. Moreover, the quantitative study had several limitations (outlined above) and prospective studies are recommended to explore associations between changes in psychological processes and symptomology with changes in personal recovery in BD. These studies would particularly benefit from exploring the role of different subtypes of rumination, since rumination was the only psychological process that predicted change in personal recovery in the present study. Reflective rumination and brooding were investigated in combination in the present study, which may have impacted on the result. Furthermore, due to the limitation of the present sample, larger scale studies are required to verify findings and further explore the role of risk taking in personal recovery, to gain a deeper understanding of the positive association identified in the present study.

Moreover, the present study found that adaptive coping (as measured in the quantitative study) contributed to both higher self-reported personal recovery and higher numbers of previous (hypo)manic episodes (discussed above). This measure incorporates both emotion-focused (distraction) and problem-focused coping strategies (active problem solving). Examining distraction separately from problem-focused active coping strategies may be beneficial to explore whether these components independently show unique associative patterns with personal recovery and (hypo)manic episodes in BD. Furthermore, definite RCTs are required to assess the effectiveness of the above-mentioned psychological interventions, using outcomes that capture a broader range of experiences, including both clinical and personal recovery outcomes. Further research should also explore whether there may be additional psychological process not examined here, which are relevant to personal recovery in particular, but not to clinical improvement.

Given the roles of mental health services in setting and encouraging individuals to work towards personal recovery goals, future qualitative studies should focus on how staff members interpret and implement recovery-oriented services. Furthermore, exploring factors impacting on personal recovery in more homogenous

samples may be beneficial. For example, the views of individuals who strongly identify with the recovery concept, or those who disagree with the concept could be explored, looking to identify why this may be the case. This approach would add to the present qualitative study by validating or extending the identified themes particularly relevant to individuals with similar recovery experiences.

6.8 Conclusion

This thesis was primarily concerned with exploring the nature and potential psychological predictors of personal recovery in BD. It is concluded that the recovery concept remains complex and its interpretation varies across individuals, which ultimately has implications for potential predictors. Services should work in collaboration with service users to challenge the often-pessimistic view on recovery in severe mental health problems. However, despite the diverse meaning of the recovery concept, the present study found that psychological processes play an important role not only in clinical, but also in personal recovery outcomes, and underpinning psychological mechanisms show overlap, but also have unique trajectories too. Therefore, future work should focus on developing, refining and evaluating personalised psychological interventions and assess their effectiveness on a broad range of clinical and personal experiences.

Consolidated reference list

Aas, M., Henry, C., Andreassen, O., Bellivier, F., Melle, I., & Etain, B. (2016). The role of childhood trauma in bipolar disorders. *International Journal of Bipolar Disorders, 4*(1), 1-10. doi: 10.1186/s40345-015-0042-0

Abraham, K. (1911/1927). Notes on the psychoanalytic investigation and treatment of manic depressive insanity. In E. Jones (Ed.), *Selected papers of Karl Abraham*. London: Hogarth.

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review, 96*(2), 358.

Ahlbom, A. (1993). Pooling epidemiologic studies. *Epidemiology, 4*(4), 283-284.

Akiskal, H. S., Bourgeois, M. L., Angst, J., Post, R., Möller, H.-J., & Hirschfeld, R. (2000). Re-evaluating the prevalence of and diagnostic composition within the broad clinical spectrum of bipolar disorders. *Journal of Affective Disorders, 59*, S5-S30.

Alatiq, Y., Crane, C., Williams, J. M., & Goodwin, G. M. (2010). Dysfunctional beliefs in bipolar disorder: hypomanic vs. depressive attitudes. *Journal of Affective Disorders, 122*(3), 294-300. doi: 10.1016/j.jad.2009.08.021

Alloy, L. B., & Abramson, L. Y. (2010). The role of the behavioral approach system (BAS) in bipolar spectrum disorders. *Current Directions in Psychological Science, 19*(3), 189-194.

Alloy, L. B., Abramson, L. Y., Neeren, A. M., Walshaw, P. D., Urosevic, S., & Nusslock, R. (2006). Psychosocial risk for bipolar disorder. In S. H. Jones & R. P. Bentall (Eds.), *The psychology of bipolar disorder: New developments and research strategies*. Oxford, UK: Oxfors University Press.

Alloy, L. B., Abramson, L. Y., Urosevic, S., Bender, R. E., & Wagner, C. A. (2009). Longitudinal predictors of bipolar spectrum disorders: A behavioral approach system perspective. *Clinical Psychology: Science and Practice, 16*(2), 206-226.

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Cogswell, A., Grandin, L. D., Hughes, M. E., . . . Hogan, M. E. (2008). Behavioral approach system and behavioral inhibition system sensitivities and bipolar spectrum disorders: Prospective prediction of bipolar mood episodes. . *Bipolar Disorders, 10*, 310-322.

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Cogswell, A., Smith, J. M., Neeren, A. M., . . . Nusslock, R. (2006). Behavioral approach system (BAS) sensitivity and bipolar spectrum disorders: A retrospective and concurrent behavioral high-risk design. *Motivation and Emotion, 30*(2), 143-155.

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., Gerstein, R. K., Keyser, J. D., Whitehouse, W. G., . . . Harmon-Jones, E. (2009). Behavioral approach system (BAS)-relevant cognitive styles and bipolar spectrum disorders: concurrent and prospective associations. *Journal of Abnormal Psychology, 118*(3), 459-471. doi: 10.1037/a0016604

Alloy, L. B., Abramson, L. Y., Walshaw, P. D., & Neeren, A. M. (2005). Cognitive vulnerability to unipolar and bipolar mood disorders. *Journal of Social and Clinical Psychology, 25*, 726-754.

Alloy, L. B., Nusslock, R., & Boland, E. M. (2015). The development and course of bipolar spectrum disorders: an integrated reward and circadian rhythm dysregulation model. *Annual Review of Clinical Psychology, 11*, 213-250. doi: 10.1146/annurev-clinpsy-032814-112902

Alloy, L. B., Reilly-Harrington, N., Fresco, D. M., Whitehouse, W. G., & Zechmeister, J. S. (1999). Cognitive styles and life events in subsyndromal unipolar and bipolar disorders: Stability and prospective prediction of depressive and hypomanic mood swings. *Journal of Cognitive Psychotherapy, 13*(1), 21-40.

Alloy, L. B., Urošević, S., Abramson, L. Y., Jager-Hyman, S., Nusslock, R., Whitehouse, W. G., & Hogan, M. (2012). Progression along the bipolar spectrum: A longitudinal study of predictors of conversion from bipolar

spectrum conditions to bipolar I and II disorders. *Journal of Abnormal Psychology, 121,* 16-27. doi: 10.1037/a0023973.supp

Altman, E. G., Hedeker, D., Peterson, J. L., & Davis, J. M. (1997). The Altman self-rating mania scale. *Biological Psychiatry, 42*, 948-955.

Altshuler, L., Mintz, J., & Leight, K. (2002). The Life Functioning Questionnaire (LFQ): a brief, gender-neutral scale assessing functional outcome. *Psychiatry Research, 112*(2), 161-182.

American Psychiatric Association. (1980). Diagnostic and statistical manual, 3rd edn (DSM-III). *American Psychiatric Association, Washington*.

American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders-DSM-III-R* (3rd ed.). Washington: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders DSM-IV-TR* (4th ed.). Washington: American Psychiatric Association.

American Psychiatric Association. (2003). *Manual diagnóstico e estatístico de transtornos mentais DSM-IV-TR* (4th ed.). Porto Alegre: Artmed.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Arlington, VA: American Psychiatric Association Press.

American Psychiatric Association. (2017). DSM History. Retrieved from 12th October 2017, from http://www.psychiatry.org/practice/dsm/dsm-history-of-the-manual

Andresen, R., Caputi, P., & Oades, L. (2006). Stages of recovery instrument: Development of a measure of recovery from serious mental illness. *Australian and New Zealand Journal of Psychiatry, 40*(11-12), 972-980. doi: 10.1080/j.1440-1614.2006.01921.x

Andresen, R., Caputi, P., & Oades, L. G. (2010). Do clinical outcome measures assess consumer-defined recovery? *Psychiatry Research, 177*(3), 309-317.

Andresen, R., Oades, L., & Caputi, P. (2003). The experience of recovery from schizophrenia: Towards an empirically validated stage model. *Australian and New Zealand Journal of Psychiatry, 37*(5), 586-594. doi: 10.1046/j.1440-1614.2003.01234.x

Angst, J. (1966). On the etiology and nosology of endogenous depressive psychoses: A genetic, sociologic and clinical study. *Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie, 112*, 1-118.

Angst, J., Gamma, A., Sellaro, R., Lavori, P. W., & Zhang, H. (2003). Recurrence of bipolar disorders and major depression. *European Archives of Psychiatry and Clinical Neuroscience, 253*(5), 236-240.

Angst, J., & Preisig, M. (1995). Course of a clinical cohort of unipolar, bipolar and schizoaffective patients. Results of a prospective study from 1959 to 1985. *Schweizer Archiv für Neurologie und Psychiatrie (Zurich, Switzerland : 1985), 146*(1), 5-16.

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal, 16*, 11-23.

Antonak, R. F., & Livneh, H. (1988). *The measurement of attitudes toward people with disabilities: Methods, psychometrics and scales*: C. C. Thomas.

Armijo-Olivo, S., Stiles, C. R., Hagen, N. A., Biondo, P. D., & Cummings, G. G. (2012). Assessment of study quality for systematic reviews: a comparison of the Cochrane Collaboration Risk of Bias Tool and the Effective Public Health Practice Project Quality Assessment Tool: methodological research. *Journal of Evaluation in Clinical Practice, 18*(1), 12-18. doi: 10.1111/j.1365-2753.2010.01516.x

Australian Government. (2012). *Partners in recovery: Coordinated support and flexible funding for people with severe, persistent mental illness and complex needs initiative*. Canberra, Australia: Department of Health and Ageing.

Bahorik, A. L., Newhill, C. E., & Eack, S. M. (2013). Characterizing the longitudinal patterns of substance use among individuals diagnosed with serious mental illness after psychiatric hospitalization. *Addiction, 108*(7), 1259-1269. doi: 10.1111/add.12153

Baldessarini, R., Tondo, L., Vazquez, G., Undurraga, J., Bolzani, L., Yildiz, A., . . . Tohen, M. (2012). Age at onset versus family history and clinical outcomes in 1,665 international bipolar-I disorder patients. *World Psychiatry, 11*(1), 40-46.

Baldessarini, R. J., Tondo, L., Davis, P., Pompili, M., Goodwin, F. K., & Hennen, J. (2006). Decreased risk of suicides and attempts during long-term lithium treatment: a meta-analytic review. *Bipolar Disorders, 8*, 625-639.

Ball, J., Mitchell, P., Corry, J., & Skillecorn, A. (2006). A randomized controlled trial of cognitive therapy for bipolar disorder: Focus on long-term change. *Journal of Clinical Psychiatry, 67*(2), 277-286.

Barekatain, M., Khodadadi, R., & Maracy, M. R. (2011). Outcome of single manic episode in bipolar I disorder: a six-month follow-up after hospitalization. *Journal of Research in Medical Sciences, 16*(1), 56–62.

Barnes, C. W., Hadzi-Pavlovic, D., Wilhelm, K., & Mitchell, P. B. (2015). A web-based preventive intervention program for bipolar disorder: Outcome of a 12-months randomized controlled trial. *Journal of Affective Disorders, 174*, 485-492.

Barratt, E. S. (1993). Impulsivity: Integrating cognitive, behavioral, biological, and environmental data. In W. G. McCown, J. L. Johnson & M. B. Shure (Eds.), *The impulsive client: Theory, research and treatment* (pp. 39-56.). Washington, D. C.: American Psychological Association.

Bauer, M. S., Altshuler, L., Evans, D. R., Beresford, T., Williford, W. O., & Hauger, R. (2005). Prevalence and distinct correlates of anxiety, substance, and combined comorbidity in a multi-site public sector sample with bipolar disorder. *Journal of Affective Disorders, 85*(3), 301-315.

Baum, F. (1995). Researching public health: Behind the qualitative-quantitative methodological debate. *Social Science and Medicine, 40*(4), 459-468.

Bearden, C. E., Shih, V. H., Green, M. F., Gitlin, M., Sokolski, K. N., Levander, E., . . . Altshuler, L. L. (2011). The impact of neurocognitive impairment on occupational recovery of clinically stable patients with bipolar disorder: A prospective study. *Bipolar Disorders, 13*(4), 323-333. doi: 10.1111/j.1399-5618.2011.00928.x

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. New York: Harper and Row.

Beck, A. T. (1979). *Cognitive therapy of depression*. New York: Guilford press.

Belvederi Murri, M., Prestia, D., Mondelli, V., Pariante, C., Patti, S., Olivieri, B., . . . Amore, M. (2016). The HPA axis in bipolar disorder: Systematic review and meta-analysis. *Psychoneuroendocrinology, 63*, 327-342. doi: 10.1016/j.psyneuen.2015.10.014

Bentall, R. P., & Thompson, M. (1990). Emotional Stroop performance and the manic defence. *British Journal of Clinical Psychology, 29*(2), 235-237.

Berens, A. E., Jensen, S. K. G., & Nelson, C. A. (2017). Biological embedding of childhood adversity: from physiological mechanisms to clinical implications. *BMC Medicine, 15*(1), 135. doi: 10.1186/s12916-017-0895-4

Beresford, P., Perring, R., Nettle, M., & Wallcraft, J. (2016). *From mental illness to a social model of madness and distress*. London: Shaping Our Lives.

Berk, M., Dodd, S., Callaly, P., Berk, L., Fitzgerald, P., De Castella, A. R., . . . Biffin, F. (2007). History of illness prior to a diagnosis of bipolar disorder or schizoaffective disorder. *Journal of Affective Disorders, 103*(1), 181-186.

Bird, V., Leamy, M., Tew, J., Le Boutillier, C., Williams, J., & Slade, M. (2014). Fit for purpose? Validation of a conceptual framework for personal recovery with current mental health consumers. *Australian and New Zealand Journal of Psychiatry, 48*(7), 644-653. doi: 10.1177/0004867413520046

Blixen, C., Levin, J. B., Cassidy, K. A., Perzynski, A. T., & Sajatovic, M. (2016). Coping strategies used by poorly adherent patients for self-managing bipolar disorder. *Patient Preference and Adherence, 10*, 1327-1335. doi: 10.2147/PPA.S110199

Bohus, M., Dyer, A. S., Priebe, K., Krüger, A., Kleindienst, N., Schmahl, C., . . . Steil, R. (2013). Dialectical behaviour therapy for post-traumatic stress disorder after childhood sexual abuse in patients with and without borderline personality disorder: A randomised controlled trial. *Psychotherapy and Psychosomatics, 82*(4), 221-233.

Boland, E. M., Bender, R. E., Alloy, L. B., Conner, B. T., LaBelle, D. R., & Abramson, L. Y. (2012). Life events and social rhythms in bipolar spectrum disorders: An examination of social rhythm sensitivity. *Journal of Affective Disorders, 139*(3), 264-272.

Bonnin, C. M., Reinares, M., Hidalgo-Mazzei, D., Undurraga, J., Mur, M., Saez, C., . . . Vieta, E. (2015). Predictors of functional outcome after a manic episode. *Journal of Affective Disorders, 182*, 121-125. doi: 10.1016/j.jad.2015.04.043

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher, 34*(6), 3-15. doi: 10.3102/0013189X034006003

Bowling, A. (2002). *Research methods in health: Investigating health and health services* (2nd ed.). Maidenhead: Open University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1191/1478088706qp063oa

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford: Oxford University Press.

Cade, J. F. J. (1949). Lithium salts in the treatment of psychotic excitement. *Medical Journal of Australia, 2*, 349-352.

Cannon-Spoor, H. E., Potkin, S. G., & Wyatt, R. J. (1982). Measurement of premorbid adjustment in chronic schizophrenia. *Schizophrenia Bulletin, 8*(3), 470.

Carpenter, J., Schneider, J., McNiven, F., Brandon, T., Stevens, R., & Wooff, D. (2004). Integration and targeting of community care for people with severe and enduring mental health problems: Users' experiences of the Care Programme Approach and Care Management. *The British Journal of Social Work, 34*(3), 313-333. doi: 10.1093/bjsw/bch040

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319-333.

Cassidy, F., Murry, E., Forest, K., & Carroll, B. J. (1998). Signs and symptoms of mania in pure and mixed episodes. *Journal of Affective Disorders, 50*(2), 187-201.

Castle, D., White, C., Chamberlain, J., Berk, M., Berk, L., Lauder, S., . . . Gilbert, M. (2010). Group-based psychosocial intervention for bipolar disorder: Randomised controlled trial. *British Journal of Psychiatry, 196*(5), 383-388. doi: 10.1192/bjp.bp.108.058263

Chang, G. H., Alloy, L. B., & Abramson, L. Y. (2003). Examining social rhythm regularity to predict affective episodes in bipolar spectrum individuals. *Bipolar Disorders Supplement, 5*, 39-40.

Chatterton, M. L., Stockings, E., Berk, M., Barendregt, J. J., Carter, R., & Mihalopoulos, C. (2017). Psychosocial therapies for the adjunctive treatment of bipolar disorder in adults: Network meta-analysis. *British Journal of Psychiatry*. doi: 10.1192/bjp.bp.116.195321

Chengappa, K. N. R., Hennen, J., Baldessarini, R. J., Kupfer, D. J., Yatham, L. N., Gershon, S., . . . Tohen, M. (2005). Recovery and functional outcomes following olanzapine treatment for bipolar I mania. *Bipolar Disorders, 7*, 68-76.

Chiesa, A., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis. *Psychiatry Research, 187*(3), 441-453. doi: https://doi.org/10.1016/j.psychres.2010.08.011

Cipriani, A., Barbui, C., Salanti, G., Rendell, J., Brown, R., Stockton, S., . . . Geddes, J. R. (2011). Comparative effectiveness and acceptability of antimanic drugs in acute mania: A multiple-treatments meta-analysis. *Lancet, 378*, 1306-1315.

Clark, J. P. (2003). How to peer review a qualitative manuscript. *Peer Review in Health Sciences, 2*, 219-235.

Clarke, S. P., Crowe, T. P., Oades, L. G., & Deane, F. P. (2009). Do goal-setting interventions improve the quality of goals in mental health services? *Psychiatric Rehabilitation Journal, 32*(4), 292.

Clement, S., Lassman, F., Barley, E., Evans-Lacko, S., Williams, P., Yamaguchi, S., . . . Thornicroft, G. (2013). Mass media interventions for reducing mental health-related stigma. *The Cochrane Database of Systematic Reviews*(7), Cd009453. doi: 10.1002/14651858.CD009453.pub2

Coan, J. A., & Allen, J. J. B. (2004). Frontal EEG asymmetry as a moderator and mediator of emotion. *Biological Psychology, 67*(1), 7-50.

Coenen, M., Stamm, T. A., Stucki, G., & Cieza, A. (2012). Individual interviews and focus groups in patients with rheumatoid arthritis: a comparison of two qualitative methods. *Quality of Life Research, 21*(2), 359-370. doi: 10.1007/s11136-011-9943-2

Coleman, R. (1999). *Recovery: An alien concept*: Handsell Gloucester.

Colom, F., Vieta, E., Sanchez-Moreno, J., Palomino-Otiniano, R., Reinares, M., Goikolea, J. M., . . . Martinez-Aran, A. (2009). Group psychoeducation for stabilised bipolar disorders: 5-year outcome of a randomised clinical trial. *British Journal of Psychiatry, 194*(3), 260-265.

Conus, P., Cotton, S., Abdel-Baki, A., Lambert, M., Berk, M., & McGorry, P. D. (2006). Symptomatic and functional outcome 12 months after a first episode of psychotic mania: Barriers to recovery in a catchment area sample. *Bipolar Disorders, 8*, 221–231.

Copeland, M. E. (2002). Wellness Recovery Action Plan: A system for monitoring, reducing and eliminating uncomfortable or dangerous physical symptoms and emotional feelings. *Occupational Therapy in Mental Health, 17*(3-4), 127-150.

Corr, P. J. (2001). Testing problems in JA Gray's personality theory: A commentary on Matthews and Gilliland (1999). *Personality and Individual Differences, 30*(2), 333-352.

Corrigan, P. W., Giffort, D., Rashid, F., Leary, M., & Okeke, I. (1999). Recovery as a psychological construct. *Community Mental Health Journal, 35*(3), 231-239.

Corrigan, P. W., Salzer, M., Ralph, R. O., Sangster, Y., & Keck, L. (2004). Examining the factor structure of the recovery assessment scale. *Schizophrenia Bulletin, 30*(4), 1035.

Costa, R. T., Cheniaux, E., Rangé, B. P., Versiani, M., & Nardi, A. E. (2012). Group cognitive behavior therapy for bipolar disorder can improve the quality of life. *Brazilian Journal of Medical and Biological Research, 45*(9), 862-868.

Craddock, N., & Jones, I. (2001). Molecular genetics of bipolar disorder. *British Journal of Psychiatry, 178*, S128-S133.

Creswell, J. W., & Clark, V. L. P. (2011). *Designing and conducting mixed methods research* (2nd ed.). London: SAGE.

Cross-Disorder Group of the Psychiatric Genomics Consortium. (2013). Identification of risk loci with shared effects on five major psychiatric disorders: A genome-wide analysis. *Lancet, 381*(9875), 1371. doi: 10.1016/S0140-6736(12)62129-1

Crowe, T. P., Deane, F. P., Oades, L. G., Caputi, P., & Morland, K. G. (2006). Effectiveness of a collaborative recovery training program in Australia in promoting positive views about recovery. *Psychiatric Services, 57*(10), 1497-1500.

Crowther, R., Marshall, M., Bond, G., & Huxley, P. (2001). Vocational rehabilitation for people with severe mental illness. *The Cochrane Database of Systematic Reviews*(2), Cd003080. doi: 10.1002/14651858.cd003080

Çuhadar, D., & Çam, M. O. (2014). Effectiveness of psychoeducation in reducing internalized stigmatization in patients with bipolar disorder. *Archives of Psychiatric Nursing, 28*(1), 62-66.

D'Souza, R., Piskulic, D., & Sundram, S. (2010). A brief dyadic group based psychoeducation program improves relapse rates in recently remitted bipolar disorder: A pilot randomised controlled trial. *Journal of Affective Disorders, 120*(1), 272-276.

Darlaston-Jones, D. (2007). Making connections: The relationship between epistemology and research methods. *The Australian Community Psychologist, 19*, 19-27.

Davidson, L., Bellamy, C., Guy, K., & Miller, R. (2012). Peer support among persons with severe mental illnesses: A review of evidence and experience. *World Psychiatry, 11*(2), 123-128.

Davidson, L., Sells, D., Songster, S., & O'Connell, M. (2005). Qualitative studies of recovery: What can we learn from the person? In R. O. Ralph & P. W. Corrigan (Eds.), *Recovery in mental illness: Broadening our understanding of wellness* (pp. 147-170.): American Psychological Association.

de Azevedo Cardoso, T., de Azambuja Farias, C., Mondin, T. C., Da Silva, G. D. G., de Mattos Souza, L. D., da Silva, R. A., . . . Jansen, K. (2014). Brief psychoeducation for bipolar disorder: Impact on quality of life in young adults in a 6-month follow-up of a randomized controlled trial. *Psychiatry Research, 220*(3), 896-902.

de Barros Pellegrinelli, K., de, O. C. L. F., Silval, K. I., Dias, V. V., Roso, M. C., Bandeira, M., . . . Moreno, R. A. (2013). Efficacy of psychoeducation on symptomatic and functional recovery in bipolar disorder. *Acta Psychiatrica Scandinavica, 127*(2), 153-158. doi: 10.1111/acps.12007

De Fazio, P., Gaetano, R., Caroleo, M., Cerminara, G., Giannini, F., Jaén Moreno, M. J., . . . Segura-García, C. (2015). Religiousness and spirituality in patients with bipolar disorder. *International Journal of Psychiatry in Clinical Practice, 19*(4), 233-237. doi: 10.3109/13651501.2014.1000929

Deckersbach, T., Hölzel, B. K., Eisner, L. R., Stange, J. P., Peckham, A. D., Dougherty, D. D., . . . Nierenberg, A. A. (2012). Mindfulness-based cognitive therapy for nonremitted patients with bipolar disorder. *CNS Neuroscience & Therapeutics, 18*(2), 133-141.

Deegan, P. E. (1988). Recovery: The lived experience of rehabilitation. *Psychosocial Rehabilitation Journal, 11*(4), 11.

Department of Health. (2011). *No health without mental health: A cross-government mental health outcomes strategy for people of all ages*. London: Department of Health.

Depp, C. A., Ceglowski, J., Wang, V. C., Yaghouti, F., Mausbach, B. T., Thompson, W. K., & Granholm, E. L. (2015). Augmenting psychoeducation with a mobile intervention for bipolar disorder: A randomized controlled trial. *Journal of Affective Disorders, 174*, 23-30.

Depue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Sciences, 22*(3), 491-517.

Depue, R. A., & Iacono, W. G. (1989). Neurobehavioral aspects of affective disorders. *Annual Review of Psychology, 40*, 457-492.

Dion, G. (1985). *Parameters and predictors of functional outcome in bipolar patients hospitalized for a manic episode: Results of two and six month follow-ups (rehabilitation)*: ProQuest Dissertations Publishing.

Dion, G. L., Tohen, M., Anthony, W. A., & Waternaux, C. S. (1988). Symptoms and functioning of patients with bipolar disorder six months after hospitalization. *Psychiatric Services, 39*(6), 652-657.

Dodd, A. L., Mezes, B., Lobban, F., & Jones, S. H. (2017). Psychological mechanisms and the ups and downs of personal recovery in bipolar disorder. *British Journal of Clinical Psychology, 56*(3), 310-328. doi: 10.1111/bjc.12140

Drake, R. E., Xie, H., McHugo, G. J., & Shumway, M. (2004). Three-year outcomes of long-term patients with co-occurring bipolar and substance use disorders. *Biological Psychiatry, 56*(10), 749-756. doi: 10.1016/j.biopsych.2004.08.020

Drapalski, A. L., Medoff, D., Unick, G. J., Velligan, D. I., Dixon, L. B., & Bellack, A. S. (2012). Assessing recovery of people with serious mental illness: Development of a new scale. *Psychiatric Services, 63*(1), 48-53.

Dubicka, B., Carlson, G. A., Vail, A., & Harrington, R. (2008). Prepubertal mania: Diagnostic differences between US and UK clinicians. *European Child and Adolescent Psychiatry, 17*(3), 153-161.

Dunayevich, E., Sax, K. W., Keck Jr, P. E., McElroy, S. L., Sorter, M. T., McConville, B. J., & Strakowski, S. M. (2000). Twelve-month outcome in bipolar patients with and without personality disorders. *Journal of Clinical Psychiatry, 61*(2), 134-139.

Dunn, E. A., Chow, J., Meddings, S., & Haycock, L. J. (2016). Barriers to attendance at Recovery Colleges. *Mental Health and Social Inclusion, 20*(4), 238-246. doi: 10.1108/MHSI-08-2016-0025

Effective Public Health Practice Project. (2009). *Quality Assessment Tool for Quantitative Studies*. Retrieved from 12th October 2015, from http://www.ephpp.ca/tools.html

Endicott, J., & Spitzer, R. L. (1978). A diagnostic interview: The schedule for affective disorders and schizophrenia. *Archives of General Psychiatry, 35*(7), 837-844.

Faria, A. D., de Mattos Souza, L. D., de Azevedo Cardoso, T., Pinheiro, K. A. T., Pinheiro, R. T., da Silva, R. A., & Jansen, K. (2014). The influence of psychoeducation on regulating biological rhythm in a sample of patients with bipolar II disorder: A randomized clinical trial. *Psychology Research and Behavior Management, 7*, 167.

Fervaha, G., Agid, O., Takeuchi, H., Foussias, G., Lee, J., & Remington, G. (2015). Clinical and functional outcomes in people with schizophrenia with a high sense of well-being. *Journal of Nervous and Mental Disease, 203*(3), 187-193.

Field, A. (Ed.). (2009). *Discovering statistics using IBM SPSS statistics* (3rd ed.). London: SAGE.

First, M. B. (2012). A practical prototypic system for psychiatric diagnosis: The ICD-11 Clinical Descriptions and Diagnostic Guidelines. *World Psychiatry, 11*(1), 24-25.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured Clinical Interview for DSM-IV Axis I Disorders – Patient Edition (SCID-I/P, version 2.0)*. New York: Biometrics Research Department. New York State Psychiatric Institute.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders, research version, patient edition (SCID-I/P)*. New York: Biometrics Research, New York State Psychiatric Institute.

Fleck, M., Louzada, S., Xavier, M., Chachamovich, E., Vieira, G., Santos, L., & Pinzon, V. (2000). Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. *Revista de Saúde Publica, 34*(2), 178-183.

Fletcher, P. C., & Grafton, S. T. (2013). Repeat after me: Replication in clinical neuroimaging is critical. *NeuroImage : Clinical, 2*, 247-248. doi: 10.1016/j.nicl.2013.01.007

Frank, E., Kupfer, D. J., Thase, M. E., Mallinger, A. G., Swartz, H. A., Fagiolini, A. M., . . . Thompson, W. (2005). Two-year outcomes for interpersonal and social rhythm therapy in individuals with bipolar I disorder. *Archives of General Psychiatry, 62*(9), 996-1004.

Frank, E., Prien, R. F., Jarrett, R. B., Keller, M. B., Kupfer, D. J., Lavori, P. W., . . . Weissman, M. M. (1991). Conceptualization and rationale for consensus definitions of terms in major depressive disorder: Remission, recovery, relapse, and recurrence. *Archives of General Psychiatry, 48*(9), 851-855.

Frank, E., Swartz, H. A., & Kupfer, D. J. (2000). Interpersonal and social rhythm therapy: Managing the chaos of bipolar disorder. *Biological Psychiatry, 48*(6), 593-604.

Fusar-Poli, P., Howes, O., Bechdolf, A., & Borgwardt, S. (2012). Mapping vulnerability to bipolar disorder: a systematic review and meta-analysis of neuroimaging studies. *Journal of Psychiatry & Neuroscience : JPN, 37*(3), 170-184. doi: 10.1503/jpn.110061

Geddes, J. R., Burgess, S., Hawton, K., Jamison, K., & Goodwin, G. M. (2004). Long-term lithium therapy for bipolar disorder: Systematic review and meta-analysis of randomized controlled trials. *American Journal of Psychiatry, 161*(2), 217-222.

Geddes, J. R., & Miklowitz, D. J. (2013). Treatment of bipolar disorder. *The Lancet, 381*(9878), 1672-1682.

Gignac, A., McGirr, A., Lam, R. W., & Yatham, L. N. (2015). Recovery and recurrence following a first episode of mania: A systematic review and meta-analysis of prospectively characterized cohorts. *Journal of Clinical Psychiatry, 76*(9), 1241. doi: 10.4088/JCP.14r09245

Gilbert, E., & Marwaha, S. (2012). Predictors of employment in bipolar disorder: A systematic review. *Journal of Affective Disorders*. doi: 10.1016/j.jad.2012.07.009

Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment, 15*(3), 199-208. doi: 10.1192/apt.bp.107.005264

Gilburt, H., Slade, M., Bird, V., Oduola, S., & Craig, T. K. J. (2013). Promoting recovery-oriented practice in mental health services: A quasi-experimental mixed-methods study. *BMC Psychiatry, 13*(1), 167. doi: 10.1186/1471-244X-13-167

Girard, V., Tinland, A., Boucekine, M., Loubière, S., Lancon, C., Boyer, L., & Auquier, P. (2016). Validity of a common quality of life measurement in homeless individuals with bipolar disorder and schizophrenia. *Journal of Affective Disorders, 204*, 131-137. doi: 10.1016/j.jad.2016.06.023

Gitlin, M. J., & Miklowitz, D. J. (2017). The difficult lives of individuals with bipolar disorder: A review of functional outcomes and their implications for treatment. *Journal of Affective Disorders, 209*, 147-154.

Gitlin, M. J., Swendsen, J., Heller, T. L., & Hammen, C. (1995). Relapse and impairment in bipolar disorder. *The American Journal of Psychiatry, 152*(11), 1635.

Goldberg, J. F., Gerstein, R. K., Wenze, S. J., Welker, T. M., & Beck, A. T. (2008). Dysfunctional attitudes and cognitive schemas in bipolar manic and unipolar depressed outpatients: Implications for cognitively based psychotherapeutics. *The Journal of Nervous and Mental Disease, 196*(3), 207-210.

Goldstein, T. R., Axelson, D. A., Birmaher, B., & Brent, D. A. (2007). Dialectical behavior therapy for adolescents with bipolar disorder: A 1-year open trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*(7), 820-830.

Goldstein, T. R., Fersch-Podrat, R. K., Rivera, M., Axelson, D. A., Merranko, J., Yu, H., . . . Birmaher, B. (2015). Dialectical behavior therapy for adolescents with bipolar disorder: Results from a pilot randomized trial. *Journal of Child and Adolescent Psychopharmacology, 25*(2), 140-149.

Gomes, B. C., Abreu, L. N., Brietzke, E., Caetano, S. C., Kleinman, A., Nery, F. G., & Lafer, B. (2011). A randomized controlled trial of cognitive behavioral group therapy for bipolar disorder. *Psychotherapy and Psychosomatics, 80*(3), 144-150.

González-Isasi, A., Echeburúa, E., Limiñana, J. M., & González-Pinto, A. (2012). Predictors of good outcome in patients with refractory bipolar disorder after a drug or a drug and cognitive-behavioral treatment. *Comprehensive Psychiatry, 53*(3), 224-229.

Goodwin, F. K., & Jamison, K. R. (2007). *Manic-depressive illness : bipolar disorders and recurrent depression* (2nd ed. ed.). Oxford : Oxford University Press.

Goodwin, G., & Sachs, G. S. (2010). *Bipolar disorder [electronic resource]* (2nd ed.). Abingdon: Health Press.

Goodwin, G. M., Haddad, P. M., Ferrier, I. N., Aronson, J. K., Barnes, T. R. H., Cipriani, A., . . . Young, A. H. (2016). Evidence-based guidelines for treating bipolar disorder: Revised third edition recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology, 30*(6), 495-553. doi: 10.1177/0269881116636545

Grant, B. F., Stinson, F. S., Hasin, D. S., Dawson, D. A., Chou, S. P., Ruan, W., & Huang, B. (2005). Prevalence, correlates, and comorbidity of bipolar I disorder and axis I and II disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry, 66*, 1205-1215.

Gray, J. A. (1982). *The neuropsychology of anxiety : an enquiry into the functions of the septo-hippocampal system*. Oxford : Clarendon Press ; New York : Oxford University Press.

Griffiths, K. M., Carron-Arthur, B., Parsons, A., & Reid, R. (2014). Effectiveness of programs for reducing the stigma associated with mental disorders. A meta-analysis of randomized controlled trials. *World Psychiatry, 13*(2), 161-175. doi: 10.1002/wps.20129

Grossman, L. S., Harrow, M., Rosen, C., Faull, R., & Strauss, G. P. (2008). Sex differences in schizophrenia and other psychotic disorders: A 20-year longitudinal study of psychosis and recovery. *Comprehensive Psychiatry, 49*(6), 523-529. doi: 10.1016/j.comppsych.2008.03.004

Grover, S., Hazari, N., Aneja, J., Chakrabarti, S., Sharma, S., & Avasthi, A. (2016). Recovery and its correlates among patients with bipolar disorder: A study from a tertiary care centre in North India. *International Journal of Social Psychiatry, 62*(8), 726-736. doi: 10.1177/0020764016676214

Grover, S., Hazari, N., Singla, N., Chakrabarti, S., Aneja, J., Sharma, S., & Avasthi, A. (2016). Recovery among patients with severe mental illness: Factor analysis of recovery assessment scale in Indian setting. *Indian Journal of Social Psychiatry, 32*(2), 92. doi: 10.4103/0971-9962.181088

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods, 18*(1), 59-82. doi: 10.1177/1525822X05279903

Gumus, F., Buzlu, S., & Cakir, S. (2015). Effectiveness of individual psychoeducation on recurrence in bipolar disorder; a controlled study. *Archives of Psychiatric Nursing, 29*(3), 174-179.

Hacker, T., Stone, P., & Macbeth, A. (2016). Acceptance and commitment therapy – Do we know enough? Cumulative and sequential meta-analyses of randomized controlled trials. *Journal of Affective Disorders, 190*, 551-565. doi: 10.1016/j.jad.2015.10.053

Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry, 23*(1), 56.

Hammen, C., & Gitlin, M. (1997). Stress reactivity in bipolar patients and its relation to prior history of disorder. *American Journal of Psychiatry, 154*(6), 856.

Harvey, P. D. (2006). Defining and achieving recovery from bipolar disorder. *Journal of Clinical Psychiatry, 67*, 14-18.

Hasson-Ohayon, I., Roe, D., Kravetz, S., Levy-Frank, I., & Meir, T. (2011). The relationship between consumer insight and provider-consumer agreement regarding consumer's quality of life. *Community Mental Health Journal, 47*(5), 607-612.

Hayden, E. P., Bodkins, M., Brenner, C., Shekhar, A., Nurnberger, J. I., Jr., O'Donnell, B. F., & Hetrick, W. P. (2008). A multimethod investigation of the behavioral activation system in bipolar disorder. *Journal of Abnormal Psychology, 117*(1), 164-170. doi: 10.1037/0021-843X.117.1.164

Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy, 35*(4), 639-665.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy*. New York: Guilford Press.

Heilbronner, U., Malzahn, D., Strohmaier, J., Maier, S., Frank, J., Treutlein, J., . . . Schulze, T. G. (2015). A common risk variant in CACNA1C supports a sex-dependent effect on longitudinal functioning and functional recovery from episodes of schizophrenia-spectrum but not bipolar disorder. *European Neuropsychopharmacology, 25*(12), 2262-2270. doi: 10.1016/j.euroneuro.2015.09.012

Heinrichs, D. W., Hanlon, T. E., & Carpenter Jr, W. T. (1984). The Quality of Life Scale: An instrument for rating the schizophrenic deficit syndrome. *Schizophrenia Bulletin, 10*(3), 388-398.

Henderson, C., Flood, C., Leese, M., Thornicroft, G., Sutherby, K., & Szmukler, G. (2008). Views of service users and providers on joint crisis plans. *Social Psychiatry and Psychiatric Epidemiology, 44*(5), 369. doi: 10.1007/s00127-008-0442-x

Henna, E., Hatch, J. P., Nicoletti, M., Swann, A. C., Zunta-Soares, G., & Soares, J. C. (2013). Is impulsivity a common trait in bipolar and unipolar disorders? *Bipolar disorders, 15*(2), 223-227. doi: 10.1111/bdi.12034

Higgins, J. P. T., Altman, D. G., & Sterne, J. A. C. (2011). *Assessing risk of bias in included studies*. Available from www.handbook.cochrane.org: Cochrane Collaboration.

Hugo, M. (2001). Mental health professionals' attitudes towards people who have experienced a mental health disorder. *Journal of Psychiatric and Mental Health Nursing, 8*(5), 419-425.

Huguelet, P., Mohr, S., Betrisey, C., Borras, L., Gillieron, C., Marie, A. M., . . . Brandt, P.-Y. (2011). A randomized trial of spiritual assessment of outpatients with schizophrenia: Patients' and clinicians' experience. *Psychiatric Services, 62*(1), 79-86.

Hunt, N., Bruce-Jones, W., & Silverstone, T. (1992). Life events and relapse in bipolar affective disorder. *Journal of Affective Disorders, 25*(1), 13-20.

Inder, M. L., Crowe, M. T., Luty, S. E., Carter, J. D., Moor, S., Frampton, C. M., & Joyce, P. R. (2015). Randomized, controlled trial of Interpersonal and Social Rhythm Therapy for young people with bipolar disorder. *Bipolar Disorders, 17*(2), 128-138.

Ives-Deliperi, V. L., Howells, F., Stein, D. J., Meintjes, E. M., & Horn, N. (2013). The effects of mindfulness-based cognitive therapy in patients with bipolar disorder: A controlled functional MRI investigation. *Journal of Affective Disorders, 150*(3), 1152-1157.

J'anca A., & Helzer, J. (1990). DSM-III-R criteria checklist. *DIS Newsl, 7*, 17.

Jabben, N., Arts, B., Jongen, E. M. M., Smulders, F. T. Y., van Os, J., & Krabbendam, L. (2012). Cognitive processes and attitudes in bipolar disorder: A study into personality, dysfunctional attitudes and attention bias in patients with bipolar disorder and their relatives. *Journal of Affective Disorders, 143*(1), 265-268.

Jaeger, J., Berns, S., Loftus, S., Gonzalez, C., & Czobor, P. (2007). Neurocognitive test performance predicts functional recovery from acute exacerbation leading to hospitalization in bipolar disorder. *Bipolar Disorders, 9*, 93-102.

Jaeger, J., Berns, S. M., & Czobor, P. (2003). The multidimensional scale of independent functioning: A new instrument for measuring functional disability in psychiatric populations. *Schizophrenia Bulletin, 29*(1), 153-167.

Javadpour, A., Hedayati, A., Dehbozorgi, G.-R., & Azizi, A. (2013). The impact of a simple individual psycho-education program on quality of life, rate of relapse and medication adherence in bipolar disorder patients. *Asian Journal of Psychiatry, 6*(3), 208-213.

Joffe, H. (2012). Thematic analysis. In D. Harper & A. R. Thompson (Eds.), *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners* (pp. 209-223). Chichester: Wiley.

Johnson, S. L., Cuellar, A. K., Ruggero, C., Winett-Perlman, C., Goodnick, P., White, R., & Miller, I. (2008). Life events as predictors of mania and depression in bipolar I disorder. *Journal of Abnormal Psychology, 117*(2), 268-277. doi: 10.1037/0021-843X.117.2.268

Johnson, S. L., & Fingerhut, R. (2004). Negative cognitions predict the course of bipolar depression, not mania. *Journal of Cognitive Psychotherapy, 18*(2), 149-162.

Johnson, S. L., McKenzie, G., & McMurrich, S. (2008). Ruminative responses to negative and positive affect among students diagnosed with bipolar disorder and major depressive disorder. *Cognitive Therapy and Research, 32*(5), 702-713.

Johnson, S. L., Morriss, R., Scott, J., Paykel, E., Kinderman, P., Kolamunnage-Dona, R., & Bentall, R. P. (2011). Depressive and manic symptoms are not opposite poles in bipolar disorder. *Acta Psychiatrica Scandinavica, 123*(3), 206-210.

Johnson, S. L., Winett, C. A., Meyer, B., Greenhouse, W. J., & Miller, I. (1999). Social support and the course of bipolar disorder. *Journal of Abnormal Psychology, 108*(4), 558.

Jones, L., Scott, J., Haque, S., Gordon-Smith, K., Heron, J., Caesar, S., . . . Craddock, N. (2005). Cognitive style in bipolar disorder. *British Journal of Psychiatry, 187*(5), 431-437. doi: 10.1192/bjp.187.5.431

Jones, S. H. (2001). Circadian rhythms, multilevel models of emotion and bipolar disorder—an initial step towards integration? *Clinical Psychology Review, 21*, 1193-1209.

Jones, S. H. (2006). Circadian rhythms and internal attributions in bipolar disorder. In S.H,. Jones & R.P. Bentall (Eds.), *The psychology of bipolar disorder: New developments and research strategies.* (pp. 91-115). Oxford, UK: Oxford University Press.

Jones, S. H., & Bentall, P. R. (2006). Introductory overview. In S. H. Jones & P. R. Bentall (Eds.), *The psychology of bipolar disorder: New developments and research strategies* (pp. 1-9). Oxford: Oxford University Press.

Jones, S. H., & Day, C. (2008). Self appraisal and behavioural activation in the prediction of hypomanic personality and depressive symptoms. *Personality and Individual Differences, 45*(7), 643-648. doi: 10.1016/j.paid.2008.07.008

Jones, S. H., Hare, D. J., & Evershed, K. (2005). Actigraphic assessment of circadian activity and sleep patterns in bipolar disorder. *Bipolar Disorders, 7*(2), 176-186.

Jones, S. H., Lobban, F., & Cooke, A. (2010). *Understanding bipolar disorder: Why some people experience extreme mood states and what can help.* Leicester UK: British Psychological Society.

Jones, S. H., Mansell, W., & Waller, L. (2006). Appraisal of hypomania-relevant experiences: Development of a questionnaire to assess positive self-dispositional appraisals in bipolar and behavioural high risk samples. *Journal of Affective Disorders, 93*(1-3), 19-28. doi: 10.1016/j.jad.2006.01.017

Jones, S. H., Mulligan, L. D., Higginson, S., Dunn, G., & Morrison, A. P. (2013). The Bipolar Recovery Questionnaire: Psychometric properties of a

quantitative measure of recovery experiences in bipolar disorder. *Journal of Affective Disorders, 147*(1-3), 34-43. doi: 10.1016/j.jad.2012.10.003

Jones, S. H., Smith, G., Mulligan, L. D., Lobban, F., Law, H., Dunn, G., . . . Morrison, A. P. (2015). Recovery-focused cognitive-behavioural therapy for recent-onset bipolar disorder: Randomised controlled pilot trial. *British Journal of Psychiatry, 206*(1), 58-66. doi: 10.1192/bjp.bp.113.141259

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., & Henderson, S. (1999). Attitudes towards people with a mental disorder: A survey of the Australian public and health professionals. *Australian and New Zealand Journal of Psychiatry, 33*(1), 77-83.

Joseph, J. (2004). The heritability concept: A measure of inheritance or inherently misleading? . In J. Joseph (Ed.), *The gene illusion: Genetic research in psychiatry and psychology under the microscope*. New York: Algora Publishing.

Judd, L. L., Akiskal, H. S., Schettler, P. J., Endicott, J., Leon, A. C., Solomon, D. A., . . . Keller, M. B. (2005). Psychosocial disability in the course of bipolar I and II disorders: A prospective, comparative, longitudinal study. *Archives of General Psychiatry, 62*(12), 1322-1330.

Judd, L. L., Akiskal, H. S., Schettler, P. J., Endicott, J., Maser, J., Solomon, D. A., . . . Keller, M. B. (2002). The long-term natural history of the weekly symptomatic status of bipolar I disorder. *Archives of General Psychiatry, 59*, 530-537.

Judd, L. L., & Schettler, P. J. (2010). The long term course and clinical management of bipolar I and bipolar II disorders. In L. N. Yatham & M. Maj (Eds.), *Bipolar disorder: Clinical and neurobiological foundations*. Oxford: Wiley-Blackwell.

Judd, L. L., Schettler, P. J., Akiskal, H. S., Coryell, W., Leon, A. C., Maser, J. D., & Solomon, D. A. (2008). Residual symptom recovery from major affective episodes in bipolar disorders and rapid episode relapse/recurrence. *Archives of General Psychiatry, 65*(4), 386-394.

Judd, L. L., Schettler, P. J., Akiskal, H. S., Maser, J., Coryell, W., Solomon, D., . . . Keller, M. (2003). Long-term symptomatic status of bipolar I vs. bipolar II disorders. *International Journal of Neuropsychopharmacology, 6*(2), 127-137. doi: 10.1017/S1461145703003341

Just, N., & Alloy, L. B. (1997). The response styles theory of depression: tests and an extension of the theory. *Journal of Abnormal Psychology, 106*(2), 221-229.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*(2), 144-156.

Katz, M. M., Secunda, S. K., Hirschfeld, R. M., & Koslow, S. H. (1979). NIMH Clinical Research Branch Collaborative Program on the psychobiology of depression. *Archives of General Psychiatry, 36*(7), 765-771.

Keller, M. B., Lavori, P. W., Friedman, B., Nielsen, E., Endicott, J., McDonald-Scott, P., & Andreasen, N. C. (1987). The Longitudinal Interval Follow-up Evaluation: A comprehensive method for assessing outcome in prospective longitudinal studies. *Archives of General Psychiatry, 44*(6), 540-548.

Kelly, R. E., Mansell, W., Wood, A. M., Alatiq, Y., Dodd, A., & Searson, R. (2011). Extreme positive and negative appraisals of activated states interact to discriminate bipolar disorder from unipolar depression and non-clinical controls. *Journal of Affective Disorders, 134*(1-3), 438-443. doi: 10.1016/j.jad.2011.05.042

Kempton, M. J., Salvador, Z., Munafò, M. R., Geddes, J. R., Simmons, A., Frangou, S., & Williams, S. C. R. (2011). Structural neuroimaging studies in major depressive disorder: Meta-analysis and comparison with bipolar disorder. *Archives of General Psychiatry, 68*(7), 675-690. doi: 10.1001/archgenpsychiatry.2011.60

Kessing, L. V., Hansen, H. V., Christensen, E. M., Dam, H., Gluud, C., Wetterslev, J., & Early Intervention Affective Disorders Trial, G. (2014). Do young adults with bipolar disorder benefit from early intervention? *Journal of Affective Disorders, 152*, 403-408.

Knowles, R., Tai, S., Christensen, I., & Bentall, R. (2005). Coping with depression and vulnerability to mania: a factor analytic study of the Nolen-Hoeksema (1991) Response Styles Questionnaire. *British Journal of Clinical Psychology, 44*(1), 99-112. doi: 10.1348/014466504X20062

Kraepelin, E. (1921). *Manic-depressive Insanity and Paranoia.* Edinburgh: Livingstone.

Kwapil, T. R., Miller, M. B., Zinser, M. C., Chapman, L. J., Chapman, J., & Eckblad, M. (2000). A longitudinal study of high scorers on the Hypomanic Personality Scale. *Journal of Abnormal Psychology, 109*(2), 222.

Lam, D., Jones, S. H., & Hayward, P. (2010). *Cognitive therapy for bipolar disorder: A therapist's guide to concepts, methods and practice* (2nd ed.). Chichester: Wiley-Blackwell.

Lam, D., Wright, K., & Smith, N. (2004). Dysfunctional assumptions in bipolar disorder. *Journal of Affective Disorders, 79*(1-3), 193-199. doi: 10.1016/s0165-0327(02)00462-7

Lam, D. H., Hayward, P., Watkins, E. R., Wright, K., & Sham, P. (2005). Relapse prevention in patients with bipolar disorder: Cognitive therapy outcome after 2 years. *American Journal of Psychiatry, 162*(2), 324-329.

Lapsley, H., Nikora, L. W., & Black, R. M. (2002). *"Kia Mauri Tau!" Narratives of recovery from disabling mental health problems: Report of the University of Waikato Mental Health Narratives Project*. Wellington, New Zealand: Mental Health Commission.

Lauder, S., Chester, A., Castle, D., Dodd, S., Gliddon, E., Berk, L., . . . Austin, D. W. (2015). A randomized head to head trial of MoodSwings. net. au: An internet based self-help program for bipolar disorder. *Journal of Affective Disorders, 171*, 13-21.

Law, H., & Morrison, A. P. (2014). Recovery in psychosis: A Delphi study with experts by experience. *Schizophrenia Bulletin, 40*(6), 1347-1355. doi: 10.1093/schbul/sbu047

Law, H., Shryane, N., Bentall, R. P., & Morrison, A. P. (2016). Longitudinal predictors of subjective recovery in psychosis. *British Journal of Psychiatry, 209*(1), 48-53.

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.

Le Boutillier, C., Leamy, M., Bird, V. J., Davidson, L., Williams, J., & Slade, M. (2011). What does recovery mean in practice? A qualitative analysis of international recovery-oriented practice guidance. *Psychiatric Services, 62*(12), 1470-1476. doi: 10.1176/appi.ps.001312011

Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: Systematic review and narrative synthesis. *British Journal of Psychiatry, 199*(6), 445-452. doi: 10.1192/bjp.bp.110.083733

Leamy, M., Clarke, E., Le Boutillier, C., Bird, V., Janosik, M., Sabas, K., . . . Slade, M. (2014). Implementing a complex intervention to support personal recovery: A qualitative study nested within a cluster randomised controlled trial. *PloS One, 9*(5), e97091. doi: 10.1371/journal.pone.0097091

Leaviss, J., & Uttley, L. (2015). Psychotherapeutic benefits of compassion-focused therapy: An early systematic review. *Psychological Medicine, 45*(5), 927-945.

Lee, R., Lam, D., Mansell, W., & Farmer, A. (2010). Sense of hyper-positive self, goal-attainment beliefs and coping strategies in bipolar I disorder. *Psychological Medicine, 40*(6), 967-975.

Leete, E. (1989). How I perceive and manage my illness. *Schizophrenia Bulletin, 15*(2), 197.

Lehman, A. F. (1988). A quality of life interview for the chronically mentally ill. *Evaluation and Program Planning, 11*(1), 51-62.

Leon, A. C., Solomon, D. A., Mueller, T. I., Endicott, J., Posternak, M., Judd, L. L., . . . Keller, M. B. (2000). A brief assessment of psychosocial functioning of

subjects with bipolar I disorder: The LIFE-RIFT. *Journal of Nervous and Mental Disease, 188*(12), 805-812.

Leonhard, K. (1957). *Aufteilung der Endogenen Psychosen*. Berlin: Akademie-Verlag (*The classification of Endogenous Psychoses.* 5th edn. Translated by Russell Berman. Edited by Eli Robins. New York: Irvington, 1979).

Leonhardt, B. L., Huling, K., Hamm, J. A., Roe, D., Hasson-Ohayon, I., McLeod, H. J., & Lysaker, P. H. (2017). Recovery and serious mental illness: a review of current clinical and research paradigms and future directions. *Expert Review of Neurotherapeutics, 17*(11), 1117-1130. doi: 10.1080/14737175.2017.1378099

Lewis, J. (2003). Design issues. In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice: A guide for social science students and researchers*. London, UK: SAGE.

Lex, C., Bäzner, E., & Meyer, T. D. (2017). Does stress play a significant role in bipolar disorder? A meta-analysis. *Journal of Affective Disorders, 208*, 298-308. doi: 10.1016/j.jad.2016.08.057

Lex, C., Hautzinger, M., & Meyer, T. D. (2011). Cognitive styles in hypomanic episodes of bipolar I disorder. *Bipolar Disorders, 13*(4), 355-364.

Lex, C., Meyer, T. D., Marquart, B., & Thau, K. (2008). No strong evidence for abnormal levels of dysfunctional attitudes, automatic thoughts, and emotional information-processing biases in remitted bipolar I affective disorder. *Psychology and Psychotherapy: Theory, Tesearch and Practice, 81*(1), 1-13.

Lichtenstein, P., Yip, B. H., Björk, C., Pawitan, Y., Cannon, T. D., Sullivan, P. F., & Hultman, C. M. (2009). Common genetic determinants of schizophrenia and bipolar disorder in Swedish families: A population-based study. *The Lancet, 373*(9659), 234-239. doi: 10.1016/S0140-6736(09)60072-6

Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.

Lobban, F., Dodd, A. L., Sawczuk, A. P., Asar, O., Dagnan, D., Diggle, P. J., . . . Jones, S. (2017). Assessing Feasibility and Acceptability of Web-Based Enhanced Relapse Prevention for Bipolar Disorder (ERPonline): A Randomized Controlled Trial. *Journal of Medical Internet Research, 19*(3), e85. doi: 10.2196/jmir.7008

Loftus, S. T., & Jaeger, J. (2006). Psychosocial outcome in bipolar I patients with a personality disorder. *Journal of Nervous and Mental Disease, 194*(12), 967-970. doi: 10.1097/01.nmd.0000243814.35854.10

Lucksted, A., Drapalski, A., Calmes, C., Forbes, C., DeForge, B., & Boyd, J. (2011). Ending self-stigma: Pilot evaluation of a new intervention to reduce internalized stigma among people with mental illnesses. *Psychiatric Rehabilitation Journal, 35*(1), 51-54. doi: 10.2975/35.1.2011.51.54

Lulroff, D., Nuechterlein, K. H., & Ventura, J. (1986). Manual for expanded Brief Psychiatric Rating Scale (BPRS). *Schizophrenia Bulletin, 12*, 594-602.

Lund, T. (2012). Combining qualitative and quantitative approaches: Some arguments for mixed methods research. *Scandinavian Journal of Educational Research, 56*(2), 155-165.

Luty, S. (2006). Biopsychosocial approaches and interpersonal and social rhythm therapy for bipolar disorder. In S. H. Jones & R. Bentall (Eds.), *The psychology of bipolar disorder: New developments and research strategies* (203-216). Oxford, UK: Oxford University Press.

Macpherson, R., Pesola, F., Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2016). The relationship between clinical and recovery dimensions of outcome in mental health. *Schizophrenia Research, 175*(1-3), 142-147. doi: 10.1016/j.schres.2015.10.031

MacQueen, G. M., Young, L. T., & Joffe, R. T. (2001). A review of psychosocial outcome in patients with bipolar disorder. *Acta Psychiatrica Scandinavica, 103*(3), 163-170.

Malkoff-Schwartz, S., Frank, E., Anderson, B., Sherrill, J. T., Siegel, L., Patterson, D., & Kupfer, D. J. (1998). Stressful life events and social rhythm disruption in the onset of manic and depressive bipolar episodes: A preliminary investigation. *Archives of General Psychiatry, 55*(8), 702-707.

Mansell, W., Morrison, A. P., Reid, G., Lowens, I., & Tai, S. (2007). The interpretation of, and responses to, changes in internal states: An integrative cognitive model of mood swings and bipolar disorders. *Behavioural and Cognitive Psychotherapy, 35*(5), 515-539. doi: 10.1017/S1352465807003827

Mansell, W., Paszek, G., Seal, K., Pedley, R., Jones, S., Thomas, N., . . . Dodd, A. (2011). Extreme appraisals of internal states in bipolar I disorder: A multiple control group study. *Cognitive Therapy and Research, 35*(1), 87-97. doi: 10.1007/s10608-009-9287-1

Mansell, W., Powell, S., Pedley, R., Thomas, N., & Jones, S. A. (2010). The process of recovery from bipolar I disorder: A qualitative analysis of personal accounts in relation to an integrative cognitive model. *British Journal of Clinical Psychology, 49*, 193-215. doi: 10.1348/0144665O9X'451447

Mantere, O., Suominen, K., Leppämäki, S., Valtonen, H., Arvilommi, P., & Isometsä, E. (2004). The clinical characteristics of DSM-IV bipolar I and II disorders: Baseline findings from the Jorvi Bipolar Study (JoBS). *Bipolar Disorders, 6*(5), 395-405.

Marwaha, S., Durrani, A., & Singh, S. (2013). Employment outcomes in people with bipolar disorder: A systematic review. *Acta Psychiatrica Scandinavica, 128*(3), 179-193.

Maxwell, J. A. (2012). What is realism, and why should qualitative researchers care *A Realist Approach for Qualitative Research* (pp. 3-13). London: Sage Publications.

McClung, C. A. (2007). Circadian genes, rhythms and the biology of mood disorders. *Pharmacology and Therapeutics, 114*(2), 222-232.

McCrone, S., Cotton, S., Jones, L., Hawkins, T. A., Costante, J., & Nuss, M. (2007). Depression in a rural, free clinic providing primary care: Prevalence and predictive factors. *Archives of Psychiatric Nursing, 21*(5), 291-293. doi: 10.1016/j.apnu.2007.06.009

McGorry, P. D., Copolov, D. L., & Singh, B. S. (1990). Royal Park Multidiagnostic Instrument for Psychosis: Part I. Rationale and review. *Schizophrenia Bulletin, 16*(3), 501.

McGorry, P. D., Singh, B. S., Copolov, D. L., Kaplan, I., Dossetor, C. R., & van Riel, R. J. (1990). Royal Park Multidiagnostic Instrument for Psychosis: Part II. Development, reliability, and validity. *Schizophrenia Bulletin, 16*(3), 517.

McHugo, G. J., Drake, R. E., Burton, H. L., & Ackerson, T. H. (1995). A scale for assessing the stage of substance abuse treatment in persons with severe mental illness. *Journal of Nervous and Mental Disease, 183*(12), 762-767.

McIntosh, Z. (2005). *From Goldfish Bowl to Ocean: personal accounts of mental illness and beyond*. London: Chipmunkapublishing.

Meddings, S., McGregor, J., Roeg, W., & Shepherd, G. (2015). Recovery Colleges: Quality and outcomes. *Mental Health and Social Inclusion, 19*(4), 212-221. doi: 10.1108/MHSI-08-2015-0035

Mehta, N., Clement, S., Marcus, E., Stona, A.-C., Bezborodovs, N., Evans-Lacko, S., . . . Thornicroft, G. (2015). Evidence for effective interventions to reduce mental health-related stigma and discrimination in the medium and long term: Systematic review. *British Journal of Psychiatry, 207*(5), 377-384. doi: 10.1192/bjp.bp.114.151944

Mental Health Commission of Canada. (2012). *Changing directions, changing lives: The mental health strategy for Canada*. Calgary, Alberta: Mental Health Commssion of Canada,.

Merikangas, K. R., Akiskal, H. S., Angst, J., Greenberg, P. E., Hirschfeld, R. M. A., Petukhova, M., & Kessler, R. C. (2007). Lifetime and 12-month prevalence

of bipolar spectrum disorder in the National Comorbidity Survey replication. *Archives of General Psychiatry, 64*(5), 543-552.

Merikangas, K. R., Jameson, N., & Tohen, M. (2015). Course of bipolar disorder in adults and children. In E. J. Bromet (Ed.), *Long-term outcomes in psychopathology research: Rethinking the scientific agenda*. Oxford, UK: Oxford University Press.

Merikangas, K. R., Jin, R., He, J.-P., Kessler, R. C., Lee, S., Sampson, N. A., . . . Karam, E. G. (2011). Prevalence and correlates of bipolar spectrum disorder in the world mental health survey initiative. *Archives of General Psychiatry, 68*(3), 241-251.

Merikangas, K. R., & Lamers, F. (2012). The 'true'prevalence of bipolar II disorder. *Current Opinion in Psychiatry, 25*(1), 19-23.

Meyer, B., Johnson, S. L., & Carver, C. S. (1999). Exploring behavioral activation and inhibition sensitivities among college students at risk for bipolar spectrum symptomatology. *Journal of Psychopathology and Behavioral Assessment, 21*(4), 275-292.

Meyer, B., Johnson, S. L., & Winters, R. (2001). Responsiveness to threat and incentive in bipolar disorder: Relations of the BIS/BAS scales with symptoms. *Journal of Psychopathology and Behavioral Assessment, 23*, 133-143.

Meyer, T. D., & Hautzinger, M. (2003). Screening for bipolar disorders using the Hypomanic Personality Scale. *Journal of Affective Disorders, 75*(2), 149-154.

Meyer, T. D., & Hautzinger, M. (2012). Cognitive behaviour therapy and supportive therapy for bipolar disorders: Relapse rates for treatment period and 2-year follow-up. *Psychological Medicine, 42*(7), 1429-1439.

Michalak, E., Yatham, L., Kolesar, S., & Lam, R. (2006). Bipolar Disorder and Quality of Life: A Patient-Centered Perspective. *An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation - Official*

Journal of the International Society of Quality of Life Research, 15(1), 25-37. doi: 10.1007/s11136-005-0376-7

Michalak, E. E., & Murray, G. (2010). Development of the QoL. BD: A disorder-specific scale to assess quality of life in bipolar disorder. *Bipolar Disorders, 12*(7), 727-740.

Michalak, E. E., Yatham, L. N., & Lam, R. W. (2005). Quality of life in bipolar disorder: A review of the literature. *Health and Quality of Life Outcomes, 3*(1), 72.

Miklowitz, D. J. (2010). *Bipolar disorder: A family-focused treatment approach*. New York: Guilford Press.

Miklowitz, D. J., Alatiq, Y., Goodwin, G. M., Geddes, J. R., Fennell, M. J. V., Dimidjian, S., . . . Williams, J. M. G. (2009). A pilot study of mindfulness-based cognitive therapy for bipolar disorder. *International Journal of Cognitive Therapy, 2*(4), 373-382. doi: 10.1521/ijct.2009.2.4.373

Miklowitz, D. J., George, E. L., Richards, J. A., Simoneau, T. L., & Suddath, R. L. (2003). A randomized study of family-focused psychoeducation and pharmacotherapy in the outpatient management of bipolar disorder. *Archives of General Psychiatry, 60*(9), 904-912.

Miklowitz, D. J., & Scott, J. (2009). Psychosocial treatments for bipolar disorder: Cost-effectiveness, mediating mechanisms, and future directions. *Bipolar Disorders, 11*(s2), 110-122. doi: 10.1111/j.1399-5618.2009.00715.x

Miklowitz, D. J., Wisniewski, S. R., Miyahara, S., Otto, M. W., & Sachs, G. S. (2005). Perceived criticism from family members as a predictor of the one-year course of bipolar disorder. *Psychiatry Research, 136*(2), 101-111.

Millar, A., Espie, C. A., & Scott, J. (2004). The sleep of remitted bipolar outpatients: A controlled naturalistic study using actigraphy. *Journal of Affective Disorders, 80*(2), 145-153.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta- analyses: The PRISMA statement. *Annals of Internal Medicine, 151*(4), 264. doi: 10.1136/bmj.b2535

Montgomery, S. A., & Asberg, M. (1979). A new depression scale designed to be sensitive to change. *The British Journal of Psychiatry, 134*(4), 382-389.

Morrison, A. P., Law, H., Barrowclough, C., Bentall, R. P., Haddock, G., Jones, S. H., . . . Dunn, G. (2016). *Programme Grants for Applied Research: Psychological approaches to understanding and promoting recovery in psychosis and bipolar disorder: A mixed-methods approach*. Southampton (UK): NIHR Journals Library.

Morriss, R., Lobban, F., Riste, L., Davies, L., Holland, F., Long, R., . . . Jones, S. (2016). Clinical effectiveness and acceptability of structured group psychoeducation versus optimised unstructured peer support for patients with remitted bipolar disorder (PARADES): A pragmatic, multicentre, observer-blind, randomised controlled superiority trial. *Lancet Psychiatry, 3*(11), 1029-1038. doi: 10.1016/s2215-0366(16)30302-9

Morton, E., Michalak, E. E., & Murray, G. (2017). What does quality of life refer to in bipolar disorders research? A systematic review of the construct's definition, usage and measurement. *Journal of Affective Disorders, 212*, 128-137. doi: 10.1016/j.jad.2017.01.026

Mowbray, C. T., Collins, M. E., Bellamy, C. D., Megivern, D. A., Bybee, D., & Szilvagyi, S. (2005). Supported education for adults with psychiatric disabilities: An innovation for social work and psychosocial rehabilitation practice. *Social Work, 50*(1), 7-20.

Müller-Oerlinghausen, B., Berghöfer, A., & Bauer, M. (2002). Bipolar disorder. *The Lancet, 359*(9302), 241-247.

Murray, G., & Harvey, A. (2010). Circadian rhythms and sleep in bipolar disorder. *Bipolar disorders, 12*(5), 459-472.

Murray, G., Leitan, N. D., Thomas, N., Michalak, E. E., Johnson, S. L., Jones, S., . . . Berk, M. (2017). Towards recovery-oriented psychosocial interventions for bipolar disorder: Quality of life outcomes, stage-sensitive treatments, and mindfulness mechanisms. *Clinical Psychology Review, 52*, 148-163. doi: 10.1016/j.cpr.2017.01.002

Murray, G., & Michalak, E. E. (2007). Quality of life in patients with bipolar disorder: Defining and measuring goals. *Psychiatric Times, 24*(6), 24.

Najt, P., Perez, J., Sanches, M., Peluso, M. A., Glahn, D., & Soares, J. C. (2007). Impulsivity and bipolar disorder. *European Neuropsychopharmacology, 17*(5), 313-320. doi: 10.1016/j.euroneuro.2006.10.002

Namey, E., Guest, G., McKenna, K., & Chen, M. (2016). Evaluating bang for the buck: A cost-effectiveness comparison between individual interviews and focus groups based on thematic saturation levels. *American Journal of Evaluation, 37*(3), 425-440.

Neale, J. M. (1988). Defensive functions of manic episodes. In T. F. Oltmanns & B. A. Maher (Eds.), *Delusional beliefs* (pp. 138-156.). New York: Wiley.

Neil, S. T., Kilbride, M., Pitt, L., Nothard, S., Welford, M., Sellwood, W., & Morrison, A. P. (2009). The questionnaire about the process of recovery (QPR): A measurement tool developed in collaboration with service users. *Psychosis, 1*(2), 145-155.

New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America: Final report.* Rockville, MD: Department of Health and Human Services.

NHS Confederation Mental Health Network. (2012). *Supporting recovery in mental health*. London, UK: NHS Confederation.

NHS England. (2016). *The five year forward view for mental health: Mental health taskforce strategy.* Retrieved, from https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf

NICE. (2009). *Depression in adults: recognition and management (CG90).* Retrieved, from https://www.nice.org.uk/guidance/cg90/resources/depression-in-adults-recognition-and-management-pdf-975742636741

NICE. (2014). *Bipolar disorder (update): the management of bipolar disorder in adults, children and adolescents in primary and secondary care. Guideline (CG185)*: National Institute for Health and Clinical Excellence

Nicholson, T., Cutter, W., & Hotopf, M. (2008). Assessing mental capacity: The Mental Capacity Act. *British Medical Journal, 336*, 322-325.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*(4), 569-582.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*(3), 504.

Nuechterlein, K. H., & Dawson, M. E. (1984). A heuristic vulnerability/stress model of schizophrenic episodes. *Schizophrenia Bulletin, 10*(2), 300.

Nusslock, R., Abramson, L. Y., Harmon-Jones, E., Alloy, L. B., & Hogan, M. E. (2007). A goal-striving life event and the onset of hypomanic and depressive episodes and symptoms: Perspective from the behavioral approach system (BAS) dysregulation theory. *Journal of Abnormal Psychology, 116*(1), 105.

Nusslock, R., & Frank, E. (2011). Subthreshold bipolarity: Diagnostic issues and challenges. *Bipolar Disorders, 13*(7-8), 587-603.

O'Connell, R. A. (1986). Psychosocial factors in a model of manic-depressive disease. *Integrative Psychiatry, 4*(3), 150-154.

Öst, L.-G. (2008). Efficacy of the third wave of behavioral therapies: A systematic review and meta-analysis. *Behaviour Research and Therapy, 46*(3), 296-321. doi: https://doi.org/10.1016/j.brat.2007.12.005

Otto, M. W., Simon, N. M., Wisniewski, S. R., Miklowitz, D. J., Kogan, J. N., Reilly-Harrington, N. A., . . . Sagduyu, K. (2006). Prospective 12-month course of bipolar disorder in out-patients with and without comorbid anxiety disorders. *British Journal of Psychiatry, 189*(1), 20-25.

Oud, M., Mayo-Wilson, E., Braidwood, R., Schulte, P., Jones, S. H., Morriss, R., . . . Kendall, T. (2016). Psychological interventions for adults with bipolar disorder: Systematic review and meta-analysis. *British Journal of Psychiatry, 208*(3), 213-222. doi: 10.1192/bjp.bp.114.157123

Owen, M. J. (2012). Implications of genetic findings for understanding schizophrenia. *Schizophrenia Bulletin, 38*(5), 904-907. doi: 10.1093/schbul/sbs103

Pankowski, S., Adler, M., Andersson, G., Lindefors, N., & Svanborg, C. (2017). Group acceptance and commitment therapy (ACT) for bipolar disorder and co-existing anxiety - an open pilot study. *Cognitive Behaviour Therapy, 46*(2), 114-128. doi: 10.1080/16506073.2016.1231218

Panos, P. T., Jackson, J. W., Hasan, O., & Panos, A. (2014). Meta-analysis and systematic review assessing the efficacy of dialectical behavior therapy (DBT). *Research on Social Work Practice, 24*(2), 213-223. doi: 10.1177/1049731513503047

Pardoen, D., Bauwens, F., Tracy, A., Martin, F., & Mendlewicz, J. (1993). Self-esteem in recovered bipolar and unipolar out-patients. *British Journal of Psychiatry, 163*(6), 755-762.

Parikhl, S., & Zaretsky, A. (2012). A randomized controlled trial of psychoeducation or cognitive-behavioural therapy in bipolar disorder: A CANMAT study. *European Neuropsychopharmacology, 22*, S290-S290.

Patton, J. H., & Stanford, M. S. (1995). Factor structure of the Barratt impulsiveness scale. *Journal of Clinical Psychology, 51*, 768-774.

Pavlickova, H., Varese, F., Smith, A., Myin-Germeys, I., Turnbull, O. H., Emsley, R., & Bentall, R. P. (2013). The dynamics of mood and coping in bipolar

disorder: Longitudinal investigations of the inter-relationship between affect, self-esteem and response styles. *PloS One, 8*(4), e62514-e62514. doi: 10.1371/journal.pone.0062514

Pavlickova, H., Varese, F., Turnbull, O., Scott, J., Morriss, R., Kinderman, P., . . . Bentall, R. P. (2013). Symptom-specific self-referential cognitive processes in bipolar disorder: A longitudinal analysis. *Psychological Medicine, 43*(9), 1895-1907.

Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine, 25*(6), 551-603.

Perich, T., Manicavasagar, V., Mitchell, P. B., & Ball, J. R. (2011). Mindfulness, response styles and dysfunctional attitudes in bipolar disorder. *Journal of Affective Disorders, 134*(1-3), 126-132. doi: 10.1016/j.jad.2011.06.004

Perich, T., Manicavasagar, V., Mitchell, P. B., Ball, J. R., & Hadzi-Pavlovic, D. (2013). A randomized controlled trial of mindfulness-based cognitive therapy for bipolar disorder. *Acta Psychiatrica Scandinavica, 127*(5), 333-343.

Perkins, A. M., Ridler, J. H., Hammond, L., Davies, S., & Hackmann, C. (2017). Impacts of attending Recovery Colleges on NHS staff. *Mental Health and Social Inclusion, 21*(1), 18-24. doi: 10.1108/MHSI-11-2016-0035

Perkins, R., Repper, J., Rinaldi, M., & Brown, H. (2012). *ImROC 1. Recovery Colleges.* London, UK: Centre for Mental Health.

Perlis, R. H., Miyahara, S., Marangell, L. B., Wisniewski, S. R., Ostacher, M., DelBello, M. P., . . . Investigators, S.-B. (2004). Long-term implications of early onset in bipolar disorder: Data from the first 1000 participants in the systematic treatment enhancement program for bipolar disorder (STEP-BD). *Biological Psychiatry, 55*(9), 875-881.

Perlis, R. H., Ostacher, M. J., Patel, J. K., Marangell, L. B., Zhang, H., Wisniewski, S. R., . . . Gyulai, L. (2006). Predictors of recurrence in bipolar disorder: Primary outcomes from the Systematic Treatment Enhancement Program for

Bipolar Disorder (STEP-BD). *American Journal of Psychiatry, 163*(2), 217-224.

Perris, C., & d'Elia, G. (1966). A study of bipolar (manic-depressive) and unipolar recurrent depressive psychoses. X. Mortality, suicide and life-cycles. *Acta Psychiatrica Scandinavica. Supplementum, 194*, 172-189.

Perry, A., Tarrier, N., Morriss, R., McCarthy, E., & Limb, K. (1999). Randomised controlled trial of efficacy of teaching patients with bipolar disorder to identify early symptoms of relapse and obtain treatment. *BMJ, 318*(7177), 149-153.

Power, M. J., Katz, R., McGuffin, P., Duggan, C. F., Lam, D., & Beck, A. T. (1994). The Dysfunctional Attitude Scale (DAS): A comparison of forms A and B and proposals for a new subscaled version. *Journal of Research in Personality, 28*, 263-276.

Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research & Practice, 19*(3), 276.

Proudfoot, J., Parker, G., Manicavasagar, V., Hadzi-Pavlovic, D., Whitton, A., Nicholas, J., . . . Burckhardt, R. (2012). Effects of adjunctive peer support on perceptions of illness control and understanding in an online psychoeducation program for bipolar disorder: A randomised controlled trial. *Journal of Affective Disorders, 142*(1), 98-105.

Purse, M., & Gans, S. (2017, 6th August). Why Did Manic Depression Become Bipolar Disorder? The history and reasons behind the change. Retrieved from 2nd January, 2018, from https://www.verywell.com/why-did-manic-depression-become-bipolar-disorder-379822

Quilty, L. C., Mackew, L., & Bagby, R. M. (2014). Distinct profiles of behavioral inhibition and activation system sensitivity in unipolar vs. bipolar mood disorders. *Psychiatry Research, 219*(1), 228-231.

Radloff, L. S. (1977). The CES-D Scale. *Applied Psychological Measurement, 1*(3), 385-401. doi: 10.1177/014662167700100306

Ralph, R. O. (2005). Verbal definitions and visual models of recovery: Focus on the recovery model. In R. O. Ralph & P. W. Corrigan (Eds.), *Recovery in mental illness: Broadening our understanding of wellness* (pp. 131-145). Washington DC: American Psychological Association.

Rea, M. M., Tompson, M. C., Miklowitz, D. J., Goldstein, M. J., Hwang, S., & Mintz, J. (2003). Family-focused treatment versus individual treatment for bipolar disorder: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 71*(3), 482.

Reilly-Harrington, N. A., Alloy, L. B., Fresco, D. M., & Whitehouse, W. G. (1999). Cognitive styles and life events interact to predict bipolar and unipolar symptomatology. *Journal of Abnormal Psychology, 108*, 567-578.

Reilly-Harrington, N. A., Miklowitz, D. J., Otto, M. W., Frank, E., Wisniewski, S. R., Thase, M. E., & Sachs, G. S. (2010). Dysfunctional attitudes, attributional styles, and phase of illness in bipolar disorder. *Cognitive Therapy and Research, 34*(1), 24-34.

Reinares, M., Bonnín, C. d. M., Hidalgo-Mazzei, D., Undurraga, J., Mur, M., Nieto, E., . . . Vieta, E. (2015). Making sense of DSM-5 mania with depressive features. *Australian and New Zealand Journal of Psychiatry, 49*(6), 540-549. doi: 10.1177/0004867415585583

Reinares, M., Sanchez-Moreno, J., & Fountoulakis, K. N. (2014). Psychosocial interventions in bipolar disorder: What, for whom, and when. *Journal of Affective Disorders, 156*, 46.

Repper, J. (2003). *Social inclusion and recovery: A model for mental health practice*. Edinburgh: Baillière Tindall.

Repper, J., & Carter, T. (2011). A review of the literature on peer support in mental health services. *Journal of Mental Health, 20*(4), 392-411.

Ridgway, P. (2001). Restorying psychiatric disability: Learning from first person recovery narratives. *Psychiatric Rehabilitation Journal, 24*(4), 335.

Roberts, J. E., Gilboa, E., & Gotlib, I. H. (1998). Ruminative response style and vulnerability to episodes of dysphoria: Gender, neuroticism, and episode duration. *Cognitive Therapy and Research, 22*(4), 401-423.

Roberts, J. M. (2014). Critical realism, dialectics, and qualitative research methods. *Journal for the Theory of Social Behaviour, 44*(1), 1-23.

Robins, C., & Chapman, A. (2004). Dialectical behavior therapy: Current status, recent development, and future directions. *Journal of Personality Disorders, 18*(1), 73-89. doi: 10.1521/pedi.18.1.73.32771

Rosa, A. R., Sánchez-Moreno, J., Martínez-Aran, A., Salamero, M., Torrent, C., Reinares, M., . . . Ayuso-Mateos, J. L. (2007). Validity and reliability of the Functioning Assessment Short Test (FAST) in bipolar disorder. *Clinical Practice and Epidemiology in Mental Health, 3*(1), 5.

Russell, S. J., & Browne, J. L. (2005). Staying well with bipolar disorder. *Australian and New Zealand Journal of Psychiatry, 39*(187-193.).

Rybakowski, J. K., & Twardowska, K. (1999). The dexamethasone/corticotropin-releasing hormone test in depression in bipolar and unipolar affective illness. *Journal of Psychiatric Research, 33*(5), 363-370. doi: 10.1016/S0022-3956(99)00014-X

Sajatovic, M., Valenstein, M., Blow, F., Ganoczy, D., & Ignacio, R. (2007). Treatment adherence with lithium and anticonvulsant medications among patients with bipolar disorder. *Psychiatric Services, 58*(6), 855-863.

Salavert, J., Caseras, X., Torrubia, R., Furest, S., Arranz, B., Duenas, R., & San, L. (2007). The functioning of the behavioral activation and inhibition systems in bipolar I euthymic patients and its influence in subsequent episodes over an eighteen-month period. *Personality and Individual Differences, 42*(7), 1323-1331.

Salcedo, S., Gold, A. K., Sheikh, S., Marcus, P. H., Nierenberg, A. A., Deckersbach, T., & Sylvia, L. G. (2016). Empirically supported psychosocial interventions for bipolar disorder: Current state of the research. *Journal of Affective Disorders, 201*(Supplement C), 203-214. doi: https://doi.org/10.1016/j.jad.2016.05.018

Sale, J. E. M., Lohfeld, L. H., & Brazil, K. (2002). Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity, 36*(1), 43-53.

Sanchez-Moreno, J., Martinez-Aran, A., Tabares-Seisdedos, R., Torrent, C., Vieta, E., & Ayuso-Mateos, J. L. (2009). Functioning and disability in bipolar disorder: An extensive review. *Psychotherapy and Psychosomatics, 78*(5), 285-297.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., . . . Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity, 52*(4), 1893-1907. doi: 10.1007/s11135-017-0574-8.

Schrank, B., Bird, V., Rudnick, A., & Slade, M. (2012). Determinants, self-management strategies and interventions for hope in people with mental disorders: Systematic search and narrative review. *Social Science and Medicine, 74*(4), 554-564.

Scott, J. (1995). Psychotherapy for bipolar disorder. *British Journal of Psychiatry, 167*(5), 581-588.

Scott, J., & Pope, M. (2003). Cognitive styles in individuals with bipolar disorders. *Psychological Medicine, 33*(6), 1081-1088.

Scott, J., Stanton, B., Garland, A., & Ferrier, I. N. (2000). Cognitive vulnerability in patients with bipolar disorder. *Psychological Medicine, 30*(2), 467-472.

Scott, J. A. N., Paykel, E., Morriss, R., Bentall, R., Kinderman, P., Johnson, T., . . . Hayhurst, H. (2006). Cognitive–behavioural therapy for severe and recurrent bipolar disorders. *British Journal of Psychiatry, 188*(4), 313-320.

Scottish Recovery Network. (2006). *Journeys of Recovery*. Glasgow: Scottish Recovery Network.

Segal, Z. V. (2002). *Mindfulness-based cognitive therapy for depression : A new approach to preventing relapse*. New York: Guilford Press.

Senn, S. (2006). Change from baseline and analysis of covariance revisited. *Statistics in Medicine, 25*(24), 4334-4344. doi: doi:10.1002/sim.2682

Shanks, V., Williams, J., Leamy, M., Bird, V. J., Le Boutillier, C., & Slade, M. (2013). Measures of personal recovery: A systematic review. *Psychiatric Services, 64*(10), 974-980. doi: 10.1176/appi.ps.005012012

Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2012). *Research methods in psychology* (9th ed.). New York : McGraw-Hill Companies, Inc.

Sheehan, D. V., Lecrubier, Y., Sheehan, K., Amorim, P., Janavs, J., Weiller, E., . . . Dunbar, G. (1998). The Mini-International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry, 59*, 22-33.

Shen, G. H. C., Alloy, L. B., Abramson, L. Y., & Sylvia, L. G. (2008). Social rhythm regularity and the onset of affective episodes in bipolar spectrum individuals. *Bipolar Disorders, 10*(4), 520-529.

Sidor, M. M., & MacQueen, G. M. (2012). An update on antidepressant use in bipolar depression. *Current Psychiatry Reports, 14*(6), 696-704.

Silveira Jr, É. d. M., & Kauer-Sant'Anna, M. (2015). Rumination in bipolar disorder: A systematic review. *Revista Brasileira de Psiquiatria, 37*(3), 256-263.

Silverstein, S. M., & Bellack, A. S. (2008). A scientific agenda for the concept of recovery as it applies to schizophrenia. *Clinical Psychology Review, 28*(7), 1108-1124. doi: https://doi.org/10.1016/j.cpr.2008.03.004

Sklar, M., Groessl, E. J., amp, Amp, Apos, Connell, M., . . . Aarons, G. A. (2013). Instruments for measuring mental health recovery: A systematic review.

Clinical Psychology Review, 33(8), 1082-1095. doi: 10.1016/j.cpr.2013.08.002

Slade, M. (2009). *Personal recovery and mental illness: A guide for mental health professionals*. Cambridge: Cambridge University Press.

Slade, M., Amering, M., Farkas, M., Hamilton, B., O'Hagan, M., Panther, G., . . . Whitley, R. (2014). Uses and abuses of recovery: Implementing recovery-oriented practices in mental health systems. *World Psychiatry, 13*, 12-20.

Slade, M., Bird, V., Clarke, E., Le Boutillier, C., McCrone, P., Macpherson, R., . . . Leamy, M. (2015). Supporting recovery in patients with psychosis through care by community-based adult mental health teams (REFOCUS): A multisite, cluster, randomised, controlled trial. *The Lancet Psychiatry, 2*(6), 503-514. doi: 10.1016/S2215-0366(15)00086-3

Slade, M., Bird, V., Le Boutillier, C., Farkas, M., Grey, B., Larsen, J., . . . Williams, J. (2015). Development of the REFOCUS intervention to increase mental health team support for personal recovery. *The British Journal of Psychiatry, 207*(6), 544. doi: 10.1192/bjp.bp.114.155978

Slade, M., Leamy, M., Bacon, F., Janosik, M., Le Boutillier, C., Williams, J., & Bird, V. (2012). International differences in understanding recovery: Systematic review. *Epidemiology and Psychiatric Sciences, 21*(4), 353-364. doi: 10.1017/S2045796012000133

Slade, M., Oades, L. G., & Jarden, A. (2017). Why wellbeing and recovery? In M. Slade, L. G. Oades & A. Jarden (Eds.), *Wellbeing, recovery and mental health* (pp. 1-6). Cambridge: Cambridge University Press.

Slade, M., & Wallace, G. (2017). Where are we now? Recovery and mental health. In M. Slade, L. Oades & A. Jarden (Eds.), *Wellbeing, recovery and mental health* (pp. 24-34). Cambridge: Cambridge University Press.

Smaller, J. W., & Finn, C. T. (2003). Family, twin, and adoption studies of bipolar disrder. *American Journal of Medical Genetics. Part C, Seminars in Medical Genetics, 1231*, 518-558.

Smith, D. J., Griffiths, E., Poole, R., Di Florio, A., Barnes, E., Kelly, M. J., . . . Simpson, S. (2011). Beating Bipolar: Exploratory trial of a novel internet-based psychoeducational treatment for bipolar disorder. *Bipolar Disorders, 13*(5-6), 571-577.

Smoller, J. W., & Finn, C. T. (2003). Family, twin, and adoption studies of bipolar disorder. *American Journal of Medical Genetics Part C: Seminars in Medical Genetics, 123*(1), 48-58. doi: 10.1002/ajmg.c.20013

Solomon, D. A., Leon, A. C., Coryell, W. H., Endicott, J., Li, C., Fiedorowicz, J. G., . . . Keller, M. B. (2010). Longitudinal course of bipolar I disorder: Duration of mood episodes. *Archives of General Psychiatry, 67*(4), 339-347.

Song, L.-Y., & Hsu, S.-T. (2011). The development of the Stages of Recovery Scale for persons with persistent mental illness. *Research on Social Work Practice, 21*(5), 572-581.

Spitzer, R. L., First, M. B., Gibbon, M., & Williams, J. B. W. (1990). *Structured clinical interview for DSM-III-R*: American Psychiatric Press.

Steckler, A., McLeroy, K. R., Goodman, R. M., Bird, S. T., & McCormick, L. (1992). Toward integrating qualitative and quantitative methods: An introduction. *Health Education Quarterly, 19*(1), 1-8.

Strakowski, S. M., Fleck, D. E., DelBello, M. P., Adler, C. M., Shear, P. K., Kotwal, R., & Arndt, S. (2010). Impulsivity across the course of bipolar disorder. *Bipolar Disorders, 12*(3), 285-297. doi: 10.1111/j.1399-5618.2010.00806.x

Strakowski, S. M., Stoll, A. L., Tohen, M., Faedda, G. L., & Goodwin, D. C. (1993). The Tridimensional Personality Questionnaire as a predictor of six-month outcome in first episode mania. *Psychiatry Research, 48*(1), 1-8.

Strakowski, S. M., Williams, J. R., Fleck, D. E., & Delbello, M. P. (2000). Eight-month functional outcome from mania following a first psychiatric hospitalization. *Journal of Psychiatric Research, 34*(3), 193-200.

Stroppa, A., & Moreira-Almeida, A. (2013). Religiosity, mood symptoms, and quality of life in bipolar disorder. *Bipolar Disorders, 15*(4), 385-393. doi: 10.1111/bdi.12069

Swain, J. (2018). A Hybrid Approach to Thematic Analysis in Qualitative Research: Using a Practical Example. *Sage Research Methods.*

Swann, A. C., Lijffijt, M., Lane, S. D., Steinberg, J. L., & Moeller, F. G. (2009). Increased trait-like impulsivity and course of illness in bipolar disorder. *Bipolar Disorders, 11,* 280-288.

Swanson, J. W., Swartz, M. S., Elbogen, E. B., Van Dorn, R. A., Ferron, J., Wagner, H. R., . . . Kim, M. (2006). Facilitated psychiatric advance directives: A randomized trial of an intervention to foster advance treatment planning among persons with severe mental illness. *American Journal of Psychiatry, 163*(11), 1943-1951.

Swartz, H. A., Frank, E., & Cheng, Y. (2012). A randomized pilot study of psychotherapy and quetiapine for the acute treatment of bipolar II depression. *Bipolar Disorders, 14*(2), 211-216.

Swendsen, J., & Gitlin, M. (1995). Correlates of stress reactivity in patients with bipolar disorder. *American Journal of Psychiatry, 1*(52), 795.

Sylvia, L. G., Alloy, L. B., Hafner, J. A., Gauger, M. C., Verdon, K., & Abramson, L. Y. (2009). Life events and social rhythms in bipolar spectrum disorders: A prospective study. *Behavior Therapy, 40*(2), 131-141.

Tarrier, N., & Barrowclough, C. (2003). Professional attitudes to psychiatric patients: A time for change and an end to medical paternalism. *Epidemiologia e Psichiatria Sociale, 12,* 238-241.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches* (Vol. 46). Thousand Oaks, California: SAGE Publications.

Tew, J., Ramon, S., Slade, M., Bird, V., Melton, J., & Le Boutillier, C. (2012). Social factors and recovery from mental health difficulties: A review of the

evidence. *British Journal of Social Work, 42*(3), 443-460. doi: 10.1093/bjsw/bcr076

Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing, 1*(3), 176-184. doi: 10.1111/j.1524-475X.2004.04006.x

Thomas, J., & Bentall, R. P. (2002). Hypomanic traits and response styles to depression. *British Journal of Clinical Psychology, 41*, 309-313.

Thomas, J., Bentall, R. P., Knowles, R., & Tai, S. (2009). Indirect measurement of dysfunctional attitudes in bipolar affective disorder. *Psychology and Psychotherapy: theory, research and practice, 82*(3), 261-266.

Thomas, J., Knowles, R., Tai, S., & Bentall, R. P. (2007). Response styles to depressed mood in bipolar affective disorder. *Journal of Affective Disorders, 100*(1-3), 249-252. doi: 10.1016/j.jad.2006.10.017

Thompson, M., & Bentall, R. P. (1990). Hypomanic personality and attributional style. *Personality and Individual Differences, 11*(8), 867-868.

Tohen, M., Stoll, A. L., Strakowski, S. M., Faedda, Q. L., Mayer, P. V., Goodwin, D. C., . . . Madlgan, A. M. (1992). The McLean first-episode psychosis project: Six-month recovery and recurrence outcome. *Schizophrenia Bulletin, 18*(2), 273-282.

Tohen, M., Waternaux, C. M., & Tsuang, M. T. (1990). Outcome in mania: A 4-year prospective follow-up of 75 patients utilizing survival analysis. *Archives of General Psychiatry, 47*(12), 1106-1111.

Tohen, M., Waternaux, C. M., Tsuang, M. T., & Hunt, A. T. (1990). Four-year follow-up of twenty-four first-episode manic patients. *Journal of Affective Disorders, 19*(2), 79-86.

Tohen, M., Zarate, C. A., Hennen, J., Khalsa, H. M. K., Strakowski, S. M., Gebre-Medhin, P., . . . Baldessarini, R. J. (2003). The McLean-Harvard first-episode

mania study: Prediction of recovery and first recurrence. *American Journal of Psychiatry, 160.*, 2099-2107.

Tondora, J., Miller, R., Slade, M., & Davidson, L. (2014). *Partnering for recovery in mental health: A practical guide to person-centered planning*. Chichester, UK: Wiley-Blackwell.

Townsend, J., & Altshuler, L. L. (2012). Emotion processing and regulation in bipolar disorder: A review. *Bipolar Disorders, 14*, 326-339. doi: 10.1111/j.1399-5618.2012.01021.x

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*(3), 247-259.

Tse, S., Davidson, L., Chung, K. F., Ng, K. L., & Yu, C. H. (2014). Differences and similarities between functional and personal recovery in an Asian population: A cluster analytic approach. *Psychiatry, 77*(41-56.).

Tse, S., Murray, G., Chung, K. F., Davidson, L., Ng, K. L., & Yu, C. H. (2014). Exploring the recovery concept in bipolar disorder: A decision tree analysis of psychosocial correlates of recovery stages. *Bipolar Disorders, 16*(4), 366-377. doi: 10.1111/bdi.12153

Urošević, S., Abramson, L. Y., Harmon-Jones, E., & Alloy, L. B. (2008). Dysregulation of the behavioral approach system (BAS) in bipolar spectrum disorders: Review of theory and evidence. *Clinical Psychology Review, 28*(7), 1188-1205.

Van der Gucht, E., Morriss, R., Lancaster, G., Kinderman, P., & Bentall, R. P. (2009). Psychological processes in bipolar affective disorder: Negative cognitive style and reward processing. *British Journal of Psychiatry, 194*(2), 146-151. doi: 10.1192/bjp.bp.107.047894

Van Dijk, S., Jeffrey, J., & Katz, M. R. (2013). A randomized, controlled, pilot study of dialectical behavior therapy skills in a psychoeducational group for

individuals with bipolar disorder. *Journal of Affective Disorders, 145*(3), 386-393. doi: https://doi.org/10.1016/j.jad.2012.05.054

Weinstein, J. (2008). Promoting inclusivity in care planning. In A. Hall, M. Wren & S. Kirby (Eds.), *Care planning in mental health: promoting recovery.* Oxford: Blackwell.

Weinstein, J. (2010). *Mental health, service user involvement and recovery*. London, UK: Jessica Kingsley Publishers.

Weissman, M. M., & Bothwell, S. (1976). Assessment of social adjustment by patient self-report. *Archives of General Psychiatry, 33*(9), 1111-1115.

Weissman, M. M., Gershon, E. S., Kidd, K. K., Prusoff, B. A., Leckman, J. F., Dibble, E., . . . Guroff, J. J. (1984). Psychiatric disorders in the relatives of probands with affective disorders: The Yale University—National Institute of Mental Health collaborative study. *Archives of General Psychiatry, 41*(1), 13-21.

Whitwell, D. (2005). *Recovery beyond psychiatry*: Free Association Books.

Williams, J., Leamy, M., Bird, V., Harding, C., Larsen, J., Boutillier, C., . . . Slade, M. (2012). Measures of the recovery orientation of mental health services: Systematic review. *The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services*, *47*(11), 1827-1835. doi: 10.1007/s00127-012-0484-y

Williams, J., Leamy, M., Bird, V., Le Boutillier, C., Norton, S., Pesola, F., & Slade, M. (2015). Development and evaluation of the INSPIRE measure of staff support for personal recovery. *Social Psychiatry and Psychiatric Epidemiology, 50*(5), 777-786. doi: 10.1007/s00127-014-0983-0

Wingo, A. P., Baldessarini, R. J., Compton, M. T., & Harvey, P. D. (2010). Correlates of recovery of social functioning in types I and II bipolar disorder patients. *Psychiatry Research, 177*(1-2), 131-134. doi: 10.1016/j.psychres.2010.02.020

Wingo, A. P., Baldessarini, R. J., Holtzheimer, P. E., & Harvey, P. D. (2010). Factors associated with functional recovery in bipolar disorder patients. *Bipolar Disorders, 12*(3), 319-326. doi: 10.1111/j.1399-5618.2010.00808.x

Winters, K. C., & Neale, J. M. (1985). Mania and low self-esteem. *Journal of Abnormal Psychology, 94*(3), 282.

Wright, K., Lam, D., & Newsom-Davis, I. (2005). Induced mood change and dysfunctional attitudes in remitted bipolar I affective disorder. *Journal of Abnormal Psychology, 114*(4), 689.

Yaara, Z.-I., Erin, B., Juliette, H., Anthony, P., & Maria, O. C. (2017). Expanding the concept of shared decision making for mental health: Systematic search and scoping review of interventions. *Mental Health Review Journal, 22*(3), 191-213. doi: 10.1108/MHRJ-01-2017-0002

Yan-Meier, L., Eberhart, N. K., Hammen, C. L., Gitlin, M., Sokolski, K., & Altshuler, L. (2011). Stressful life events predict delayed functional recovery following treatment for mania in bipolar disorder. *Psychiatry Research, 186*(2-3), 267-271. doi: 10.1016/j.psychres.2010.08.028

Young, R. C., Biggs, J. T., Ziegler, V. E., & Meyer, D. A. (1978). A rating scale for mania: Reliability, validity and sensitivity. *British Journal of Psychiatry, 133*(5), 429-435.

Zabel, E., Donegan, G., Lawrence, K., & French, P. (2016). Exploring the impact of the recovery academy: A qualitative study of Recovery College experiences. *Journal of Mental Health Training, Education and Practice, 11*(3), 162-171. doi: 10.1108/JMHTEP-12-2015-0052

Zaretsky, A., Lancee, W., Miller, C., Harris, A., & Parikh, S. V. (2008). Is cognitive-behavioural therapy more effective than psychoeducation in bipolar disorder? *Canadian Journal of Psychiatry, 53*(7), 441-448.

Zimmerman, M., Ruggero, C. J., Chelminski, I., & Young, D. (2008). Is bipolar disorder overdiagnosed? *Journal of Clinical Psychiatry, 69*(6), 935-940.

Appendices

Appendix A: Systematic Review

Table A.1 Hierarchical exclusion criteria

Order	Exclusion criteria	Explanation
1	Publication type	Studies excluded under this category: dissertations, theses, reviews, case studies, discussion articles, summaries, theoretical and policy papers.
2	Diagnosis	Studies were excluded if they defined remission criteria or recovery from other mental health problems, substance misuse, addiction or eating disorders. Additional explanation for full-text screening: BD was not verified based on DSM or ICD criteria.
3	Recovery	Studies were excluded if solely focused on clinical recovery through symptoms remission and relapse prevention. Additional explanation for full-text screening: Recovery (other than clinical or symptomatic) definition was provided and operationalised as an outcome measure or there is a stated relevance to personal recovery in the method/results section (for example in qualitative themes).
4	Age	Participants must be 16 years old or older at the time of inclusion. Additional explanation for full-text screening: No minimum age reported (unless directly referenced to primary source which provides this data)
5	Availability	No English abstract available. Additional explanation for full-text screening: No English full-text available
6	Prediction	Full-text screening only: studies were excluded if they did not investigate any predictors of recovery (including prevalence studies and papers comparing recovery across mental health diagnoses).

Table A.2 Data extraction table: study characteristics, methods and analysis

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
1	Prospective cohort study (1 year post hospitalisation FU period- data collection 5 times, every 10 weeks)	**1) Demographic factors**: age, gender, ethnicity. 2) **Clinical factors:** substance use	1) General linear mixed-effects models using restricted maximum likelihood estimation were constructed predicting functioning measures from time and time-varying substance use variables. 2) Diagnostic differences in these relationships were also investigated by examining diagnosis by substance use interactions. 3) Exploratory analyses were conducted to examine the degree to which gender moderated these relationships. 4) All conditional growth models included age, race and gender, as well as initial levels of the outcome variable that was under study (e.g. baseline functioning).	Significant negative associations: • Interaction between gender and diagnostic groups with regard to alcohol use and functional recovery: men with BD who used alcohol exhibited poor functioning compared to women: $F(2, 2872) = 5.64$, $p = .004$. No association: • No interaction effect between cannabis and gender on functional recovery in bipolar subsample. • No associations reported between age, ethnicity and recovery. Significant positive associations: None reported.	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
2	Prospective cohort study (6 months FU period-data collection 6 times, monthly for outcome)	**1) Clinical factors:** substance abuse, treatment/medication adherence (prescribed medications included-valproate and lithium),.	The cumulative probabilities of outcomes between adherence/non-adherence, substance abuse/no substance abuse compared using log-rank test at a significance level of $p < 0.05$.	Significant negative associations: • Substance abuse associated with longer time to functional recovery based on LIFE-RIFT (log rank: $\chi = 4.36$, $p = .037$). No association: • Treatment adherence and substance use was not associated with recovery based on GAF scores. Significant positive associations: • Full treatment adherence shortened time to functional recovery based on LIFE-RIFT (log rank: $\chi = 4.5$, $df = 1$, $p = .03$).	W
4	Prospective cohort study (6 months follow-up period: 3 assessments (BL, 1 month and 6 months)	**1) Sociodemographic factors**: age, gender, marital status and employment status. **2) Clinical factors:** Family psychiatric history, psychiatric comorbidity, polarity of first episode, lifetime psychotic symptom, rapid cycling, age of onset, number and type of episodes, number of suicide attempts, number of hospital admissions,	1) Preliminary Pearson bivariate correlation between predictors and outcome at 6 month. 2) Bivariate association with qualitative variables explored using Mann-Whitney U test. 3) All associated (showed at least trend) variables from preliminary analysis and literature underwent stepwise multiple regression.	Significant negative associations: • Recovered participants were younger ($p = .03$), had lower BMI ($p = .005$), had fewer number of total episodes ($p = .02$), shorter illness duration (chronicity) ($p < .001$) compared to non-recovered participants. • Correlation results: age ($r = .21$; $p = .01$), years of illness ($r = .22$; $p = .006$); total number of episodes ($r = .19$; $p = .02$), number of depressive episodes ($r = .24$; $p = .005$), number of days of hospitalisation between BL and at 6 month FU ($r = .26$; $p = .004$). • Best regression model (Adjusted $R^2 = .22$; $df = 6$, $F = 3.95$; $p = .002$) included 5 variables, 3 were significant: number of previous depressive episodes ($\beta = 3.25$; $t = 3.23$; $p = .002$), presence of psychotic symptoms during index episode ($\beta = 7.007$; $t = 2.2$; $p = .031$) and BMI ($\beta = 0.62$; $t = 2.09$; $p = .041$) No association:	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		cannabis consumption, hours of sleep at BL.		• Recovered participants did not differ significantly in age at onset (p = .47), presence of psychotic symptoms during the index manic episode (p = .26) or days of hospitalisation (p = .39), no difference reported in gender, marital status or employment status (no statistic reported). • Mann-Whitney U-test results: psychiatric comorbidity (p =.26), presence of mixed symptoms (p =.15), family history of affective disorders (p =.61), previous suicide attempts (p =.42), cannabis consumption at baseline (p =.31), presence of psychotic symptoms during index episode (p =.059) were not associated with recovery. • Regression model analysis: number of days hospitalised between BL and FU1 (β = -0.133; t = -0.75; p = .45), years of illness (β = -0.16; t =-0.92; p = .45) and hours of sleep at baseline (β = -1.12; t =-1.31; p =.194) • No analytic statistics reported for: rapid cycling, number of manic episodes, lifetime psychotic symptoms, and polarity of first episode. Significant positive associations: None reported	
5	Prospective cohort study (12 months FU period: 4 assessments at BL, time of stabilisation, 6 months and 12 months	**1) Clinical factors:** Age at admission symptomatic remission, negative symptoms family history of schizophrenia and/or affective disorder, duration of untreated psychosis symptoms prior to admission, duration of	1) Comparisons between patients who had and had not recovered function were conducted using the non-parametric Mann–Whitney U-test. 2) Backward stepwise logistic regressions based on the *Wald* statistic were conducted to	Significant negative associations: • Mann-Whitney U-test: Non-recovered participants had significantly higher scores of negative symptoms (p <.01)- except alogia • Final model: $\chi^2(4) = 28.96$, $p < 0.01$; Hosmer and Lemeshow test: $\chi^2(8) = 13.49$, $p > .05$; included 4 variables- 1 showed significantly negative association with functional recovery: illicit drug use: $\beta = 1.79$, $z = 4.98$, $OR = 19.21$ CI 95% (1.43, 257.23).	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		untreated mania symptoms, alcohol use and illicit drug use. **2) Other factors:** Functional recovery at 6 months (as predictor at 12 months follow-up).	determine which factors significantly predicted dichotomous outcome variables (presence or absence of functional recovery after 12 months). Odds ratio and 95% confidence interval were calculated for the identified predictors. The capacity of the model to correctly distinguish between patients with different outcome was explored with the Hosmer and Lemeshow test. The level of variance explained by the model was assessed by the Nagelkerke R^2.	No association: • DUP and DUM (no statistics reported) and family history of affective disorders [β=3.08, z=3.73, *OR* = 21.12 CI 95% (0.96, 466.84), significance not reported] • Patients who had not recovered function at 12 months did not have significantly higher alogia scores than those that had recovered function (on the SANS). Significant positive associations: • Functional recovery at 12 months was associated with functional recovery at 6 months: $\chi^2(1) = 11.53$, $p < .05$; and remission of symptoms at 6 months: $\chi^2(1) = 4.88$, $p < .05$. • Final model ($\chi^2(4) = 28.96$, $p < 0.01$; Hosmer and Lemeshow test: $\chi^2(8) = 13.49$, $p > 0.05$) included 4 variables- 2 showed significantly positive association: age: β= -.037, z = 5.48, *OR* = 0.69 CI 95% (0.50, 0.94) $p < .05$; and achieving functional recovery at 6 month: β = 5.72, z = 7.89, *OR* = 305.81, CI 95 % (5.65, 257.23), $p < 0.01$.	
6	Randomised control trial (12 month FU period, after 2 months of therapy: 5 assessment points: BL, after 8 sessions (at weeks 4, after	**Other factors:** Psychoeducation treatment: comparison of EG (pharmacological treatment and psychoeducation) and CG: (pharmacological treatment and placebo intervention-relaxation).	1) Categorical variables were compared using Pearson's chi-squared test, continuous variables were compared using the t-test. 2) Groups were compared at the five time-points using two-way ANOVA for repetitive measurements. Inter- and intragroup comparisons were also	Significant negative associations: • The scores on the environmental domain (WHOQOL-BREF) suggested a worsening over time (p = .025) in both groups. No association: • The means for the social component of the Social Adjustment Scale were stable over time (p =.114, *ES* = 0.078) with no difference between groups (p =.416, *ES* = 0.036).	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
	16 sessions (at week 8), 6 and 12 months after the end of the treatment)		performed. Significance was set at p = .05 for all comparisons.	• Functioning levels (GAF) did not change over time (p =.097, ES = 0.089) in either group (p =.586, ES = 0.027). Significant positive associations: None reported	
8	Prospective cohort study (12 months FU period: outcome assessments at 2, 6 and 12 months after discharge.)	**1) Demographic variables**: age, race, sex, SES **2) Clinical variables:** number of episodes, presence of personality disorder, treatment compliance	1) Kaplan-Meier survival curves were used to estimate the probability of recovery. The log-rank test determined differences between groups. 2) Logistic regression analysis were performed to determine whether personality disorder were associated with functional recovery controlling for demographic and clinical variables. 3) Chi-square analysis was performed on the first episode sub-group to determine whether personality disorder was associated with functional recovery.	Significant negative associations: • Patients with personality disorder and BD were significantly less likely to recover from a manic episode one year after hospitalisation (χ^2 = 6.6, df =1, p =.01). No association: • Age, race, sex, number of episodes and treatment compliance were not associated with functional recovery (no statistics reported). • First episode sub-group: no association between personality disorder and functional recovery. Significant positive associations: None reported	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
12	Retrospective cohort study (FU period not specified- 3 assessment points: premorbid highest functioning, worst ever functioning and current functioning.	**1) Demographic variable:** sex **2) Clinical variables:** illness onset, duration of illness **3) Other:** gene CACNA1C; premorbid functioning	1) All p-values reported are two-sided. 2) Linear regression residuals at all three time points were jointly analysed by non-parametric longitudinal rank-sum test. Analysis adjusted for age and illness onset or duration- separately for males and females. 3) Sex-stratified analyses also considered the recovery phenotype (GAF3 minus GAF2).Latter was adjusted for sex, duration of illness, and premorbid GAF. A non-parametric maximum test (nparcom) was used for analysing recovery in males and females, which accounts for unknown genetic mode of inheritance. These tests are robust when used on non-normally distributed variables.	Significant negative associations: None reported. No association: • Regression detected no sex CACNA1C interaction in the BD sample (p = .870). Also found when additionally adjusting GAF scores for diagnostic subcategory and when only analysing the largest diagnostic subgroup (i.e.BD-I) • No statistics reported on the association of illness onset, duration of illness, and premorbid functioning (adjusted for in regression) with recovery. Significant positive associations: None reported	W
13	Prospective cohort study (12 months FU	**1) Neurocognitive factors**: attention, working memory,	1) Logistic regression: dependent variable was the MSIF global at 12 months after hospital	Significant negative associations:	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
	period- 2 assessments: BL and 12 months after hospital discharge)	ideational fluency, verbal knowledge, non-verbal functions and learning. **2) Clinical factors:** Depressive, manic and psychotic symptoms (assessed both at BL and FU), lifetime alcohol and drug dependence, presence of lithium or/and benzodiazepine treatment. 3) **Other factors:** Time between BL and FU assessments	discharge. Independent variables were the neurocognitive factors. Five covariates were used: depressive and manic symptom scores at BL and FU (at the same time as the outcome), and time between BL and FU. Each neurocognitive factor was examined independently (in each case including all five covariates). 2) Additional logistic regressions were completed with psychosis symptoms, lifetime alcohol and drug dependence, presence of lithium or/and benzodiazepine treatment as covariates.	• Manic symptoms at FU were significantly associated with functional recovery (p = -.0007, *OR* = 0.86, CI= 0.79–0.94) cross-sectional finding. • Psychotic symptoms at FU were associated with worse functional recovery (statistics not reported)- cross-sectional finding. • Lifetime alcohol and drug dependence was significantly associated with recovery (statistics not reported). No association: • BL manic and depressive symptoms and FU depressive symptoms were not associated with functional recovery (no statistics reported). • Presence of lithium or/and benzodiazepine treatment was not associated with functional recovery (no statistics reported). • Neither working memory nor learning showed any relationship with 12-month functional recovery. • Trend level associations were observed for verbal knowledge and non-verbal functions (no statistics reported) Significant positive associations: • Attention (*Wald* χ^2 = 4.256, p = .039, *OR* = 1.87, CI=1.032–3.397) and Ideational Fluency (*Wald* χ^2 = 3.927, p = .048, *OR* = 1.62, CI=1.005–2.601) were associated with recovery at FU.	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
17	Prospective cohort study (6 months follow-up period: 3 assessments (BL, 1 month and 6 months)	**1) Clinical factors:** Presence of mixed symptoms during current manic episode	1) Comparison between manic patients with and without mixed features, using descriptive statistics, independent samples t-test or chi-square, depending on the nature of the variables. All the analyses were two-tailed with alpha set at $p < 0.05$.	Significant negative associations: None reported No association: • No differences were found between groups (with and without mixed features) in functional recovery using either FAST total score at baseline ($t = 0.69$, $p = .492$) or at follow-up ($t = 1.73$; $p = .085$) or comparing the proportion of participants who achieved functional recovery. Significant positive associations: None reported	W
19	Prospective cohort study (8 months FU period: assessments at BL, 1, 4 and 8 months-maximum)	**1) Demographic factors:** age, sex, ethnicity, years of education, and highest employment level (past 5 years) and SES (based on education and employment). **2) Clinical factors:** depressive and manic symptoms, symptomatic recovery, age at onset, presence of psychosis, index episode duration and polarity (mixed/manic), history of untreated affective episode, current alcohol	1) Differences in the timing and rates of recovery of the four areas of function were compared using the Kaplan-Meier survival curves and the two-tailed log-rank statistic. 2) Associations among the areas of function were determined using Spearman correlations. 3) Logistic regression techniques were employed to identify specific variables that predicted recovery in each of the four major areas of function. In this analysis, age, sex, and socioeconomic status (``forced variables'') were included in all regression models. The	Significant negative associations: • Patients with index episodes longer than 2 months exhibited poorer BL interpersonal relationships ratings (i.e., best score in the previous 5 years) compared to the remaining subjects ($t = 1.9$, $df = 40$, $p = .065$). • Subjects who failed to achieve recovery of sexual activity were more likely to exhibit mood incongruent psychosis at the index assessment ($\chi^2 = 6.4$, $df = 1$, $p = .01$). No association: • None of the four areas of function were significantly correlated with each other at baseline (maximum $r < 0.25$, $p > 0.07$). The times to achieve recovery of the areas did not correlate (maximum $r < 0.18$, $p > .2$). • Recovery of **role performance** was not associated with the examined predictors (except age at onset and SES). • Recovery of **interpersonal relationships** was not associated with the examined predictors (except duration of index episode and symptomatic recovery).	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		and cannabis use disorder, pharmacological treatment compliance, non-pharmacologic mental health contacts per month. 3) **Other factors**: Baseline functioning in 4 areas: role performance, recreational enjoyment, interpersonal relationship, sexual activity.	baseline rating in each of the four major areas of function was included in each model. 4) Other potential outcome predictors were examined for inclusion in the final logistic regression models using stepwise selection. In this stepwise selection process, additional variables were entered into the model if they were associated with recovery at a $p < 0.2$. They were retained in the model only if the association with recovery persisted at a $p < 0.05$ after adjusting for the forced variables and baseline ratings. Demographic and clinical variables were examined in this manner.	• Recovery of **recreational enjoyment and sexual activity** were not associated with any of the predictors (statistics not reported) in the regression models. Significant positive associations: • Age of onset: Patients whose bipolar illness began prior to age 20 years were less likely to achieve recovery of role performance compared to those whose illness began later (adjusted $Wald\ \chi^2 = 4.6$, $df = 1$, $p = .03$). • Higher socioeconomic status (SES) was associated with a greater likelihood of recovery of role performance in this statistical model (adjusted $Wald\ \chi^2 = 5.2$, $df = 1$, $p = .02$) of achieving a good outcome (adjusted $Wald\ \chi^2 = 6.6$, $df = 1$, $p = .01$). • Recovery of interpersonal relationships was more likely for patients with index episodes longer than 2 months than those with shorter index episode duration (adjusted $Wald\ \chi^2 = 7.3$, $df = 1$, $p = .007$). • Recovery of interpersonal relationships was also significantly more likely for patients who achieved symptomatic recovery during follow-up than those who did not (adjusted $Wald\ \chi^2 = 4.4$, $df = 1$, $p = .035$).	
24	Cross-sectional study	**1) Demographic factors:** gender, age, education, parents' education, employment status, marital status, ethnicity.	1) Two-sample t-tests or Wilcoxon rank-sum (*WRS*) tests compared group means of continuous variables. Chi-square	Significant negative associations: • Age: recovered subjects were significantly younger ($t = 2.99$, $p = .004$), • Socially unrecovered participants had more depressive symptoms ($WRS = 747$, $p = .002$) and had been ill longer ($WRS = 834$, $p = .04$), and received more psychotropic	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		2) Clinical factors: age at onset, subtype of BD, illness duration, co-morbid illnesses (medical and psychiatric-Axis I), history of psychosis, rapid cycling, number of episodes/year, number of suicide attempts and hospitalisations, current symptoms, time since last episode (months), number of psychotropic medications (with/without antidepressants). **3) Neurocognitive factors:** estimated premorbid IQ, executive functioning, attention, concentration, mental tracking, verbal learning and memory.	($\chi 2$) or Fisher's-Exact tests (*FET*) compared proportions. 2) To explore factors associated with social-functional recovery, variables with at least suggestive differences ($p < 0.15$) between socially recovered and unrecovered patients based on univariate descriptive statistics were entered into a multiple logistic regression model using stepwise selection method. Statistical significance required a two-sided $p < 0.05$.	medication (*WRS* =814, p =.02) than the socially recovered participants • Selection by stepwise inclusion of potential factors found two factors to be significantly and independently associated with social-functional recovery: younger age (Adjusted *OR* = 0.93; CI = 0.89-0.98, p =.005) and lower current depression scores (Adjusted *OR* = 0.82; CI = 0.69-0.97; p = .020). No association: • The recovered and unrecovered subgroups had similar previous highest levels of social functioning (*WRS* = 1023, p = .66), were similar in sex-distribution (χ^2 = 0.15 p =.70), ethnicity (*FET*, p = .74), years of education (t = 0.29, p = .77), parental education (*WRS* = 1105, p = .12; *WRS* = 1090, p = .12), employment (χ^2 = 2.52, p = .11), and marital status (*FET*, p =.29). • The recovered and unrecovered subgroups were similar in estimated IQ (*WRS* = 1095, p =.17), attention, concentration, and mental tracking (t =0.24, p = .81), verbal learning and memory (t = −0.49, p = .62), and executive functioning (*WRS* = 1114, p =.11). • Recovered vs. non-recovered were similar in onset age (*WRS* = 991 p = .99); BPD-subtypes (χ^2 = 0.71, p = .40) prevalence of co-morbid psychiatric (χ^2 = 0.01, p = .90) or medical illnesses (χ^2 = 0.12, p = .73); past psychosis (χ^2 = 0.48, p = .49) and rapid cycling (χ^2 = 0.10, p = .75); annual rates of lifetime major depressive (*WRS* = 1039, p = .52) or manic/hypomanic episodes (*WRS* = 1000, p = .90) or total mood episodes (*WRS* = 1015, p =.74); number of suicide	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				attempts (*WRS* = 951 *p* = .56); number of hospitalizations (*WRS* = 1011, *p* =.78), and proportions taking antidepressants (with antidepressant χ^2 = 1.39, *p* = .24), current manic symptoms (*WRS* = 921 *p* = .35), and time since last episode (*WRS* = 1086, *p* = .14) • Factors entered into the regression model that were non-significant: months since last major episode (*p* = .611); co-morbid psychiatric illness (*p* = .704); executive function (*p* = .571); BPD diagnostic type – I vs II (*p* =.724) Significant positive associations: none reported	
26	Prospective cohort study (max. 9 months FU period-monthly assessments until functional recovery achieved)	**1) Clinical factors:** Depressive and manic symptoms **2) Other factors**: Acute stress- stressful life events in the past 3 months.	1) One-way ANOVAS with planned contrasts compared concurrent vs. delayed functional recovery groups and delayed versus non-recovered groups, on depressive and manic symptoms prior to each content domain functional recovery assessment. 2) Logistic regression analyses were used to test the contribution of recent stressors to functional outcome status (concurrent with clinical recovery vs. delayed), controlling for depression and mania residual scores in the month before functional recovery. Four	Significant negative associations: • Delayed recovery of work/school functioning was significantly associated with presence of one or more stressors in the prior 3 months, *β(SE)* = 2.07 (0.73), *Wald* = 7.98, *OR* = 7.93 (1.89–33.3), *p* = .005. Similarly in the friendship domain and family domain, presence of a stressor significantly predicted delayed functional recovery: friendship: *β(SE)* = 2.08 (0.87), *Wald* = 5.76, OR=7.99 (1.46–43.65), p=.02; family: *β(SE)* = 2.34 (0.96), *Wald* = 5.98, *OR* = 10.37 (1.59–67.7), *p* = .01. • Recovery of home duties functioning was related to higher depressive symptom scores among those in the delayed recovery group (statistics not reported). • Not recovered participants (in family, home duties and work/school domains) had significantly higher depressive symptoms compared to the concurrent recovered group (*p* < 0.01). • Not recovered participants (in family, friends, home duties and work/school domains) had significantly higher manic	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			separate regressions were conducted, one for each role domain. 3) Kaplan–Meier survival analyses were conducted to evaluate the time to achieve functional recovery in each of the four domains, as a function of presence/ absence of recent stressors.	symptom manic than the concurrent recovered group ($p <$ 0.01). • The not recovered group in work/school domain had significantly higher depressive symptoms compared to the delayed recovery group ($p <$. 01). • The not recovered group in home duties and work/school domains had significantly higher manic symptoms ($p <$ .01) and had significantly higher stress levels prior to family domain assessment compared to the delayed recovery group ($p <$ .01). • Participants who did no experience stressful life events had quicker recovery in the work/school domain (*log-rank* = 12.99, $p <$ .001), in the friend domain (*log-rank* = 11.56, $p <$ .001), in the family domain (*log-rank* = 10.58, $p <$ .001) compared to participants who experienced a stressful life event. No association: • There was no association between delayed recovery and stress occurrence in the home duties domain, *OR* = 2.84 (0.57–14.09). • Symptoms were generally not significant predictors of concurrent versus delayed recovery, except home duties (statistic not reported). • Recovered and not recovered participants in friends domain did not differ significantly in depressive symptoms (statistic not reported). • The delayed recovery group was similar to the not recovered group in depressive and manic symptomatology (statistic not reported).	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				• Not recovered participants were similar in experienced stress to the delayed functional recovery on three of the domains, friends, work/school and home duties (no statistics reported) • In the home duties domain, participants who did not experience a stressful life event had similar time to recovery (*log-rank* = 0.35, ns.) compared to participants who experienced a stressful life event. Significant positive associations: None reported	
7	Prospective cohort study with 36 month FU period (relevant results reported at 36 month- **cross-sectional data**)	**1) Demographic factors:** employment (competitive employment) and residential status (independent housing) **1) Clinical factors:** Global psychiatric symptomology and substance abuse 2)**Other factors:** Social-functional recovery: Regular contact with peers who are not substance abusers and quality of life	1) The relationships among six major outcomes were assessed with simple bivariate (Pearson Product Moment) correlations at 36 months.	Significant negative associations: • Levels of symptomology showed negative correlation with social-functional recovery (operationalised as quality of life/overall life satisfaction-higher score indicates higher satisfaction) r = -.34; p < .05. No association: • Levels of symptomology was not associated with occupational and residential recovery (residential recovery r = .03, ns; occupational recovery r = -.13, ns.) • Levels of symptomology was not associated with social-functional recovery (operationalised as frequency of social contact with non-abusers; r = -.11, ns). • Substance abuse was not associated with occupation residential (occupational recovery: r = .08, ns; residential recovery: r = -.09, ns.) or social-functional recovery (regular contact with non-abusers r = .11, ns; quality of life: r = .15, ns.).	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				• Occupational (r = 0.3) and residential recovery (r = 0.13) was not associated with social-functional recovery (operationalised as quality of life/life satisfaction; ns.). • Social recovery (contact with non-abusers) was not associated with quality of life/general life satisfaction (r = .23, ns) Significant positive associations: • Occupational and residential recovery were associated positively with each other (r = .32, p < .05) and with social-functional recovery (operationalised as frequency of social contact with non-abusers) occupational recovery: r = .32, p < .05; residential recovery: r = .29, p < .05)	
3	Prospective cohort study- maximum 9 months follow-up period (until occupational recovery achieved): BL and monthly FU assessments of mood and occupational functioning (operationalised as occupational	**1) Demographic factors:** age, education, ethnicity, gender, and marital status. **2) Clinical Factors:** age of onset, depressive and manic symptomology, number of depressive and manic episodes and therapy/ medication usage, being in therapy at the time of the assessment.	1) In order to identify potential confounders, first associations between baseline recovery and individual demographic and course of illness measures were examined using two sample t-tests or χ^2 tests. 2) Multiple logistic regression was used to determine the joint contributions of the neurocognitive domain scores to the prediction of functional recovery, adjusting for key demographic and clinical	Significant negative associations: • Age (OR = .33; p < .01) and BL depressive symptoms (OR = 0.95; p < .01) predicted BL occupational recovery (negative associations). • Age predicted occupational recovery at 3 month (OR = .61, p = .013-when adjusted for BL neurocognitive factors; OR = .99, p = .02- when adjusted for changes scores in neuro-cognitive factors and depressive symptoms). No association: • There were no significant differences between recovered and unrecovered individuals in demographic factors: age (p = .24) education (p = .47), ethnicity (p = .54), gender (p = .97) and marital status (p = .86) at BL. • There were no significant differences between recovered and unrecovered individuals at BL in clinical factors: prior manic (p = .25) or depressive episodes (p = .17), manic (p =	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
	recovery) and neurocognitive assessments every 3 months.	**3) Neuro-cognitive factors**: Episodic memory, visual scanning, working memory/attention, executive function, speed of processing. Baseline neurocognitive function and change/improvement in neuro-cognition over time.	covariates as identified in the preliminary analyses. • Model 1 evaluated the relationship between neurocognitive performance and occupational recovery at baseline; • Model 2 analysed baseline neurocognitive scores as predictors of occupational recovery at three month; • Model 3 used change scores in neurocognitive domains from Time 1 to Time 2 as predictor variables to assess whether improvement in neurocognitive function between baseline and three months was associated with three-month occupational recovery. Overall performance of the models was examined using the area under the receiver operating characteristic curve	.29) and depressive symptoms (p = .06) age of onset (p = .46) or medication usage (p > .15) or being in therapy (p = .77). • BL executive function did not predict BL (*OR* = 1.59, p = .08) or FU (*OR* = 1.82, p = .17) occupational recovery. • BL neurocognitive factors did not predict occupational recovery at 3 months: episodic memory (*OR* = 1.89, p = .081), visual scanning: (*OR* = 1.14, p = .66), working memory/attention (*OR* = 1.62, p = .20), speed of processing (*OR* = 1.5, p = .11). • BL depressive symptoms (*OR* = .098, p = .55) or changes in depressive symptoms between BL and FU (*OR* = 0.93, p = .96) did not predict occupational recovery at 3 months. • Changes in speed of processing between BL and FU did not predict occupational recovery at 3 months (*OR* = 3.78, p = .06). • The unrecovered and recovered group at 3 months did not differ significantly in their neurocognitive change scores (effect sizes for group difference in change score-Cohen's d): episodic memory (d = .0.80, p < .1), visual scanning (d = 0.05, ns), executive function (d = 0.49, ns.), speed of processing (d = 0.19, ns.) Significant positive associations: • BL episodic memory (*OR* = 1.55, p = .018), visual scanning (*OR* = 2.21 p = .006), working memory/attention (*OR* = 2.49, p < .01) and speed of processing (*OR* = 2.62, p < .01) predicted BL occupational recovery. • Changes in neurocognitive factors between BL and FU predicted occupational recovery at 3 months: episodic	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			(AUC) which is a plot of the false positive rate versus the false negative rate. 3) Age and subsyndromal symptoms of depression were included in all logistic regression models. All analyses were two-tailed with alpha set at $p < 0.05$. 4) The stability of the third logistic regression model was assessed using a bootstrap re-sampling procedure.	memory ($OR > 10$, $p < .01$), Visual scanning ($OR = 5.25$, $p < .01$), working memory/attention ($OR > 10$, $p < .01$), executive function ($OR > 10$, $p < .01$). • The recovered and unrecovered group differed significantly in their attention/working memory change score between BL and FU ($d = 1.05$, $p < .05$).	
16	Cross-sectional study	**1) Demographic factors:** age, ethnicity, marital status, gender, education (years) **2) Clinical factors:** Presence of Personality Disorder (PD-categorical or trait scores), age of onset, number of hospitalisation, other psychiatric comorbidities	1) Nonparametric (χ^2 with Fisher exact test) and parametric methods (Student t test) were used to compare variables as appropriate. 2) Multiple linear and logistic regression analyses were conducted to examine the effects of PDs/traits and other clinical variables on work, residential, and social/leisure outcomes.	Significant negative associations: • Participants with a greater number of maladaptive PD traits relative to those with fewer traits were more likely to be classified in the poor work functioning group ($t = 2.50$, $p = .016$). • Participants with poorer work functioning had a significantly greater number of prior hospitalizations ($t = 2.07$, $p = .044$), a higher level of residual manic symptoms ($t = 2.18$, $p = .034$). • Residential role recovery showed negative association with manic ($r = .39$, $p = .005$) and depressive ($r = .30$, $p = .035$) symptoms. • Depressive symptoms remained significant predictor of residential recovery in the regression model (t=2.58, p=.013)	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		(substance abuse & anxiety).		No association: • No significant differences reported between poor work functioning and good work functioning group: age, ethnicity, marital status, gender, education, residual depressive symptoms, age of onset, or other psychiatric comorbidities, including substance abuse (χ^2 = 4.13, p = .073). • PD traits (*Wald* χ^2=2.73, p = .098), number of hospitalisation, and residual manic symptoms did not remain independent significant predictors of occupational recovery in the regression model. • No associations reported between PD traits (r =.26, p = .066), ethnicity, gender, marital status, age of onset, number of hospitalisation, psychiatric comorbidities and residential role recovery. Significant positive associations: • Residential role recovery showed positive association with age (r = –.40, p = .004) (older individuals) and education (r = –.38, p = .006) (higher education levels) were more likely to achieve residential role recovery. • Age was a significant contributor to residential role recovery in regression model (t = 3.18, p = .003).	
18	Prospective cohort study (6 months follow-up- outcome data collected at hospital	**1) Demographic factors**: age, sex and race. **2) Clinical factors:** manic and depressive symptomology.	1) Categorical variables were compared by a two-tailed Fisher Exact Test (*FET*). Two-class comparisons were made with the Wilcoxon Rank Sum (*WRS*) test. For these comparisons, the	Significant negative associations: • Novelty seeking (impulsiveness and disorderliness sub-dimensions) at discharge was significantly higher in the functionally not recovered participants (z = 3.0, p = .003), with most of this variance reflecting differences in the sub-dimensional scores “impulsiveness” (z = 2.5, p =.01) and	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
	discharge (BL) and at 6 month (FU).	**3) Other Factors:** Personality factors: Novelty Seeking, Harm Avoidance and Reward Dependence (dimensional scores)	analysis proceeded into three steps to control for multiple comparisons. The initial analysis compared the three outcome measures (syndromic remission at discharge, syndromic and functional recovery at 6 months) with the three dimensional scores. To control for Type 1 error, a Bonferroni correction to the standard $a = 0.05$ was used, resulting in a corrected ($\alpha = 0.0055$ as the significance level for these comparisons. The second step in the analysis involved determining which of the corresponding sub-dimensional scores contributed to any significant differences noted in the dimensional score analysis. Since this analysis was dependent upon results from the dimensional score analysis, an $\alpha = 0.05$ was used for the significance level. Finally, for comparisons between outcome measures and sub-dimensional	"disorderliness" ($z = 2.2$, $p = .02$). Six patients (22.2%) had Novelty-Seeking scores > 20, and five of these patients (83.3%) failed to achieve functional recovery (*FET*, $p = .0004$). • Novelty seeking remained significant in logistic regression (*OR* = 2.9; CI=1.1-8.0, $p = .04$) No association: • There were no association between functional recovery and syndromic recurrence (*FET*, $p = 0.1$) or syndromic recovery. • There were no significant differences in manic or depressive symptomology between patients who did and did not functionally recover ($z = 1.0$). • There were no significant differences in sex or race between patients who did and did not attain functional recovery. • Age, sex, race and manic and depressive symptomology were not associated with a risk if failure to achieve functional recovery in the regression model. • Harm Avoidance and Reward Dependence did not associate significantly with recovery (statistics not reported). Significant positive associations: None reported.	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			scores that did not exhibit significant differences on the corresponding dimensional scores (maximum of 36 comparisons), a Bonferroni-corrected a = 0.001 was used to determine significance. 2) Correlations were made using the Pearson r statistic. 3) Logistic regression was performed for dimensional scores demonstrating significant associations with outcome variables from the previous analysis, controlled for confounding factors and calculated odds ratios (*OR*) with 95% confidence intervals (CI). α = 0.05 was used to determine significance for the logistic regression analysis.		
20	Prospective cohort study (6 months FU period- outcome	**1) Demographic variables:** age, marital status, race and gender.	1) Odds ratios (*OR*) between discrete variables and outcome measures were obtained.	Significant negative associations: • Males were less likely to recover functionally at 6 months (*ORa* = 4.9; 95%, CI - 1.4-19.4; χ^2 = 5.9; p = .01) after controlling for age.	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
	collected at 6 months after discharge)	**2) Clinical factors:** psychiatric (Axis-I diagnosis) or medical comorbidity.	2) Non-paired t tests were used to compare continuous variables. 3) To simultaneously estimate the effects of risk factors (discrete and continuous variables) and to control for confounding factors, logistic regression models were fitted and adjusted OR (*ORa*) with 95% confidence intervals (CI) were obtained. 4) Survival analysis curves using the Kaplan-Meier method were used to estimate time to recovery and time to recurrence.	No association: • No association reported between age, marital status, race and psychiatric or medical comorbidity in the bipolar cohort. Significant positive associations: none reported	
21	Prospective cohort study (2-4 years FU period: outcome assessments at: 6, 12, 24, 36 and 48 months)	**1) Demographic factors:** Age, sex, marital status and race. **2) Clinical factors:** Episode type (manic/mixed), psychotic features, prior major depressive episodes, comorbidities (psychiatric-Axis I	1) Rates of recovery or new episodes among recovered patients were compared in subgroups of interest by using contingency tables (chi-square) or Fisher's exact test (*FET*) if cells held <10 subjects (with *df* = 1, unless stated otherwise).	Significant negative associations: • Preliminary bivariate analyses for likelihood of achieving functional recovery at 2 years found the following factors: shorter length of index hospitalization (χ^2 = 9.34, *p* = .002). • Shorter initial hospitalization (*OR* = 2.82, 95% CI = 1.36–5.88; *p* = .006) was associated with functional recovery at 2 years in logistic multivariate regression. No association: • Having below- versus above-median baseline depression ratings was weakly related to functional recovery (χ^2 = 2.37, *p* = .12).	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		diagnosis- and medical), alcohol and drug abuse, baseline symptomology (depression, mania and psychosis), length of index hospitalisation, pharmacological treatment. **3) Other factors:** baseline global functioning.	2) Mann-Whitney (U) rank methods compared distributions of continuous variables in subgroups. Group recovery and recurrence latencies were compared by Kaplan-Meier life table survival analyses, tested with Mantel- Cox log-rank (*chi-square*) tests. Variables with preliminary bivariate associations ($p \leq 0.10$) with recovery or recurrence were included in multivariate analyses. 3) Multiple logistic regression models (for categorical functional recovery) evaluated candidate variables for independent association with outcomes. For both types of models, we computed robust standard errors (*SE*s) or associated 95% confidence intervals (CIs). Explanatory variables with adjusted odds ratios (for logistic regression) different from 1.0 ($p <$	• Women and men did not differ in likelihood of functional recovery ($\chi^2 = 0.09$, $p = .76$), and there was no correlation of presence/absence of mood-incongruent psychotic features with functional recovery ($\chi^2 = 0.08$, $p = .78$). • Ethnicity and marital status did not remain significant in the logistic multivariate regression (statistics not reported). • No association reported with initial episode type (mixed/manic), prior major depressive episodes, medical and psychiatric comorbidities, alcohol and drug abuse, baseline manic symptoms, pharmacological treatment or baseline global functioning (statistics not reported). Significant positive associations: • Preliminary bivariate analyses for likelihood of achieving functional recovery at 2 years found the following factors: older age (≥30 years) at entry ($\chi^2 = 12.0$, $p = .001$), Caucasian versus other race ($\chi^2 = 6.69$, $p = 0.01$); being married ($\chi^2 = 4.64$, $p = .03$). • Being older than 30 (*OR* = 3.28, 95% CI = 1.58–6.82; $p = .001$) was associated with functional recovery at 2 years in logistic multivariate regression.	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			.05) were retained for final multivariate regression models. 4) Times to recovery (and 95% CI) in survival analyses were estimated as weeks by which 50% of subjects (or 25%, if <50% by 2 years) reached recovery. 5) Correlations were determined by linear regression (*r*) or Spearman nonparametric rank (*rs*) methods. Statistical significance required two-tailed $p < 0.05$.		
25	Cross-sectional study	**1) Demographic factors:** gender, age, education, parents' education, marital status, and ethnicity. **2) Clinical factors:** onset age, subtype of BD, illness duration, medical and psychiatric comorbidities (Axis-I), history of psychosis, rapid cycling, number of	1) Chi-square (χ^2) or Fisher's Exact (*FET*) test was used to compare proportions. Two-sample t-test or Wilcoxon rank-sumtest (*WRS*) was used to compare group means of continuous variables. 2) Cognitive scores of functionally recovered and unrecovered patients were compared using multiple linear regression with cognitive z-scores as the dependent variable, recovery	Significant negative associations: • Illness duration was a significant independent predictor of recovery in multiple regression model (*OR* = 0.95, CI = 0.91-0.997, $p = .037$). No association: • Recovered participants did not differ significantly from unrecovered participants in the following demographic variables: gender ($\chi^2 = 2.6$; $p = .11$), age ($t = 0.5$, $p = .61$), estimated IQ (*WRS* = 1028, $p = .17$), and parental education (father: *WRS* = 1007.5, $p = .26$; mother: *WRS* = 977, $p = .36$). • Recovered participants did not differ significantly from unrecovered participants in the following clinical variables: age of onset (W*RS* = 997,$p = .34$), type of BD ($\chi^2 = 1$, $p =$	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		episodes/year, number of suicide attempts and hospitalisations, current symptoms (depressive and hypomanic), time since last episode (month), number of psychotropic treatment (with/without antidepressants). **3) Neurocognitive factors:** executive functioning, attention concentration, mental tracking, verbal learning and memory, and estimated premorbid IQ	status as the independent variable, and residual mood symptoms and education as covariates. 3) To explore factors associated with recovery, variables with at least suggestive differences ($p <$ .15) between recovered and unrecovered patients, based on bivariate descriptive statistics, were entered into a multiple logistic regression model using backward, forward, and stepwise selection methods. To that end, 10 covariates considered for the logistic regression model were education, marital status, race, MADRS score, time since the last major mood episode, sex, being treated with or without an antidepressant, number of current psychotropic medications, illness duration, and executive function (FAS z-score: Controlled Oral Word Association Test).	0.32), illness duration (*WRS* = 812, p = .14), comorbidity (psychiatric: χ^2 = 0.6, p = .45; medical $\chi 2$ = 0.7, p = .41), history of psychosis (χ^2 = 0.6, p = .45), rapid cycling (χ^2 = 0.0, p = .96), number of episodes [(hypo)mania: *WRS* = 932, p = .92; depression: *WRS* = 900, p =.75; and total: *WRS* = 914, p = .90], suicide attempts (*WRS* = 897, p = .68), number of hospitalisation (*WRS* = 895, p = .70), current symptomology [depressive: *WRS* = 783, p = .07, and (hypo)manic symptoms: *WRS* = 909, p = .84], time since a last major mood episode recurrence (*WRS* = 1046, p = .07), number of current psychotropic medications (*WRS* = 810, p = .13), and number of participants treated with antidepressants (χ^2 = 2.5, p = .11). • Recovered participants did not differ significantly from unrecovered participants in the following neurcogontive factors: Executive functioning measured on Letter-number sequence [unadjusted *ES* = -0.06, p = .81; adjusted (for symptoms and education) difference in *z*-scores = 0.19 CI = -0.70–0.31, p = .45]; on FAS (adjusted difference in *z*-scores = 0.42; CI = -0.17–1.01; p = .16) and on Trail Making Test B (unadjusted *ES* = -0.23, p = .38; adjusted difference in *z*-scores = 0.10, CI = -0.95–1.15, p = .85); Attention, concentration and mental tracking measured on Digit span test (unadjusted *ES* = 0.27, p = .28; adjusted difference in *z*-scores = 0.02, CI = -0.45–0.48, p = .94) and on Trail Making Test A (*ES* = 0.32, p = .20; adjusted difference in *z*-scores = 0.14, CI = - 0.36–0.64, p = .59), in verbal learning and memory measured on RAVLT trials I-V (*ES* = 0.28, p = .27; adjusted difference in *z*-scores = 0.19, CI = -0.50–0.88, p = .58), RAVLT immediate recall (*ES* = 0.21, p = .40;	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			4) Statistical significance required a two-sided p-value of ≤ .05.	adjusted difference in *z*-scores = 0.12, CI = -0.55–0.80, p = .72) and on RAVLT delayed recall (*ES* = 0.13, p = .60; adjusted difference in *z*-scores = 0.05; CI = -0.61-0.72, p = .87) in estimated premorbid IQ as measured on vocabulary test (adjusted difference in *z*-scores = 0.17; CI = -0.39–0.73, p = .55). After adjusting for residual mood symptoms and education in multiple linear regression, differences in cognitive performance between the functionally recovered and unrecovered groups were no longer statistically significant. • After adjusting for residual mood symptoms and education in multiple linear regressions, differences in cognitive performance between the functionally recovered and unrecovered patients were no longer statistically significant. • Ethnicity, time since last episodes, gender, being treated with antidepressants, number of current psychotropic medication, executive functioning (no statistic reported) and depressive symptoms (p = .349), comorbid psychiatric disorder (p = .543), and BD subtype (p = .411) did not remain significant in the regression model. When time since last episode and depressive symptoms were adjusted for in the regression model the significance level of marital status became insignificant (p = .06). Significant positive associations: • Employment status – recovered group more likely to be employed (χ^2 = 23.5; p < .0001) • Education, marital status (married) and ethnicity (Caucasian) showed positive association with recovery when recovered and unrecovered participants were	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				compared: Unrecovered patients had fewer years of education (t = -3.4 p = .001), were less likely to be married (χ^2 = 5.7 p = .02), and were more often African American than Caucasian (*FET* = 9.0, p = .03). • Education (*OR* = 1.45, CI = 1.11-1.90, p = .006) and marital status (*OR* = 4.27, CI = 1.03-17.68, p = .045) were significant predictors of recovery in the regression model adjusted for comorbidities, BD subtype, illness duration (see under negative significant association) and depressive symptoms. • Unrecovered patients performed significantly less well than recovered patients in executive functioning as measured on FAS (unadjusted *ES* = 0.54, p =.03) and had poorer estimated premorbid IQ as measured on vocabulary test (unadjusted *ES* = 0.47, p = .05).	
22	Cross-sectional study	**1) Other factors:** occupational and residential recovery	1) Correlations were used to test the relationship between personal and occupational and residential recovery.	1. No association was found between occupational and residential and personal recovery (statistics not reported).	M
9	Prospective study with 6 month FU period (relevant outcome assessments at BL only-**cross-sectional data**)	**1) Other factors:** Quality of life: psychological wellbeing, self-esteem, family relationships, relationship with friends, resilience, physical well-being, autonomy	1) Pearson's correlation coefficients (r) were used to investigate the relationships between quality of life and recovery measures.	Significant negative associations: None reported. No association: • The following subscales of quality of life were not significantly associated with the recovery subscales: family relationships (with personal confidence and hope: r = .13, ns.; with willingness to ask for help: r = .13, ns; with goal and success orientation: r = .05, ns; with no domination by symptoms: r = .13, ns.), relationships with friends (with goal	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				and success orientation: r = .10, ns; with no domination by symptoms: r = .08, ns.). Significant positive associations: • The following subscales/total score of quality of life showed significant positive associations with the recovery subscales: psychological wellbeing (with personal confidence and hope: r = .35, p < .01; with willingness to ask for help: r = .29, p < .01; with goal and success orientation: r = .15, p < .05; with reliance on others: r = .22, p < .01; with no domination by symptoms: r = .23, p < .01), self-esteem (with personal confidence and hope: r = .57, p < .01; with willingness to ask for help: r = .38, p < .01; with goal and success orientation: r = .26, p < .01; with reliance on others: r = .34, p < .01; with no domination by symptoms: r = .46, p < .01), family relationships (with reliance on others: r = .33, p < .01), relationship with friends (with personal confidence and hope: r = .19, p < .01; with willingness to ask for help: r = .19, p < .01; with reliance on others: r = .45, p < .01;), resilience (with personal confidence and hope*:* r = .47, p < .01; with willingness to ask for help*:* r = .36, p < .01; with goal and success orientation: r = .43, p < .01; with reliance on others: r = .20, p < .01; with no domination by symptoms: r = .30, p < .01), physical well-being (with personal confidence and hope: r = .44, p < .01; with willingness to ask for help: r = .15, p < .05; with goal and success orientation: r = .26, p < .01; with reliance on others: r = .26, p < .01; with no domination by symptoms: r = .39, p < .01), autonomy (with personal confidence and hope: r = .46, p < .01; with willingness to	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				ask for help: r = .31, p < .01; with goal and success orientation: r = .25, p < .01; with reliance on others: r = .35, p < .01; with no domination by symptoms*:* r = .23, p < .01), sentimental life (with personal confidence and hope: r = .30, p < .01; with willingness to ask for help: r = .16, p < .05; with goal and success orientation: r = .16, p < .05; with reliance on others: r = .24, p < .01; with no domination by symptoms: r = .24, p<.01), total score (with personal confidence and hope: r = .57, p < .01; with willingness to ask for help: r = .39, p < .01; with goal and success orientation: r = .31, p < .01; with reliance on others: r = .48, p < .01; with no domination by symptoms: r = 0.42, p < .01).	
10	Cross-sectional study	**1) Demographic factors:** age, gender, marital status, education, employment status, religion, family type (nuclear/extended), locality (rural/urban). **2) Clinical factors:** Age of onset, illness duration, remission duration, number of episodes (total), number of hospital appointments in last 3	1) Associations were studied by using Pearson's correlation coefficient and Spearman rank correlations. 2) Comparisons were done by using t-test, Chi-square test, and Fisher exact test (*FET*). 3) Significance was set at two-tailed values at 0.05.	Significant negative associations: • Higher levels of residual depressive symptoms were associated with significantly lower level of recovery in all the domains of recovery: **original 5 recovery factors** (personal confidence and hope: r = -.256, p < .001; willingness to ask help: r = -.274, p < .001; goal and success orientation: r = -.197, p = .007; reliance on others: r = -.247, p = .001; no domination of symptoms: r = -.215, p = .003) **current study recovery factors** (defeated/overcome the illness: r = -.231, p = .002; personal confidence and hope: r = -.251, p = .001; seeking and relying on social support: r = -.269, p < .001; awareness and control over the illness: r = -.241, p = .001; goal and success orientation: r = -.227, p = .002). No association:	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		months, depressive and manic symptoms.		• Participants on paid jobs did not differ in other domains of recovery (statistics not reported). None of the other demographic or clinical factors were associated with recovery (statistics not reported). Significant positive associations: • Participants, who were on paid jobs reported higher level of recovery in the domain of "willingness to ask for help" (t = 2.08; p =.039).	
11	Cross-sectional study	**1) Demographic factors:** age, gender, marital status, education, employment status, religion, income of the patient, family type (nuclear/extended), locality (rural/urban). **2) Clinical factors:** Age of onset, illness duration, remission duration, number of episodes (total), number of hospitalisations (lifetime and in past 6 months), depressive and manic symptoms.	1) Comparisons using t-test. 2) Correlations were studied using Pearson's correlation coefficient. 3) Multiple regression analysis was used to study the predictors of recovery.	Significant negative associations: • Depressive symptoms correlated negatively with all of the recovery domains and (remained significant predictor in the regression model): with the **original 5 recovery factors** (personal confidence: r = -.326, $p \leq .001$; willingness to ask help: r = -.353, $p \leq .001$; goal orientation: r = -.256, $p \leq .001$; reliance on others: r = -.306, $p \leq .001$; not dominated by symptoms: r = -.385, $p \leq .001$; Total score: r = -.325, $p \leq .001$) and the **current study recovery factors** (defeated/overcome the illness: r = -.231, $p < .01$; personal confidence and hope: r = -.251, $p \leq .001$; seeking and relying on social support: r = -.269, $p \leq .001$; awareness and control over the illness: r = -.241, $p \leq .001$; goal and success orientation: r = -.227, $p < .01$, total score: r = -.341, $p \leq .001$). • Internalised stigma was negatively associated with each domain of recovery (total score without stigma resistance reported here, subscale associations also presented in the paper): with the **original 5 recovery factors** (personal confidence: r = -.593, $p \leq .001$; willingness to ask help: r = -.491, $p \leq .001$; goal orientation: r = -.462, $p \leq .001$; reliance	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		3) Other factors: global functioning, internalized stigma (alienation, stereotype endorsement, perceived discrimination, social withdrawal, and stigma resistance), religious coping (positive and negative), religiosity (organisational, non-organisational, intrinsic), religiousness (involvement, influence, hope).		on others: r = -.504, $p \leq .001$; not dominated by symptoms: r = -.551, $p \leq .001$; Total score: r = -.576, p ≤ .001) and the **current study recovery factors** (defeated/overcome the illness: r = -.602, p ≤ .001; personal confidence and hope*: r* = -.566, $p \leq .001$; seeking and relying on social support: r = -.524, $p \leq .001$; awareness and control over the illness: r = -.557, $p \leq .001$; goal and success orientation: r = -.506, $p \leq .001$; total score: r = -.581, $p \leq .001$). Subscales of discrimination experience, stereotype endorsement and alienation remained significant in the regression model. • The absence of stigma in all the domains was associated with significantly higher recovery [recovery total (24 items): t = 6.598, $p < .001$; recovery total (41 items): t = 6.593, $p < .001$]. No association: • There was no significant correlation between recovery scores and age, gender, education, marital status, family type and locality (statistics not reported). • There was no association between recovery and manic symptoms, number of episodes, age of onset, illness or remission duration and number of hospitalizations (statistics not reported). • Employment status and income did not correlate with other domains of recovery (statistics not reported). • Positive religious coping and religiosity did not correlate with other domains of recovery (no statistics reported)- original recovery factors: willingness to ask for help; goal orientation; not dominated by symptoms; and current study recovery factors: goal and success orientation	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				• Religiousness and negative religious coping did not correlate with recovery (no statistics reported). • Non-organisational/private religiosity did not correlate with the following recovery factors: Original recovery factors: personal confidence; willingness to ask for help; reliance on others; not dominated by symptoms; recovery total score. Current study recovery factors: defeated/overcome illness; personal confidence & hope; seeking and relying on social support; awareness and control over illness; total score (stats not reported). Significant positive associations: • Those who were on paid employment experienced high level of recovery in the domain of 'willingness to ask for help' (t = -2.079, p < .05). • Participants who were earning more reported higher level of recovery in the domain of 'goal orientation' (t = -2.225, p < .05) and 'not dominated by symptoms' (t = -2.387, p < .05). • Functioning correlated positively with all the recovery domains (and remained significant in the regression model); with the **original 5 recovery factors** (personal confidence*: r* = .450, $p \leq .001$; willingness to ask help: r = .445, $p \leq .001$; goal orientation: r = .435, $p \leq .001$; reliance on others: r = .480, $p \leq .001$; not dominated by symptoms: r = .426, $p \leq$ .001; total score: r = .484, $p \leq .001$) and the **current study recovery factors** (defeated/overcome the illness: r = .440, $p \leq .001$; personal confidence and hope: r = .497, $p \leq .001$; seeking and relying on social support: r =.497, $p \leq .001$; awareness and control over the illness: r = .450, $p \leq .001$;	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				goal and success orientation: r = .483, p < .01, total score: r = .497, $p \leq .001$). • Stigma resistance (reverse coded) was positively associated all domains of recovery: with **the original 5 recovery factors** (personal confidence: r = -.259, $p \leq .001$; willingness to ask help: r = -.351, $p \leq .001$; goal orientation: r = -.171, $p \leq .001$; reliance on others: r = -.277, $p \leq .001$; not dominated by symptoms: r = -.286, $p \leq .001$; total score: r = -.282, $p \leq .001$) and the **current study recovery factors** (defeated/overcome the illness: r = -.287, $p \leq .001$; personal confidence and hope: r = -.239, $p \leq .001$; seeking and relying on social support: r = -.329, $p \leq .001$; awareness and control over the illness: r = -.339, $p \leq .001$; goal and success orientation: r = -.218, $p \leq .001$; total score: r = -.299, $p \leq .001$). • Positive religious coping showed positive associations with some of the recovery domains: from the **original 5 recovery factors** (personal confidence: r = .203, p < .01; reliance on others: r = .169, p < .05; total score: r = .172, p < .05) and from the **current study recovery factors** (defeated/overcome the illness: r = .165, p < .05; personal confidence and hope: r = .162, p < .05; seeking and relying on social support: r = .158, p < .05; awareness and control over the illness*:* r = .184, p < .05; total score: r =.168, p < .05). • Non-organisational religiosity showed positive association with some domains of recovery (goal orientation r = .144, p <.05 and goal and success orientation r = .149, p < .05).	

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
14	Cross-sectional study	**Clinical factors:** Observer rated and self-reported depressive and manic symptom. **Other factors:** Observer rated and self-reported functioning and growth measures.	1) Cross-sectional analysis (correlation) of relationships between recovery scores and the self-reported and observer rated measures. 2) To more rigorously assess the unique associations between measures of symptoms and function and BRQ scores those measures which were significantly associated with BRQ were entered together into a series of regression analyses to explore the variance accounted for by each, one exploring the variance explained by symptom measures and a second, exploring the variance explained by measures of growth and functioning. Significant predictors from these initial analyses were then entered into a final regression analysis to explore the specific measures that uniquely predicted recovery.	Significant negative associations: • Recovery was negatively associated with both observer rated (depressive symptomology: r = -.495, p < .01, depressive mood item separately: r = -.456, p < .01) and self-reported depression (r = -.665, p < .01); with observer rated specific elevated mood items (r = -.304, p < .05) and with bipolar symptomology (internal states; activation: r = -.289, p < .05, depression: r = -.459, p < .01, perceived conflict: r = -.448, p < .01). • Self-reported depression remained significant and predicted recovery in the regression model including symptom measures (standardised β = -.503, t = -3.096, p < .01) and in the regression model including both symptom and other measures (standardised β= -.401, t = -3.097, p <.001). No association: • Recovery was not associated with manic symptoms total score (observer rated; r = -.144, ns.) and physical functioning (r = .058, ns.). Observer or self-report manic symptoms did not remain in the regression analyses, and overall and mental functioning did not remain in the combined regression adjusting for symptom and other measures (statistics not reported). Significant positive associations: • Recovery was positively associated with post-traumatic growth (r = .591, p < .01), with overall functioning (r = .489, p < .01), with self-reported well-being measures (positive well-being: r = .549 and internal state/symptomatic	W

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
				well-being: r = .525, p < .01) and mental functioning (r = .561, p < .01). • Internal state/symptomatic well-being (standardised β = .423, t = 3.234, p < .01) remained significant and predicted recovery in the regression model including symptom measures • Overall functioning (standardised β = .221, t = 2.028, p < .047) post-traumatic growth (standardised β = .448, t = 4.708, p < .001) and mental functioning (standardised β = .310, t = 2.805, p < .005) remained significant and predicted recovery in the regression model including functioning and growth measures only. • Post traumatic growth (standardised β = .363, t = 4.114, p < .001) and well-being (symptomatic/internal state; standardised β = .199, t = 2.173, p < .05) remained significant and predicted recovery in the regression model including both symptom and other measures. • PTGI items independently were also positively correlated with BRQ total score (data not extracted, as PTGI items have not been validated at item level).	
15	Pilot Randomised Controlled Trial (6 and 12 months follow-up assessment)	**1) Other factors:** Recovery focused cognitive-behavioural therapy (EG: therapy, CG: TAU)	1) All therapy effects were estimated using a random-effects (random intercepts) model, assuming that the effects were the same for each follow-up time (having first checked that there was no significant therapy by follow-up time interaction).	Significant negative associations: None reported. No association: None reported Significant positive associations: • The recovery score was higher in the recovery-focused CBT group at follow-up than the TAU group [310.87, 95% CI 75.00–546.74 (*S.E.* = 120.34), p = .010, d = 0.62] with no interaction between this effect and follow-up assessment point (6 or 12 month).	S

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
			2) The baseline value of the relevant outcome measure was used as a covariate. The intention-to-treat principle was followed throughout. 3) Missing data were assumed to be missing at random (ignorable) and automatically allowed for in fitting the random-effects or analysis of covariance models.		
23	Cross-sectional study	**1) Demographic factors:** gender, age, education, marital status, number of children, employment status, religion, family monthly income. **2) Clinical factors:** age of onset, number of life time hospitalisation, longest hospitalisation, lifetime alcohol and substance use, lifetime binge drinking, manic and depressive symptoms.	1) To explore the four stages of recovery (operationalized as the four ranges of the total score on the SRS) bivariate analyses were used, including cross-tabulations, Fisher's exact test (FET) and analysis of variance (ANOVA). For ANOVA, Bonferroni test (equal variances assumed) and Tamhane's T2 (equal variances not assumed) were also conducted as post hoc analyses. 2) Decision tree analysis (also known as recursive partition analysis) was conducted to	Significant negative associations: • In participants under 45 an earlier age of onset (under 22) was associated with more advanced recovery (G^2 = 43.22, *LogWorth* = 1.14). No association: • There were no significant demographic differences across the four stages of recovery using bivariate analyses: gender (*FET*, p = .247), age (F = 1.348, ns.), education (*FET*, p = .524), marital status (*FET*, p = .082), number of children (F = 0.667, ns.), employment status (*FET*, p = .072), religion (*FET*, p = .971), family monthly income ($\chi 2$, p = .293) • There were no significant clinical differences across the four stages of recovery using bivariate analyses: age of onset (*Welch's ANOVA* = 0.517, ns), number of lifetime hospitalisations (F = 0.534, ns.) and longest hospitalisation (F = 0.551, ns.), life time binge drinking (*FET*, p = .407),	M

Table A.2 (continued)

Study keys	Study design	Variables examined in association with recovery	Data analysis	Main personal recovery related findings	QR
		3) Other factors: recovery elements (respect, hope, self-directed empowerment, meaningful role, asset and strength base, social role), organisational climate (recovery-enhancing environment)	identify the variables associated with each of the four stages of recovery. In each split of the decision tree, the classification accuracy of the partition is indicated by the G^2 and LogWorth statistics which are analogous to the fitness index (least residual) in a regression. To avoid overfitting the model and to validate the results, the decision tree analysis software randomly selected a percentage of the sample as a training set (72%) and the remainder as a validation set (28%). Separate analyses were run on these subsets. Adjusted receiver operating characteristic (ROC) curves depicting the rates of correct classification and misclassification were calculated on this final model.	life time substance use (*FET*, $p = 1.00$), depressive ($F = 1.129$, ns.) and manic (F=1.852, ns.) symptoms • There were no other significant differences across the four stages of recovery using bivariate analyses: asset and strength-based recovery element ($F = 2.086$, ns.), social role recovery element ($F = 2.636$, ns.), recovery enhancing environment ($F = 1.789$, ns.) Significant positive associations: • Respect, hope and self-directed empowerment ($F = 6.720$, $p < .001$) and meaningful role ($F = 3.658$, $p < .05$) recovery elements were more important to individuals in more advanced stages of recovery in bivariate analyses. The former was the strongest differentiator of recovery stages ($G^2 = 113.99$, Log*Worth* = 1.56); the latter was important in differentiating recovery in individuals with later age of onset ($G^2 = 20.59$, *LogWorth* = 0.66) in decision tree analysis. • Age was the second differentiator in decision tree (participants over 45 were more likely to be in more advanced recovery ($G^2 = 43.22$, *LogWorth* = 1.14). • In participants over 45 life time binge drinking was associated with better recovery ($G^2 = 26.40$, *LogWorth* =1.19)	

Abbreviations: BDI/BDII: Bipolar Disorder Type-I/II;; BL: Baseline Assessment; BMI: Body Mass Index; CG: Control Group; EG: Experimental Group; ES: Effect Size; FET=Fisher's exact test; FU: Follow-up assessment M: Moderate quality rating; ns: not significant; QR: Quality Rating; S: Strong quality rating; SE: Standard Error; TAU: Treatment as usual; W: Weak quality rating; WRS: Wilcoxon Rank Su

Table A.3 Demographic characteristics

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
1	BD- 1 year post hospitalisation	DSM-III-R criteria checklist	*N* = 137	1.Ability to read and comprehend English, 2. Aged between 18 and 40 years. 3. Having a medical chart diagnosis, 4. Being at risk for future violence.	1.Hospitalization for more than 145 days, 2. Being under commitment for more than 21 days.	*M* = 29.68 (*SD* = 6.18)
2	BD Type I, admitted for first manic episode	M.I.N.I	*N* = 13 at BL *n* = 10 at 6 months	1. Adults (18-65 years old) 2. Meeting DSM-IV criteria for a current manic episode.	1. Affective episode resulting from unstable medical or neurological disorder or acute substance intoxication or withdrawal (determined by symptom resolution in 72 hours).	Range:18-53 *M*=26.7 (*SD*=9.9)
4	BD Type I, current manic episode	DSM-IV-TR	*N* = 169	1.Diagnostic criteria: DSM-IV Bipolar I diagnosis with an index/current manic episode 2. Manic symptom score (YMRS)≥15 3. 18 years or older 4.inpatient or outpatient treatment of the current episode	Not meeting the inclusion criteria.	*M* = 42.5 (*SD* = 12.7)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
5	BD Type I-First episode psychotic mania patients	DSM-III-R	*N* = 87 at BL *n* = 56 at 6 month FU (46 in regression model) *n* = 49 at 12 months FU (43 in regression model)	1. Age of onset of first psychotic episode to be between 16 and 45 years. 2. Meeting DSM-III-R criteria for a manic episode with psychotic features in the context of a BD. 3. Being a resident of the catchment area (western suburbs of Melbourne). 4. Sufficient command of English. 5. To be able to provide written consent form.	1. Psychotic episode caused by substance abuse, withdrawal (symptoms resolving within the expected period of acute intoxication or withdrawal) or medical illness (determined by medical evaluation). 2. IQ below 70. 3. Previous psychiatric admission, previous substantial antipsychotic or mood stabiliser treatment (>6 month).	Age at admission: *M* = 22.1 (*SD* = 3.5) Age at onset of psychotic symptoms: *M* = 22.1 (*SD* = 3.6)
6	BD Type I and Type II in remission	DSM-IV-TR	*N* = 55 EG: *n* = 32 CG: *n* = 23	1. Verified diagnosis of BD I or II 2. Age between 18-65 3. To be in remission for a minimum of 1 month= HAMD score ≤7 and YMRS ≤6.	21 Diagnosis of personality disorder, schizophrenia or other psychotic conditions. 2. Organic mental disorders, deafness, mental retardation. 3. Psychoactive substance dependence.	*M* = 43.58 (*SD* = 11.34) Age at onset: *M* = 24.61 (*SD* = 12.68) Experimental group: *M* = 43.43 (*SD* = 11.14), Control group: *M* = 43.74 (*SD* = 11.55)
8	BD Type I- current episode mania or mixed	DSM-III-R SCID	*N* = 56 Personality disorder group: *n* = 27;	1. Hospitalisation and meeting BD diagnosis (manic or mixed). 2. Age between 18 and 65. 3. Ability to communicate in English	1. Psychiatric symptoms resulted entirely from acute alcohol and drug intoxication, withdrawal or acute medical illness. Determined by medical examination and rapid	Personality disorder group *M* = 34 (*SD* = 12)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
			No personality disorder group: n = 29 (n = 52 for survival analysis n = 42 for logistic regression)	4. Residents within the Cincinnati metropolitan area. 5. Providing written informed consent. 6. Participating in SCID interview- patient and personality disorders version.	symptom resolution after the medical event.	No Personality disorder group: M = 31 (SD = 13).
12	BD Type I, II, NOS	DSM-IV-TR Axis I Disorders (SCID)	N = 516 n = 443 BD-I n = 71 BD-II n = 2 BD-NOS	1. Adult inpatients aged between 17 and 80 years 2. Verified SCID diagnosis of BD according to DSM-IV criteria and a minimum illness duration of 6months	1. Not meeting the inclusion criteria.	Age range 17-80
13	BD Type I, II, NOS	DSM-IV SCID	N = 78 n = 66 BD-I n = 4 BD-II n = 8 BD-NOS n = 29 euthymic n = 8 depressive episode n = 5 manic episode others were sub-syndromal	1. Diagnosis of BD I or II (NOS) 2. English as primary language. 3. Age between 18 and 59.	1. Co-occurring medical condition that may cause or contribute to disability. 2. BD-NOS superimposed upon another Axis-I diagnosis. 3. Positive toxicology screening for substance abuse at the time of neurocognitive assessment	M = 35.8 (SD = 10.23)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
17	BD Type I with index/ current manic episode	DSM-IV-TR	*N* = 169 *n* = 46 mania with mixed features *n* = 123 mania without mixed feature	1.Diagnostic criteria: DSM-IV Bipolar I diagnosis with an index/current manic episode 2. Manic symptom score (YMRS)≥15 3. 18 years or older 4.inpatient or outpatient treatment of the current episode	Not meeting the inclusion criteria.	Mania without mixed features: *M* = 41.85 (*SD* = 12.66) Mania with mixed features: *M* = 44.35 (*SD* = 13.07)
19	BD Type I-first hospitalisation for manic or mixed episode	DSM-IV SCID-P	*N* = 42, Good outcome group: *n* = 20 Poor outcome group: *n* = 22	1. DSM-IV criteria for BD. 2. Aged between 16-45 years. 3. No prior psychiatric hospitalisations. 4. Last than 1 month of prior psychotropic medication use. 5. English speaking 6. Living within 50 miles of Cincinnati metropolitan region. 7. Provision of written informed consent (including parental consent if under 18).	1. Psychiatric symptoms are secondary to acute medical illness, determined by medical examination. 2. Symptoms result from acute intoxication or withdrawal, determined by symptom resolution within the expected period. 3. Mental retardation (IQ < 70).	Good outcome group: *M* = 25 (*SD* = 7) Poor outcome group: *M* = 27 (*SD* = 7).
24	BD Type I or II-clinically stable	DSM-IV-TR SCID	*N* = 65 (BDI: *n* = 42, BDII: *n* = 23) Recovered group: *n* = 30,	1. Male or female outpatients; 2. Age 18–65 years; 3. English as primary language; SCID-supported DSM-IV diagnosis of type I or II BD;	1. Meeting DSM-IV criteria for a substance use disorder within 30 days. 2. Given a schizoaffective diagnosis within	*M* = 40.1 (*SD* = 13.2) Recovered group *M* = 35.1 (*SD* = 12.3), Unrecovered group:

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
			Unrecovered group: $n = 35$.	4. Having no history of hospitalization within the past 3 months 5. Currently clinically stable, supported by MADRS scores ≤14 (no more than mildly depressed) and MRS scores ≤11 (no more than mildly hypomanic) at the time of assessment.	the past year; 3. Pregnancy; 4. Severe and unstable medical condition; 5. Neuropsychiatric illnesses associated with cognitive impairment; 6. Previous brain injury or severe cerebral trauma; 7. Any history of electroconvulsive treatment; 8 IQ <70	$M = 44.4$ $SD = 12.6$).
26	BD Type I- with (hypo)manic episode in past 3 months, but achieved clinical recovery	DSM-IV SCID	$N = 65$ $n = 35$ recovered all 4 domains $n = 62$ recovered at least one domain: ($n = 54$ recovery in the friends domain; $n = 50$ recovery in the family domain; $n = 53$ recovery in home duties;	1. Confirmed diagnosis of BD-I 2. Mania or hypomania within 3 months of study enrolment. 3. Treatment for the index manic or hypomanic episode with a mood stabilizer or combination of mood stabilizers such as lithium, divalproex sodium, carbamazepine or a second generation antipsychotic. 4. Worked in the year prior to the index manic episode, with work defined broadly to include a variety of full-time equivalent	1. Significant alcohol or substance abuse or dependence within the past 3 months; 2. Rapid cycling within the year prior to enrolment or prior to the index episode; 3. Organic mood disorder.	$M = 36.8$ ($SD = 11.3$) Range: 18-63

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
			n = 50 recovery in the work/school domain.	"primary life roles" such as work for pay, student status, and homemaker role. 5. Maintained ≥80% medication adherence at each study visit. 6. Achieved clinical recovery YMRS score < 7) during the first phase (6 months follow-up) and maintained symptomatic recovery for 6 weeks.		
7	Individuals with co-occurring bipolar and substance use disorders	DSM-III-R SCID	*N* = 51	1) Diagnosis of BD 2) Active SUD diagnosis (abuse or dependence of alcohol and/or other drugs) according to DSM-III-R criteria within the past 6 months. 3) Aged between 18-60 4) Absence of additional medical conditions or mental retardation 5) Willingness to provide written informed consent (substituted from Drake et al., 1998)	Not meeting the inclusion criteria.	*M* = 37.5 (*SD* = 9.6)
3	BD Type I, with manic episode in past 6 months, but	DSM-IV-SCID	*N* = 79 *n* = 45 occupationally recovered at BL	1. Age of 18-65 years 2. DSM-IV diagnosis of BD-I 3. Achieved symptomatic recovery by the 6 moths follow-up	1. Significant alcohol or substance use disorder (abuse/dependence) within the past three months.	Recovered group: *M* = 35.02 (*SD* = 11.53); Unrecovered

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
	achieved clinical recovery		$n = 34$ occupationally unrecovered at BL $n = 25$ participants at 3 months FU, who were unrecovered at BL	assessment (Phase 1)- eligible to take part in the 9 months long second phase. 4. Had a manic episode in past 6 months. 5. History having worked in year prior to manic episode.	2. Rapid cycling within the year prior to the manic episode. 3. Organic mood disorder (e.g., head trauma or cerebrovascular accident preceding their first manic episode). 4. Not being able to attain symptomatic recovery after six months of registration in the study. 5. Meeting criteria for a depressive episode at 6 months follow-up. 6. Developed substance use disorders at any point during the follow-up period.	group: $M = 38.18$. ($SD = 11.83$)
16	BD Type I-clinically stable 1 year after acute episode	DSM-IV SCID- I/P	$N = 51$ $n = 21$ good occupational group $n = 30$ poor occupational group	1. Hospitalisation for an acute affective episode. 2. Aged between 18 and 59. 3. Mild range symptoms (defined as 17 on the first 17 items of the Hamilton Rating Scale for Depression and 15 on the first 10 items of the Clinician-Administered Rating Scale for Mania).	1. Mental retardation, neurological disease or serious medical illness. 2. Lack of fluency in English.	M=35.47 (SD 11.39)
18	BD Type I –first hospitalisation with mania	DSM-III-R SCID	$N = 27$	1. First psychiatric hospitalisation with psychotic or manic symptoms.	1. Patients with BD in the depressed or mixed states.	$M = 32.2$ ($SD = 14.1$)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
				2. Minimum age of 18. 3. Ability to communicate in English. 4. Provision of informed consent. 5. Completion of SCID for DSM-III-R.		
20	BD Type I – first hospitalisation with psychosis	DSM-III-R SCID-P	*N* = 60	1. DSM-III verified diagnosis 2. First lifetime admission for a psychotic disorder. 3. Aged ≥ 18. 4. Providing informed consent.	1. Organic psychosis 2. Dementia 3. IQ < 70	*M* = 31 (*SD* = 12.4)
21	BD Type I-first manic or mixed episodes	DSM-III –R (SCID-P) DSM-IV (diagnosis updated)	*N* = 166 *n* = 151 at 24 months follow-up	1. Aged between 18 and 75. 2. DSM criteria for mixed or manic episode. 3. Provided written informed consent.	1. Current substance withdrawal. 2. Delirium 3. Previous psychiatric hospitalisation, unless for detoxification only. 4. Documented IQ < 70. 5. Ill for more than 1 year. 6. Previous treatment with antipsychotic or mood stabilizer for more than 3 months total.	*M* = 32.5 (*SD* = 13.7) Range: 18-72, *Mdn* = 28
25	BD Type I or II-clinically stable	DSM-IV SCID	*N* = 65 (64.6% BDI; 35.4% BDII)	1. Male or female outpatients; 2. Age 18–65 years; 3. English as primary language; 4. SCID verified DSM-IV diagnosis of type I or II BPD;	1. Meeting DSM-IV criteria for a substance use disorder within 30 days.	*M* = 40.1 (*SD* = 13.2) Recovered group: *M* = 39.1 (*SD* = 14.3)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
			Recovered group: $n = 28$, Unrecovered group: $n = 37$	5. Having no history of hospitalization within the past 3 months. 6. Currently clinically stable, supported by MADRS scores ≤14 (no more than mildly depressed) and MRS scores ≤11 at the time of assessment.	2. Meeting DSM-IV criteria for schizoaffective diagnosis within the past year; 3. Pregnancy; 4. Unstable medical condition; 5. Neuropsychiatric illnesses associated with cognitive impairment; 6. Previous brain injury or severe cerebral trauma; 7. Any history of electroconvulsive treatment (ECT); 8 IQ <70	Unrecovered group: $M = 40.8$ ($SD = 12.5$)
22	BD- in remission	DSM-IV-TR SCID	$N = 75$	1. Aged between 18 and 65 2. Diagnosis of BD. 3. Being ethnic Chinese and able to communicate in Cantonese. 4. Being in clinical remission for at least 6 months (HAM-D and YMRS ≤ 7).	1. Hospitalisation in the previous 6 months.	$M = 45.25$ ($SD = 9.73$)
9	Homeless individuals with BD	DSM-IV-TR	$N = 216$	1. Age over 18 years; 2. Absolutely homeless or precariously housed; 3. Diagnosis of BD by a psychiatrist based on the DSM-IV-TR;	1. Reduced capacity to provide consent	$M = 39.7$ ($SD = 9.3$)

Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
				4. Ability to speak French.		
10	BD- in remission	ICD-10	*N* = 185	1. Diagnosis of BD as per ICD-10 criteria; 2. Aged between 18 and 65 years; 3. Have an illness of at least 1 year. 4. Currently in euthymic state YMRS and HDRS scores of <7.	1. Patients with comorbid intellectual disability, organic brain disease, and chronic physical illnesses.	*M* = 40.5 (*SD* = 11.26) Range:19-63
11	BD- in remission	DSM-IV	*N* = 185	1. Diagnosis of BD as per the DSM-IV, 2. Aged between 18 and 65 years 3. Currently in euthymic state (<7 on YMRS and HDRS).	1. Participants with comorbid intellectual disability.	*M* = 40.5 (*SD* = 11.26) Range:19-63
14	BD Type I, II- clinically stable	DSM-IV SCID	*N* = 60	1.Verified diagnosis (SCID-DSM-IV) 2. Aged 18-65 years old. 3. Sufficient fluent in English.	1. Current acute episode of major depression or mania (or experienced in a month prior to assessment).	Age range: 19-63, *M* = 42.37 (*SD* = 11.42)
15	BD Type I and II- clinically stable	DSM-IV SCID	*N* = 67 EG: *n* = 33 CG: *n* = 34 *n* = 45 (at 12 months follow-up) EG: *n* = 22 CG: *n* = 23	1. DSM-IV diagnosis of primary BD with onset in past 5 years. 2. Sufficient understanding of written and spoken English in order to provide consent, engage with interviews and use the intervention; 3. Aged between 18 and 65 years.	1. Manic, hypomanic, depressed or mixed episode currently or in the past 4 weeks.	Therapy group: *M* = 38.3 (*SD* = 12.8) Control group: *M* = 39.9 (*SD* = 10.4)

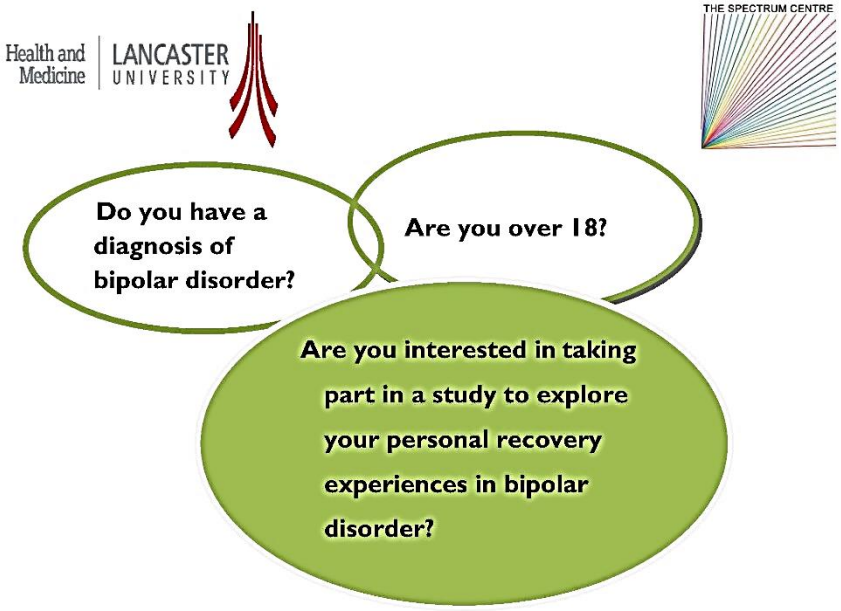
Table A.3 (continued)

Study key	Diagnosis of participants	Diagnosis verification	Sample size used to evaluate recovery	Inclusion criteria	Exclusion criteria	Reported details on BD sample age (in years)
23	BD Type I or II-in remissison	DSM-IV-TR SCID	*N* = 75 *n* = 54 in decision tree analysis (training set)	1. Aged between 18 and 65 2. Being ethnic Chinese and able to communicate. 3. Being in clinical remission for at least 6 months (HAM-D and YMRS < 7).	1. Hospitalisation in the previous 6 months.	*M* = 45.25 (*SD* = 9.73)

Abbreviations: BD-I/II: Bipolar Disorder Type I/II; BD-NOS: BD not otherwise specified; BL: Baseline; CG: Control Group; DSM: Diagnostic and Statistical Manual of Mental Disorders: DSM-III-R: 3rd edition revised (American Psychiatric Association, 1987), DSM-IV-TR: 4th edition text revised (American Psychiatric Association, 2000); EG: Experimental Group; FU: Follow-up; ICD-10: International Classification of Diseases-10; SCID: Structured Clinical Interview for DSM; M: mean, Mdn: median, SD: Standard deviation
Measures: DSM-III-R criteria checklist(J'anca A. & Helzer, 1990); M.I.N.I: The Mini-International Neuropsychiatric Interview (Sheehan et al., 1998), DSM-III-R SCID (Spitzer, First, Gibbon, & Williams, 1990); DSM-IV SCID-I/P: Axis I Disorders – Patient Edition (First, Spitzer, Gibbon, & Williams, 1995) DSM-IV SCID-TR (First et al., 2002); YMRS: Young Mania Rating Scale (Young, Biggs, Ziegler, & Meyer, 1978) ; HAM-D/HDRS: Hamilton Depression Rating Scale (Hamilton, 1960); MADRS: Montgomery-Asberg Depression Rating Scale (Montgomery & Asberg, 1979); MRS: Mania Rating Scale (Endicott & Spitzer, 1978)

Appendix B: Supporting documentation

Study Flyer/Advert



If yes to all of the above, we'd love you to get involved!

Who does the study involve?

The study is being run by a team of researchers, academics, service user researchers and clinicians from the Spectrum Centre for Mental Health Research, Lancaster University. We are exploring how thinking style, responses to your experiences, your mood and other experiences influence your recovery, approximately 100 people with bipolar disorder will take part in the study.

What will taking part involve?

There are three parts of the study and it is up to you in which phase(s) you would like to take part. First you will be asked to take part in an interview about your mood experiences and a series of questionnaires on thinking style, behaviour, mood & recovery. A second part of the study will ask you to keep a mobile phone with you for 7 days. Text messages will be sent to the mobile phone at 10 random times each day (between 8am and 10pm) and we will ask you to complete a short diary each time to tell us about your mood and experiences. The third part will focus on your personal detailed recovery experience and we will ask you to share it in a confidential one-to-one interview.

Further information about becoming involved:

Please contact Barbara Mezes (b.mezes1@lancaster.ac.uk; 01524592622) for further information or to take part.

Poster/Flyer- Understanding personal recovery experiences in bipolar disorder- V1.5– 04.07.14

Participant Information Sheet

Understanding personal recovery experiences in bipolar disorder

Participant Information Sheet

We would like to invite you to take part in a research study exploring your personal recovery experiences. Before you decide whether you would like to take part, it is important that you understand why this research is being done and what it will involve. Please take the time to read the following information carefully and discuss this with others if you wish. Please ask us if there is anything that is unclear or that you would like more information about. Take time to decide whether or not you wish to take part.

What is the research project about?

There is evidence that the ways in which people with bipolar disorder think about and respond to their experiences may be associated with clinical recovery outcomes, such as severity of symptoms and course of their illness. However, recovery experience is a unique and diverse experience and rarely focuses only on symptom reduction. It is aimed to examine what other aspects of recovery are important to people with bipolar disorder and discover psychological, social and environmental factors that influence such aspects and fluctuations in recovery experiences, in both everyday life and in longer term.

Who is organising the research?

This project is being organised as a PhD research project by researchers at the Spectrum Centre for Mental Health Research at Lancaster University in collaboration with Manchester Mental Health and Social Care Trust (MMHSCT). The Chief Investigator of the project is Barbara Mezes, PhD student at Spectrum Centre. The project is being supervised by Professor Steven Jones and Dr Fiona Lobban, both of whom are qualified clinical psychologists and Co-directors of the Spectrum Centre at Lancaster University, and by Professor Damien Longson at MMHSCT, who is a consultant in Liaison Psychiatry. Recruitment is supported by local NHS Trusts. The team also includes an Advisory Panel whose members are service users and carers from across the North West. The role of the Panel will be to ensure that service user and carer views are central to the study and how it is run.

Who can take part in the study?

In order to take part you must meet all the following requirements:

• Have a primary research diagnosis of bipolar disorder, we use a diagnostic (screening) interview to check that you meet this requirement.

• Aged over 18

• Ability to understand written and spoken English

You must not have a primary diagnosis of substance or alcohol misuse, and currently be in a mood episode and/or being treated under a section of the Mental Health Act. If you have a current mood episode, you will be able to take part in the study once you are episode free for a period of four weeks and/or your section has terminated. If you are not eligible to take part in the study, you will be informed about other current studies recruiting at Spectrum Centre and will be offered the opportunity to join Spectrum Connect to be informed about future research projects at Spectrum Centre and to be connected with other service users, researchers and health care providers. If you are not eligible to take part in the study any data collected from you for the purpose of this study will be erased.

Why have I been asked to take part?

You have been asked to take part because you meet all the requirements for this study and/or because you have expressed an interest in contributing to important areas of health research such as this. Sharing your experiences with us will help to increase our understanding of what recovery experiences are like, what factors are important in affecting how you think or feel on daily basis and over longer time. We think that you could make a valuable contribution to this research project and to this expanding area of health research.

Do I have to take part?

You are under no obligation to take part. If you decide to take part you will be given a copy of this information sheet and asked to sign a consent form. If you decide to take part but change your mind later you are free to withdraw at any time and do not need to give us a reason. However, if you decide to withdraw after more than 14 days of participation, the information collected so far cannot be erased, and this information may still be used in the analysis and publication of this study. If you choose not to take part in the study, it will not prevent you from being informed about or taking part in research with the Spectrum Centre now or in the future. Not taking part in the study will not affect your participation in research at other organisations or your access to any other service or the standard of care you receive.

What will taking part involve for me?

Screening Interviews

If you decide to take part in the study, we will ask you to read this information sheet and the consent form carefully before completing the consent form. Once you have

completed the consent form the Chief Investigator will contact you over the phone at a time convenient to you. We will complete a short interview called a SCID (Structured Clinical Interview for DSM-IV) interview with you about your mood and other experiences you may have had, just to confirm that you meet the criteria for the study. This will be carried out by a trained member of the research team and will take approximately one hour, although this may vary from person to person. We will ask you if you agree to have your interview audio-taped so that the research team can check back for any information they may miss at the time, however this is optional. Any interviews taped will be kept strictly confidential and anonymous and will not be listened to by anyone outside of the research team. If you have previously taken part in research with the Spectrum Centre, you may have taken part in an interview called a SCID interview which asks about your mood experiences. If so, we would like to access our record of your interview to use this as part of our data. If you are happy for this information to be accessed and included in this study then please consent for this on the consent form. If you have not had a SCID interview with us or do not wish for your record to be accessed, you can still take part in the study and do not need to answer to the question related to previous SCID interviews on the consent form, and you will be invited for taking part in an interview. Following this we will go through with you in detail what the study will involve. This study will look at recovery three different ways:

Part 1

Initially participation will involve completing some questionnaires asking about your mood, thinking style, behaviours and recovery approximately 100 people will take part in this phase. The questionnaires can be completed online or on paper and returned via post according to your preference. There are several sets of questionnaires and it would be helpful if you could complete as many of these as possible. However, if you do not wish to do so, any you can complete will be very helpful to us. Please take as many breaks as you need when completing these questionnaires. Please note you can only complete the questionnaires once. The questionnaires will also ask you demographic questions and contact details for you and your GP or Care-coordinator for our records. We will inform your GP about your participation in any part(s) of the study. All the information that you give will be strictly confidential. We will not share any of the information that you give us with your GP or Care-coordinator, and we would only contact them if you were to tell us something which makes us concerned for your safety, in this case we will need share some information with your GP to explain why we are concerned. It is possible that in some instances we may require more information about the experiences you have had. For this reason we may ask if we can speak to your GP or another health professional who knows you. We will not access your medical records directly and we will get your permission before speaking to anyone. The first phase will also include a follow-up assessment of the Bipolar

Recovery Questionnaire approximately 6 months later, which can be completed online or on paper. Prior to this follow up assessment (and prior to participating in the subsequent phases of the study) we will briefly update your SCID interview over the phone to ensure that you are not experiencing a low or high mood at the time of the assessment. If you experience a current episode of low or high mood, you will be able to take part in the subsequent parts of the study once you are episode free for a period of four weeks.

Part 2[1]

The second part of the study will investigate your day to day recovery experiences using Experience Sampling Methodology and up to 50 people will be able to take part in this phase. When you complete the consent form for the first phase we will ask whether you consent to be contacted about taking part in the ESM phase of the study. Please note that you are under no obligation to take part in the ESM phase even if you took part in the questionnaire phase and indicated that you would like to be contacted about this. Experience sampling methodology (ESM) is a way of finding out about the experiences people have over a set period of time. In order for us to do this you will be asked to keep your mobile phone with you at all times for the duration of the study. If you do not have a mobile phone or if you would prefer not to use your own phone then one can be provided to you by the research team. The study will last for one week and can be started anytime convenient to you. Each day the research team will send you a text message at 10 random times throughout each day (between 8am and 10pm). Each time you receive a text message from the research team we would like you to fill in a short set of questions in the diaries that we will give you. This will ask you about where you are, what you are doing and what you are thinking and feeling (e.g. to describe your activity since the last message and score from 1-7 how enjoyable this has been).

Before beginning this part of the study, if you live in the North West the Chief Investigator will offer to meet you to provide you with 7 ESM diaries (1 diary per day). If you are interested in this phase of the study but you do not live in the North West, the Chief Investigator will arrange an appointment with you over the phone (or using online video call-depending on your preferences) and post the ESM diaries to you. During this appointment, the Chief Investigator will discuss with you exactly how the study works, how to fill in the diary and exactly what you can expect over the 7 days that you are taking part in the study. You will also be given a handbook which will have all this information written down for you. You will be able to ask any questions that you may have during this appointment, and the research team will be contactable throughout the whole study should you wish to get in touch at any point.

[1] Data has been collected for Part 2; data deriving from this phase will form a separate publication, as outlined in Chapter 6.

All the information that you give will be strictly confidential. If you did not participate in the questionnaire phase of the study we will ask you to provide some relevant information for our records, this includes your and your GP's/Care-coordinators contact details, demographic information and SCID interview (if no previous SCID record is available). If you took part in the questionnaire phase we will ask you to consent for this information to be used for the purpose of the ESM phase.

Part 3

We also would like to hear and explore unique recovery experiences, therefore we will invite up to 20 people, who participated in the questionnaire and/or the ESM phases of the study, to take part in an interview. This interview will explore factors that influence recovery in long term and in day to day, moreover important life events that have changed the ways in which you think or feel about your recovery progress. When you complete the consent form for the first phase of the study, we will ask whether you consent to be contacted about taking part in the interviews. Please note that you are under no obligation to take part in the interviews even if you took part in other phases of the study and indicated that you would like to be contacted about this. If you did not participate in previous phases of the study we will ask you to provide some relevant information for our records, this includes your and your GP's/Care-coordinators contact details, demographic information and SCID interview (if no previous SCID record is available). If you took part in the questionnaire phase we will ask you to consent for this information to be used for the purpose of the interview phase. We will ask you to consent to have your interview audio-taped so that the Chief Investigator can make it into an anonymised written transcript for the purpose of analyses. Any interviews taped and transcribed will be kept strictly confidential and anonymous and will not be listened to or accessed by anyone outside of the research team.

Will my data be confidential?

All information (data) that is collected about you during the research will be kept strictly confidential and will be stored securely. Online data collection will be accessible via a password-protected account only to the research team. All data collected will be anonymised prior to analysis and no participants will be identifiable in the write up or publication of the results. It is important for us you are assured that all measures will be taken to guarantee the confidentiality of your participation. However, you might disclose information that is relevant to safeguarding vulnerable individuals, such as imminent risk of harm to the self or others. If such information is disclosed, a member of the research team will discuss with you that confidentiality will be broken on this occasion, and the relevant bodies or individuals (for instance, GP or Care-coordinator) will be informed.

What are the advantages and disadvantages of taking part?

We cannot and do not promise you any direct benefit from participating in this research. However, if more people take part in the study our understanding of recovery will be more accurate and the findings can support the development and use of services. You will also have the opportunity to share your experiences, talk about your thoughts and important life events that contributed to your recovery experiences, and according to our experience of conducting similar research, participants value sharing their personal experiences. All individuals taking part in this study will be making a valuable contribution to understanding the experiences of bipolar disorder and this knowledge will then be used to help design specific and appropriate treatment interventions for people with bipolar disorder.

Moreover, the ESM study will give you an opportunity to reflect on your own day to day experiences as they occur. This will be important in informing us about how daily activity patterns and the ways in which you think and respond to your experiences can influence your recovery progress. We hope that by understanding more about the experiences of people with bipolar disorder, we will be able to make valuable contributions to this area of health research.

It is not expected that you will experience any distress during or after completing this study but in the event that you do, telephone numbers for emergency contacts who can provide you with support are enclosed with this letter. It is possible that talking about personal experiences may cause distress. The researcher will be sensitive to this. Participants will have the opportunity to discuss any concerns at the end of the assessments and will be free to stop the process at any point. Following each interview the researcher will also offer the opportunity for a follow-up phone call the next day to ensure participants are feeling okay and to check whether there are any issues relating to the research which the participant wishes to discuss. We will check if there are any concerns you wish to raise and, if necessary, you will be able to talk to one of the clinical psychologists or service user researchers on the research team.

It is also possible that receiving the text messages in the ESM study may be disruptive from time to time during the study week. The research team have trialled the study themselves to make sure this does not cause too much disruption. If you do have any problems with any aspect of this research during the study week you will be able to contact our research team directly for advice and you can withdraw from the study at any point should you wish to do so.

Who has reviewed the study?

All research in the National Health Service (NHS) is looked at by an independent group of people, called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given ethical approval by NHS London Queen Square Research Ethics Committee.

What will happen to the results of the study?

If you participate in the study you will be informed of the results. The findings will form parts of a PhD project. In addition, the results will also be presented to a range of mental health professionals and service users with the aim of increasing the understanding of long term and day to day recovery experiences in bipolar disorder. It is hoped that the findings will also help to improve services and validate the experiences of other service users. The findings will be published in mental health journals and other publications with the aim of reaching a range of mental health professionals and service users.

If you would like any further information or have any questions about the study, please contact the Chief Investigator (PhD student) Barbara Mezes (Tel: 01524592622, email: b.mezes1@lancaster.ac.uk).

What do I do if something goes wrong?

It is very unlikely that you will be harmed as a result of your participation in this research. In the event that something does go wrong and you are harmed during the research and this is due to someone's negligence then you may have grounds for a legal action for compensation against Lancaster University but you may have to pay your legal costs.

If you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, then in the first instance please contact the research team or the Supervisor of the study:

Professor Steven Jones, Professor of Psychology and Clinical Psychologist, Spectrum Centre for Mental Health Research, Lancaster University, Lancaster, LA1 4WY.

Telephone: 01524 593756 Email: s.jones7@lancaster.ac.uk

If you would prefer to speak to someone outside of the research team then please contact:

Professor Christine Milligan, Professor of Health & Social Geography, Division of Health Research, Lancaster University, Lancaster, LA1 4YT.

Telephone: 01524 592128 Email: ac.milligan@lancaster.ac.uk

Participant Consent Forms

CONSENT FORM

Title of Study: Understanding personal recovery experiences in bipolar disorder-Phase 1 questionnaire survey

We are asking if you would like to take part in a research project aiming to deepen our understanding of general patterns of how thinking style, mood and behaviour may influence personal recovery experiences in bipolar disorder. Before you consent to participating in the study we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, Barbara Mezes (Tel: 01524592622, email: b.mezes1@lancaster.ac.uk).

REC ref: _____

Name of Researcher: _____

Name of Participant: _____ **Please initial box**

Participant Number ☐☐☐☐

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without my medical care or legal rights being affected. However, I understand that the data provided cannot be erased and will be used in the analysis if I do not withdraw within 14 working days of the research team receiving it. ☐
3. I consent to Lancaster University keeping copies of the completed questionnaires for 3 years after the study has finished. ☐
4. I give consent for my SCID interview to be audio-taped and stored securely for the purposes of this study (this is optional and declining to do so will not affect your ability to participate in this study). ☐
5. (Where applicable) I have previously had a SCID interview as part of a Spectrum Centre research project and I give my consent for this data to be accessed and used for the purposes of this study. ☐

6.	I give permission for the research team to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential.	☐
7.	I give permission for the research team to inform my GP about my participation in the study.	☐
8.	I understand that the emergency contact I have provided will not be contacted unless the research team become concerned about my safety or the safety of someone else whilst I am participating in this study. In this instance I am aware that my emergency contact will be informed so that the appropriate support can be offered.	☐
9.	I consent to be approached for the follow up assessment of the first phase approximately 6 months later (this is optional and declining to do so will not affect your ability to participate in this study).	☐
10.	I give consent to be contacted and offered the opportunity to participate in the subsequent phases of the study (this is optional and declining to do so will not affect your ability to participate in this study).	☐
11.	I give my consent to be informed of the results of this study.	☐
12.	I give my consent for my details to be stored on the Spectrum Centre for Mental Health Research database and would like to be contacted regarding future research opportunities (please complete database consent form also).	☐
13.	I understand that the study records and data collected during the study may be looked at by individuals from the Lancaster University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records	☐
14.	I agree to take part in the above study.	☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent (If different from Principal Investigator)	Date	Signature
_____	_____	_____
Name of Principal Investigator	Date	Signature

CONSENT FORM

Title of Study: Understanding personal recovery experiences in bipolar disorder

Phase 1 questionnaire survey:

Six months follow up assessment

We are asking if you would like to take part in a research project aiming to deepen our understanding of general patterns of how thinking style, mood and behaviour may influence personal recovery experiences in bipolar disorder. Before you consent to participating in the study we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, Barbara Mezes (Tel: 01524592622, email: b.mezes1@lancaster.ac.uk).

REC ref: _____

Name of Researcher: _____

Name of Participant: _____

Participant Number ☐☐☐☐ **Please initial box**

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐

2. I consent to take part in the **6 months follow-up** assessment of the Questionnaire survey phase (Phase 1) of the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Principal Investigator	Date	Signature

CONSENT FORM

Title of Study: Understanding personal recovery experiences in bipolar disorder-Phase 3 qualitative interviews

We are asking if you would like to take part in a research project aiming to deepen our understanding of the factors influencing the fluctuation of personal recovery experiences in bipolar disorder from day to day and over a longer period. Before you consent to participating in the study we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, Barbara Mezes (Tel: 01524592622, email: b.mezes1@lancaster.ac.uk).

REC ref: _____

Name of Researcher: _____

Name of Participant: _____ **Please initial box**

Participant Number ☐☐☐☐

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without my medical care or legal rights being affected. I understand that should I withdraw after I have taken part in the study and my data has been collected, then the information collected so far cannot be erased and that this information may still be used in the project analysis. ☐
3. I understand that I am under no obligation to participate in the interviews, even if I participated in previous phases (questionnaires and/or ESM) of the study and consented to be informed about subsequent phases of the study. ☐
4. I give consent for my SCID interview to be audio-taped and stored securely for the purposes of this study (this is optional and declining to do so will not affect your ability to participate in this study). ☐
5. I understand that my Recovery Experience interview will be audio-taped and then made into an anonymised written transcript. ☐
6. (Where applicable) I give consent to my data from the first or second phases of the study being accessed and used for the purposes of the ☐

interview phase (this includes contact details of a professional e.g.GP/Care-coordinator, SCID interview and demographic data).

7. (Where applicable) I understand that if I did not take part in the first or second phase of the study, I will be asked to provide relevant information before commencing the study (this includes contact details of a professional e.g.GP/Care-coordinator, SCID interview and demographic data). ☐

8. (Where applicable) I have previously had a SCID interview as part of a Spectrum Centre research project and I give my consent for this data to be accessed and used for the purposes of this study (this is optional and declining to do so will not affect your ability to participate in this study). ☐

9. I give permission for the research team to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐

10. I give permission for the research team to inform my GP about my participation in the study. ☐

11. I understand that the emergency contact I have provided will not be contacted unless the research team become concerned about my safety or the safety of someone else whilst I am participating in this study. In this instance I am aware that my emergency contact will be informed so that the appropriate support can be offered. ☐ ☐

12. I give my consent to be informed of the results of this study.

13. I give my consent for my details to be stored on the Spectrum Centre for Mental Health Research database and would like to be contacted regarding future research opportunities (please complete database consent form also). This is optional and declining to do so will not affect your ability to participate in this study. ☐

14. I understand that the study records and data collected during the study, may be looked at by individuals from the Lancaster University, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

15. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of Person taking consent (If different from Principal Investigator)	Date	Signature

Appendix C: Data collection materials

Demographic Questionnaire

SOCIODEMOGRAPHIC INFORMATION (SELF REPORT)
Understanding personal recovery experiences in bipolar disorder

Participant number	
Gender	Male ☐ Female ☐
Age (years)	
Current diagnosis (if applicable)	
Age at first mood disorder diagnosis (if applicable)	
Age at diagnosis of bipolar disorder (if applicable)	
Number of previous episodes (depression)	0 ☐ 1-6 ☐ 7-11 ☐ 12-29 ☐ ≥ 30 ☐
Number of previous episodes (hypo/mania)	0 ☐ 1-6 ☐ 7-11 ☐ 12-29 ☐ ≥ 30 ☐
Number of previous hospitalisations	0 ☐ 1-6 ☐ 7-11 ☐ 12-29 ☐ ≥ 30 ☐
Time (days) since last episode	
Type of last episode	
Highest level of education	Primary ☐ Secondary ☐ Further ☐ Higher ☐
Highest qualification gained	
Age left full-time education	
Employment status	F/T ☐ P/T ☐ Retired ☐ Voluntary ☐ Student ☐ Unemployed ☐
Current job title (if any)	

Highest ever job title	
Marital status	Single ☐ Married ☐ Cohabiting ☐ Civil partnership ☐ Separated ☐ Divorced ☐ Widowed ☐
Number of people in household	
Postcode	
Ethnic origin	

Asian or Asian British ☐ Bangladeshi ☐ Indian ☐ Pakistani ☐ Any other Asian background **Black or Black British** ☐ African ☐ Caribbean ☐ Any other Black background	**Mixed** ☐ White & Asian ☐ White & Black African ☐ White & Black Caribbean ☐ Any other mixed background **White** ☐ British ☐ Irish ☐ Any other White background	**Other Ethnic Group** ☐ Chinese ☐ Any other ethnic group Specify _____
Religion or belief		
☐ Atheism ☐ Buddhism ☐ Christianity ☐ Islam	☐ Jainism ☐ Sikhism ☐ Judaism ☐ Hinduism	☐ Other Specify_____

Bipolar Recovery Questionnaire (BRQ)[2]

The Bipolar Recovery Questionnaire (BRQ)

The Bipolar Recovery Questionnaire has been developed in order to understand more about recovery in bipolar disorder; what recovery is and what can help or hinder recovery. The questionnaire has been developed by interviewing individuals with a diagnosis of bipolar disorder about their experiences of recovery. It is acknowledged that everybody is different and may have different experiences and views about recovery. Therefore, not all of the statements on the questionnaire may apply to you.

When filling in the questionnaire, please consider how things have been for you in the last week in relation to your mental health and recovery. Please respond to the following statements by marking an "X" at the point on the line that best describes how much you agree with each statement (for an example, see below).

		Strongly disagree / Disagree / Agree / Strongly agree
1.	I struggle to make sense of the experiences I have had	
2.	I have the resources to effectively manage my health	
3.	I am content with who I am as a person	
4.	I have little control over my mood	
5.	I avoid taking on challenges in life that matter to me	
6.	I see recovery as a life long process	
7.	I think differently about some of my experiences now compared with when they first occurred	

Please turn over and continue

[2] Other standardised questionnaires used in Chapter 4 are not listed here; these measures are cited in the reference lists (Chapter 4 and Consolidated reference list), and are publically available.

	Strongly disagree	Disagree	Agree	Strongly agree
8. I can access the help I need in order to stay well				
9. My experiences have made me the person I am today				
10. I recognise when I am in situations that aren't good for my wellbeing				
11. I am able to engage in a range of activities that are personally meaningful to me				
12. Recovery means forgetting about my mental health problems				
13. I am unsure about the reasons behind some of the experiences I have had				
14. I feel in control of the things that happen in my life				
15. I am productive in the things in life I engage in				
16. I depend on others to maintain my own well being				
17. I feel confident enough to get involved in the things in life that interest me				
18. I can have mood experiences and still get on with my life				
19. I can see where certain experiences I have had have come from				
20. I am able to decide when I need support from others in order to maintain my wellbeing				
21. I get little personal satisfaction out of the things in life I am involved in				

Please turn over and continue

	Strongly disagree	Disagree	Agree	Strongly agree
22. I have the knowledge to make informed decisions concerning treatment for my mental health				
23. I am unhappy with the person I have become				
24. I sometimes let my mood fluctuate if I have important tasks to do				
25. The high standards I set myself are unrelated to fluctuations in my mood				
26. I play a central role in maintaining my own well being				
27. I have the ability to achieve my goals in life				
28. My ability to make informed choices about treatment is supported by my friends and family				
29. I find it hard to engage in a range of activities that are valuable to me				
30. I can still be in recovery even if I experience mood episodes in the future				
31. Understanding where my mood experiences come from helps me manage them				
32. I have little control over the important decisions in my life				
33. I am able to engage in a range of activities that are valuable to wider society				
34. The knowledge I have gained enables me to look after myself				
35. The activities I do make a difference to others				

Please turn over and continue

	Strongly disagree	Disagree	Agree	Strongly agree
36. Being in recovery means that everything has to be going well in every aspect of my life				

Thank you for completing this questionnaire

Qualitative interview schedule

Introduction

- "Our aim is to understand what recovery in bipolar disorder means to you and learn about your recovery experiences in both day-to-day life and longer term, over the last 6 months- 2 years period."
- "We believe that your experiences could be very valuable in helping us to understand how we can maximise people's recovery from bipolar disorder, achieving their personal goals, for instance going back to employment and having more control over their lives."
- "Things I will ask you about include, and your views on and experiences of recovery. However, we don't need to talk about anything you don't want to talk about."
- "Also we can stop the interview at any point if you wish, and we can take breaks at any point you want as well."
- "I am going to record what we talk about today so that I don't have to rely on my own memory to remember everything we talk about but just to let you know, anything you tell me is strictly confidential. The only circumstance in which I would have to break confidentiality is if you told me that you felt that that there was a risk issue to yourself or someone close to you." The tape will be securely stored on a password protected and encrypted computer, and will be destroyed in three years after the end of the study.
- "Hopefully the things we talk about today will benefit people in the future who have experiences similar to your own. The information I get from your and other people who take part in the study will help to inform future therapies for individuals with bipolar disorder."
- "Have you got any questions?"
- "Are you happy start the interview?"

Recovery definition and process

"First I would like to talk about what recovery means and about the process of recovery. A frequently used definition of recovery is from William A. Anthony (1993) and he defined recovery from mental health problem as" "a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills and/or roles. It is a way of living a satisfying, hopeful, and contributing life even with limitations caused

by the illness. Recovery involves the development of new meaning and purpose in one's life as one grows beyond the effects of mental illness."

-"What do you think about this definition? "Would you add anything to the definition that is particularly important to your recovery?"

-"Do you think recovery is the right term for you? Or would you prefer using another term for our discussion?"

-"How would you describe your recovery process?"

-"Now I would like to talk a bit more about the process of recovery and how you experience this process on a daily basis and longer term".

Day-to-day recovery experiences

-"What everyday things do you think influence your recovery?"

-Prompts:

- "What about your mood?"
- "What about people who are important in your life (family, friends and others)?"
- "What about your daily activities?"
- "What about important events in your life?"

-"How have these people/events/activities impacted on your day-to-day recovery experiences?"

- "Have you found it useful to think or do particular things in relation to your day-to-day recovery?"

-"What about thinking or doing things that you have found less helpful in your day-to-day recovery?"

Longer-term recovery experiences

-"What about your recovery experiences in the longer term? What are the most important things in your recovery longer term? What can facilitate or hinder your recovery process?"

-Prompts:

- "What about your mood?"
- "What about people who are important in your life (family, friends and others)?"
- "What about important life events and/or activities?"

- "How have these people/events/activities impacted on your long term recover experiences?"

-“How have your day-to-day recovery experiences influenced your longer term recovery experiences?”

Ending the interview

- “Is there anything else you would like to talk about which you think would help me to understand about your experiences of recovery from having bipolar disorder?”
- “Is there anything I have not raised that you think I need to know about?”
- “Can I ask you a bit about what it has been like being interviewed today and what impact you expect it will have on you?”
- “I offer everyone the option of a follow up phone call, to see how you are and whether there is anything else you would like to discuss about the interview or the study. Would you like me to give you a ring tomorrow or over the next few days?
- “The experiences and views you have shared with me will be really valuable; I want to thank you very much for taking part and sharing so much with me today.”

Appendix D: Regression models supplementary materials

Table D.1 Personal recovery baseline and follow-up saturated main effects models (prior to backwards elimination)

	Baseline BRQ Total score			**Follow-up** BRQ change score		
	β (SE)	***t***	***p***	***β (SE)***	***t***	***p***
Intercept	2415.53 (482.08)	5.01	.000	30.75 (73.96)	0.42	.679
Demographic and clinical factors						
Age	1.99 (3.67)	0.54	.590	-2.36 (3.31)	-0.71	.479
Gender						
Women	203.72 (77.67)	2.62	**.010**	30.75 (73.96)	0.42	.679
Men*	-	-	-	-	-	-
Age of onset	-0.32 (4.82)	-0.07	.948	5.19 (4.89)	1.06	.292
Number of depressive episodes			.858			.173
0-7	39.17 (90.61)	0.43	.667	-61.77 (89.54)	-0.69	.493
8-19	43.86 (93.35)	0.47	.640	131.18 (88.01)	1.49	.141
≥20*	-	-	-	-	-	-
Number of manic episodes			.537			.644
1-7	102.68 (92.50)	1.11	.271	-79.39 (87.11)	-0.91	.366
8-19	45.59 (104.16)	0.44	.663	-21.20 (94.88)	-0.22	.824
≥20*	-	-	-	-	-	-
Number of hospitalisations			.239			.974
0	184.95 (133.81)	1.38	.171	23.03 (129.22)	0.18	.859
1-6	73.87 (128.72)	0.57	.568	5.84 (116.87)	0.05	.960
≥7*	-	-	-	-	-	-
Highest education			.427			.762
Primary/secondary	46.05 (108.56)	0.42	.673	31.00 (106.17)	0.29	.771
Further	117.63 (89.80)	1.31	.194	69.12 (94.43)	0.73	.467
Higher*	-	-	-	-	-	-
Employment status						
Employed	178.78 (83.81)	2.13	**.036**	169.89 (85.90)	1.98	.053
Unemployed*	-	-	-	-	-	-
Living status						
Alone	132.75 (118.09)	1.124	.264	82.70 (115.85)	0.71	.478
With others*	-	-	-	-	-	-
Relationship status						
Single	-295.00 (114.79)	-2.57	**.012**	-106.98 (120.46)	-0.89	.378
In relationship*	-	-	-	-	-	-
Depressive symptoms	-15.82 (4.23)	-3.75	**.000**	5.70 (4.17)	1.37	.177

Table D.1 (continued)

	Baseline BRQ Total score			**Follow-up** BRQ change score		
	β (SE)	***t***	***p***	***β (SE)***	***t***	***p***
Manic symptoms	-13.04 (9.53)	-1.37	.175	-7.83 (9.54)	-0.82	.415
Hypomania relevant experiences	25.86 (10.80)	2.39	**.019**	5.23 (10.24)	0.51	.611
Depression relevant experiences	-12.82 (12.40)	-1.03	.305	-9.83 (12.03)	-0.82	.417
BRQ BL Total	n/a		n/a	-0.20 (0.12)	-1.67	.100
Psychological factors						
Rumination	3.15 (3.98)	0.79	.431	6.862 (2.40)	2.86	**.005**
Adaptive coping	16.33 (4.43)	3.69	**.000**	-3.20 (4.95)	-0.65	.520
Risk taking	27.95 (15.19)	1.84	.070	-0.63 (15.12)	-0.04	.967
Dysfunctional attitudes	-4.86 (1.63)	-2.99	**.004**	-1.44 (1.61)	-0.89	.376
Behavioural activation	3.05 (5.88)	0.52	.605	7.56 (5.54)	1.365	.178
Impulsivity	-0.70 (3.87)	-.018	.857	-5.43 (3.80)	-1.43	.158
Positive self-dispositional appraisals	-6.91 (5.44)	-1.27	.208	4.31 (5.42)	0.80	.429
Normalising scale for hypomania	-4.45 (5.91)	-0.75	.454	1.55 (5.96)	0.26	.796
Negative self-dispositional appraisals	-6.02 (7.30)	-.825	.412	-2.55 (7.48)	-.034	.734
Normalising scale for depression	5.26 (6.27)	0.84	.404	0.73 (5.83)	0.13	.901
R^2/Adjusted R^2		**.670/.552**			**.388/.087**	

* Reference groups

Table D.2 Saturated main effects models for comparing the predictors of personal and clinical recovery (prior to backwards elimination)

	Personal recovery			Clinical outcome modelling					
	Baseline BRQ Total			Number of depressive episodes			Number of (hypo)manic episodes		
	β (SE)	***t***	***p***	***OR (SE)***	***Wald χ2***	***p***	***OR (SE)***	***Wald χ2***	***p***
Intercept/ Threshold	3161.99 (380.92)	8.30	.000	DE_1= 2.59 (2.69) DE_2=7.52 (2.67)	0.13 0.57	.722 .450	HE_1= 753.47 (2.98) HE_2= 2404.66 (3.01)	4.94 6.68	.026 .010
Demographic and clinical factors									
Gender									
Men	-220.56 (74.00)	-2.98	**.004**	1.00 (0.55) -	0.00	.994	1.27 (0.56)	0.19	.666
Women*	-	-	-		-	-	-		
Time since diagnosis (year)	-0.10 (2.97)	-0.03	.974	1.07 (0.02)	7.69	**.006**	1.09 (0.03)	11.36	**.001**
Number of hospitalisations			.259			.669			.403
0*	-	-	-	-	-	-	-	-	-
1-6	-100.58 (74.90)	-1.34	.183	0.61 (0.55)	0.80	.370	0.47 (0.57)	1.76	.185
≥7	-178.54 (129.18)	-1.38	.171	0.74 (0.98)	0.10	.757	0.76 (1.08)	0.07	.796
Highest education			.525			.348			**.014**
Primary/ secondary*	-	-	-	-	-	-	-	-	-
Further	21.454 (113.78)	0.19	.851	1.81 (0.86)	0.47	.492	17.33 (0.99)	8.26	.004
Higher	-71.21 (103.76)	-0.07	.494	0.69 (0.73)	0.27	.607	5.00 (0.89)	3.29	.070
Employment status									
Employed*	-	-	-	-	-	-	-	-	-
Unemployed	-173.42 (79.58)	-2.18	**.032**	0.61 (0.62)	0.62	.432	0.43 (0.60)	1.98	.160
Living status									
Alone	-	-	-	-	-	-	-	-	-
With others*	-138.32 (114.90)	-1.20	.232	0.69 (0.84)	0.20	.656	1.02 (0.86)	0	0.986

Table D.2 (continued)

	Personal recovery			Clinical outcome modelling					
	Baseline BRQ Total			Number of depressive episodes			Number of (hypo)manic episodes		
	β (SE)	*t*	*p*	*OR (SE)*	*Wald χ2*	*p*	*OR (SE)*	*Wald χ2*	*p*
Relationship status									
Single*									
In relationship	299.55 (112.27)	2.67	**.009**	0.70 (0.80)	0.19	.661	1.37 (0.84)	0.14	.709
Depressive symptoms	-16.29 (4.05)	-4.03	**.000**	1.03 (0.03)	0.84	.360	1.03 (0.03)	0.81	.367
Manic symptoms	-11.81 (9.21)	-1.28	.203	0.92 (0.07)	1.69	.193	1.01 (0.07)	0.01	.926
Hypomania relevant experiences	21.84 (10.24)	2.13	**.036**	1.06 (0.08)	0.62	.431	1.25 (0.08)	7.42	**.006**
Depression relevant experiences	-11.13 (11.90)	-0.94	.352	0.97 (0.09)	0.10	.757	0.80 (0.10)	5.32	**.021**
Psychological factors									
Rumination	3.48 (3.89)	0.90	.373	1.00 (0.03)	0.01	.943	1.00 (0.03)	0.11	.738
Adaptive coping	14.98 (4.17)	3.59	**.001**	1.00 (0.03)	0.02	.877	1.08 (0.04)	4.68	**.031**
Risk taking	27.77 (14.61)	1.90	.061	1.16 (0.12)	1.40	.236	1.01 (0.11)	0.01	.935
Dysfunctional attitudes	-5.08 (1.55)	-3.28	**.002**	0.99 (0.01)	0.98	.323	1.02 (0.01)	2.27	.132
Behavioural Activation	3.89 (5.52)	0.71	.483	0.99 (0.04)	0.10	.747	0.90 (0.05)	5.65	**.018**
Impulsivity	-1.37 (3.75)	-0.37	.715	1.01 (0.03)	0.13	.720	1.06 (0.03)	3.60	.058
Positive self-dispositional appraisals	-7.09 (5.31)	-1.34	.186	0.99 (0.04)	0.14	.709	0.98 (0.04)	0.18	.674
HIQ normalising scale	-5.83 (5.61)	-1.04	.301	1.00 (0.04)	0.01	.929	1.07 (0.04)	2.80	.094
Negative self-dispositional appraisals	-7.79 (6.74)	-1.16	.251	1.08 (0.05)	2.20	.138	1.06 (0.05)	1.18	.278
IDQ normalising scale	6.11 (5.82)	1.05	.297	1.02 (0.04)	0.17	.683	0.94 (0.04)	2.03	0.155
Adjusted R^2/ Pseudo R-Square	**0.565**			**0.347**			**0.488**		

* Reference groups

Table D.3. Parameter estimates of the follow-up models using BRQ change score and BRQ follow-up total score as outcomes while adjusting for baseline BRQ

Follow-up model

Dependent Variable: BRQ Follow-up Total Score

Parameter	B	SE	t	p	95% CI	
Intercept	36.940	256.503	.144	.886	-472.806	546.686
BRQ baseline total	.829	.091	9.114	.000	.648	1.009
Rumination	9.065	2.954	3.069	.003	3.195	14.934
Employment status: employed	132.811	84.260	1.576	.119	-34.639	300.261

Change model

Dependent Variable: BRQ change score

Parameter	B	SE	t	p	95% CI	
Intercept	36.940	256.503	.144	.886	-472.806	546.686
BRQ baseline total	-.171	.091	-1.884	.063	-.352	.009
Rumination	9.065	2.954	3.069	.003	3.195	14.934
Employment status: employed	132.811	84.260	1.576	.119	-34.639	300.261