



Doctoral Thesis

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Social psychological factors in healthcare engagement.

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Thesis Abstract

Psychological reactance theory posits that when something threatens or eliminates people's freedom of behaviour, they experience psychological reactance, a motivational state that drives autonomy restoration. Section one reports a quantitative systematic literature review examining the relationship between psychological reactance and healthcare engagement. Six databases were searched (MEDLINE, CINAHL, PsycINFO, Academic Search Ultimate, SocINDEX, Embase) and fifteen studies met requirements for inclusion. Three studies investigated long-term physical health conditions, two investigated antibiotic adherence and ten studies investigated mental health conditions. Psychological reactance was significantly associated with: Adherence in nine studies; attendance in two studies; drop-out in two studies; and treatment satisfaction in one study. Nonsignificant associations between psychological reactance and engagement were reported in six studies. Further research is needed before strong conclusions can be drawn regarding the role of reactance within engagement. Nonetheless, the findings suggest that reactance is an important factor to consider.

Section two reports an empirical study investigating the role of psychological factors in engagement with mental health services for people with experiences of psychosis. Factors investigated were: Perceptions of autonomy, control beliefs, psychological reactance and expressed emotion. Participants ($N=113$) completed an online survey comprising of self-report measures of these variables and engagement. Expressed emotion was not significantly associated with engagement. In a regression model, autonomy, psychological reactance and control beliefs significantly accounted for 46.2% of the variance in engagement; although at the final step, autonomy was the only significant predictor, accounting for 28.2% of the variance in engagement alone. This study demonstrated the utility of measuring perceptions

of autonomy in relation to service engagement in psychosis. Findings highlight the importance of considering psychological variables in predicting therapeutic engagement.

Section three includes a discussion of issues surrounding the conceptualisation and measurement of engagement, autonomy and psychological reactance constructs.

Declaration

This thesis documents research undertaken for the Doctorate in Clinical Psychology at the Division for Health Research, Lancaster University. The work presented here is the author's own, except where due reference is made. The work has not been submitted for the award of a higher degree anywhere else.

Name: Amy Nickson

Date: 11th January 2021

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Section One: Systematic Literature Review

Psychological reactance and treatment engagement, adherence and drop-out in physical and mental healthcare.

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¹ See Appendix A for submission guidelines

Abstract

Non-engagement with healthcare is a prevalent, persistent and costly problem for health services. One potentially important factor determining engagement is psychological reactance. This is a motivational state that develops when a person perceives there to be a threat to their personal freedom. Reactance functions to reinstate an individual's perceptions of autonomy, often through restoring the behaviour that is being threatened. People vary in their trait propensity to experience reactance. This systematic review aimed to synthesise data on the relationship between psychological reactance and engagement variables in healthcare.

Methods: Six databases were searched (MEDLINE, CINAHL, PsycINFO, Academic Search Ultimate, SocINDEX, Embase) for relevant literature from their inception until 20/05/2020 to identify studies investigating psychological reactance and engagement (adherence, attendance, drop-out, therapeutic engagement). A total of 2047 records were retrieved; 15 studies were retained for inclusion.

Thirteen studies employed a cross-sectional design; one was a quasi-experimental design and one was a longitudinal study. Three studies investigated long-term physical health conditions; two investigated antibiotic adherence; ten studies investigated mental health conditions.

Psychological reactance was significantly associated with: adherence in nine studies; attendance in two studies; drop-out in two studies; and treatment satisfaction in one study.

Non-significant associations between psychological reactance and engagement variables were reported in six studies. Salient additional relevant variables related to reactance and engagement were identified, including: social support, control and autonomy support; perceived coercion; working alliance; perceived provider collaboration; and Theory of Planned Behaviour variables (control beliefs, self-efficacy, attitudes and intentions).

This review showed significant associations between psychological reactance and engagement variables (adherence, attendance, drop-out, treatment satisfaction) across physical and mental health conditions. Further research is needed before strong conclusions can be drawn regarding the role of reactance within engagement. Nonetheless, the findings suggest that reactance is an important factor to consider.

Keywords: psychological reactance; adherence; engagement; attendance; patient; physical health; mental health; healthcare

Introduction

Engagement in Healthcare

Non-engagement with treatment is a prevalent, persistent and costly problem for health services (Cutler et al., 2018), with estimates of ~50% non-adherence to long-term therapy for chronic illnesses (Sabaté & Sabaté, 2003). The issue of non-engagement is ubiquitous in health care, occurring across physical and mental health, adult and paediatric healthcare, and acute and chronic illnesses (Kardas et al., 2013; Martin et al., 2005). Non-engagement can compromise patient care in many ways, and has been associated with poorer health and wellbeing outcomes (Aznar-Lou et al., 2017; Doyle et al., 2014; Ho et al., 2016; Kretchy et al., 2018; Martin et al., 2005; Walsh et al., 2019).

Healthcare engagement is complex, encompassing concepts of adherence, attendance, drop-out/premature termination of treatment and therapeutic engagement. Adherence is defined as “the extent to which a person’s behaviour - taking medication, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider” (World Health Organisation, 2003). Research has therefore investigated adherence to: medication, treatments/interventions and physician/healthcare provider recommendations (Ahmed & Aslani, 2014; Becker et al., 2018; Dixon et al., 2016; Vermeire et al., 2001). Therapeutic engagement differs from engagement in the literal sense of adherence or attendance/drop-out from interventions (Tetley et al., 2011). Bright et al. (2015) define therapeutic engagement as a “co-constructed process and state. It incorporates a process of gradually connecting with each other and/or a therapeutic program, which enables the individual to become an active, committed and invested collaborator in healthcare”, with O’Brien et al. (2009) suggesting therapeutic engagement includes “the acceptance of a need for help, the formation of a therapeutic alliance with professionals, satisfaction with the help already received, and a mutual acceptance and working towards shared goals”.

Due to its complexity, measuring engagement can be difficult. Objective measures of engagement are generally accurate, but can be impractical to include within research, with self-report measures often being more time and cost efficient (Lam & Fresco, 2015). A number of validated self-report measures for adherence exist (Lam & Fresco, 2015; Stirratt et al., 2015), and these have been shown to correlate well with objective measures in both physical and mental healthcare (Monnette et al., 2018). Measures of therapeutic engagement have also been developed and validated, and these often contain items relating to appointment attendance (Graffigna et al., 2015; O'Brien et al., 2009; Tait et al., 2002; Xu, 2018). However, there appear to be no existing subjective measures designed to solely measure appointment attendance or treatment utilisation.

Despite the complexity of measuring healthcare engagement, the importance of this issue has prompted extensive research into its causes, correlates and predictors (Martin et al., 2005). This research has examined a wide range of determinants of non-engagement (see Kardas et al. [2013] for a review). The Theory of Planned Behaviour (TPB; Ajzen, 1985) has been widely used to underpin much health engagement research. The TPB posits that engagement is determined by the strength of a person's intention to engage. Intentions, in turn, are predicted by attitude, subjective norms and perceived behavioural control. Attitude refers to a person's evaluation of how beneficial engaging will be; subjective norms are people's perceptions of social approval for engaging; and perceived behavioural control concerns self-efficacy – a person's perception of their control over and ability to engage in health-related behaviour (Montaño & Kasprzyk, 2015). Indeed, attitudes, subjective norms and perceived behavioural control have predictive value for health-related intentions and behaviour, with perceived behavioural control being the strongest TPB predictor of adherence in chronic illness (McEachan et al., 2011; Rich et al., 2015). In a meta-analysis, Rich et al. (2015) found TPB variables accounted for 33% and 9% of the variance in intentions and

behaviour in treatment engagement in chronic illness, respectively. Much research has investigated and identified other psychological factors predictive of engagement (Marrero et al., 2020), often in an attempt to explain the “intention-behaviour gap” (Liddelow, Mullan, & Boyes, 2020; Liddelow, Mullan, & Novoradovskaya, 2020; Papiés, 2017; Vasiljevic et al., 2016). One such potentially important factor is psychological reactance.

Psychological Reactance

Psychological reactance theory (Brehm, 1966) proposes that freedom of behaviour is an important, beneficial and pervasive aspect of people’s lives. When this freedom is threatened, individuals become motivated to restore their freedom and sense of autonomy; this motivational state is termed psychological reactance (Rosenberg & Siegel, 2018). The motivational state of psychological reactance has been conceptualised as (and measured via) negative cognitions and emotional affect (anger), and results in behavioural and cognitive efforts to re-establish autonomy (Dillard & Shen, 2005). Behaviourally, people may attempt to engage in the behaviour being threatened or a similar/related behaviour. Cognitively, people may derogate the source of threat, upgrade the restricted freedom or downgrade the imposed option’s favourableness (Miron & Brehm, 2006; Reynolds-Tylus, 2019; Shen & Dillard, 2005). Various factors are thought to influence the amount of psychological reactance elicited, including the importance of the threatened freedom and the perceived magnitude of the threat (Miron & Brehm, 2006; Steindl et al., 2015). Additionally, based on the assumption that people vary in the strength of their need for autonomy, researchers have shown the amount of state reactance experienced is influenced by trait reactance proneness; that is, a person’s likelihood of perceiving stimuli as freedom threatening (Brehm & Brehm, 1981; Dillard & Shen, 2005; Miller et al., 2006; Quick et al., 2011; Quick & Stephenson, 2008; Rains, 2013; Rosenberg & Siegel, 2018; Shen & Dillard, 2005). Trait psychological reactance is most commonly measured via the Hong Psychological Reactance Scale (HPRS;

Hong & Page, 1989) or the Therapeutic Reactance Scale (TRS; Dowd, Milne & Wise, 1991); both are self-report measures and have been employed widely in social psychology research (Rosenberg & Siegel, 2018)². State psychological reactance, in turn, has been shown to predict attitudes, motivations, behavioural intentions and behaviours across a variety of contexts (Quick et al., 2013; Rosenberg & Siegel, 2018; Steindl et al., 2015). Within such research, trait reactance has been positively associated with intentions to engage in “unhealthy” behaviours, such as tobacco use and risky sexual behaviour (Miller et al., 2006; Miller & Quick, 2010)

Much research has investigated factors impacting the perception of health communication campaigns/messages as freedom threatening. Results have consistently shown that controlling messages are perceived as a threat to freedom/autonomy, and evoke state reactance and reduced intention to change behaviour across a variety of health contexts, including: alcohol consumption, drug use, sunscreen usage, tobacco use and vaccination. In contrast, autonomy-supportive, choice-enhancing messages have been shown to diminish reactance arousal (Reynolds-Tylus, 2019; Reynolds-Tylus et al., 2020). In the current context of COVID-19, researchers are considering the importance of government communication strategies that minimise reactance (Bhanot, 2020; Dagnall et al., 2020; Sibony, 2020; Stapleton, 2020). In a Finnish sample, Soveri et al. (2020) found that higher trait reactance was significantly associated with lower intent to engage in health protective behaviour during COVID-19. Moreover, in a US sample, Díaz and Cova (2020) found that trait reactance significantly predicted less compliance with official COVID-19 recommendations.

² Table 3 contains further information on these scales.

Psychological Reactance and Healthcare Engagement

There is evidence of the impact of autonomy on healthcare engagement; patient perceptions of autonomy and autonomy-support, including experiences of shared decision making, have been shown to be important predictors of better engagement across various health conditions/settings (Arrieta-Valero, 2019; Fiorillo et al., 2020; Graffigna et al., 2017; Kennedy et al., 2004; Koponen et al., 2017; Nafradi et al., 2017; Ng et al., 2014; Russell & Bray, 2010; Sandman et al., 2012; Umeukeje et al., 2016). In contrast, experiences of control and coercion have been shown to predict less engagement (Caruso et al., 2019; Goethals et al., 2017; Jaeger et al., 2013; Tessier et al., 2017). It is noteworthy that coercive and controlling behaviour from healthcare providers may occur in response to (expected) non-engagement, with some studies finding coercion increases medication adherence (Wade et al., 2017). This is an issue particularly relevant to mental healthcare, where issues of control, coercion and power asymmetry are widely recognised; with recognition that coercion (often via compulsory treatment) may improve medication adherence but reduce therapeutic engagement (Hotzy & Jaeger, 2016; James & Quirk, 2017), and that non-coercive strategies are always best practice (Danzer & Rieger, 2016).

Such findings indicate the potential importance of psychological reactance to healthcare engagement. Various aspects of healthcare provision could be deemed by patients as threatening to freedom of behaviour, and more so by individuals high in trait reactance. This may be further influenced by whether the patient experiences healthcare provision as being provided in an autonomy-supportive (collaborative) or autonomy-restrictive (controlling) way. Healthcare provision being perceived as threatening freedom could evoke state psychological reactance and lead to reduced engagement. In a social care context, Mirick (2014) found trait reactance was negatively associated with engagement in child welfare services. Moreover, in a meta-analysis, Beutler et al. (2018) found that psychotherapy

clients higher in trait reactance had better therapy outcomes when the therapist assumed a nondirective stance, rather than a directive and authoritative one. In a qualitative study, Grinter (2012) found clients experiencing psychosis responded to reported difficulties with constraints of medication prescribing and diagnostic labelling by rejecting clinician advice and/or refusing treatment. Grinter (2012) explained these responses as acts of reactance that aimed to reinstate autonomy. Two qualitative studies found adolescents living with HIV felt psychological reactance was an important barrier to antiretroviral medication adherence (Fields et al., 2017; Lowenthal et al., 2014)

To date, no systematic review has been conducted regarding the relationship between psychological reactance and healthcare engagement. This review aimed to systematically synthesise all available data, to inform current understandings of the role of psychological reactance in healthcare engagement.

Method

This systematic review was conducted in accordance with the guidelines and criteria for systematic reviews laid out by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (Stewart et al., 2015).

Initial Search

Initial scoping searches were completed using Google Scholar and PSYCInfo to determine the suitability of the review topic and to identify any previous literature reviews in this subject area. There are no existing systematic literature reviews published in English pertaining to the relationship(s) between psychological reactance and engagement variables.

Inclusion and Exclusion Criteria

Inclusion criteria, established prior to conducting the systematic search (Stewart et al., 2015), included: (1) The study must be quantitative; (2) The study must have been published

in an English language, peer-reviewed journal any time up until 20th May 2020; (3) The study sample must consist of participants receiving, having had received or intending to receive healthcare for a physical or mental health condition, or paediatric caregivers thereof; (4) Studies must measure psychological reactance and state the measure used; (5) Studies must measure patient adherence, attendance, drop-out and/or engagement with/from healthcare treatment(s)/intervention(s), or intentions of such behaviour thereof; (6) Analyses must include investigation(s) of the relationship(s) between the psychological reactance and adherence, attendance, engagement and/or drop-out measure(s).

Studies were excluded if they met any of the following criteria: (1) Studies investigating treatment/intervention outcomes (including changes in health behaviours e.g. substance use/eating), without measuring adherence, attendance, engagement and/or drop-out³ (2) Studies investigating reactance only in the context of health communication messages/campaigns; (3) Unpublished articles, conference papers, theses, dissertations, systematic reviews or non-empirical papers.

Search Strategy

Six bibliographic databases (MEDLINE, CINAHL, PsycINFO, Academic Search Ultimate, SocINDEX and Embase) were searched independently for relevant published literature from their inception until 25/05/2020, using Boolean operators to increase specificity. Searches were devised in collaboration with an information specialist. Full search terms are shown in Table 1. Additionally, each database was searched for database-specific subject/keyword/MeSH titles. Where possible, searches were also limited using database limiters “in English” and “in peer-reviewed journal”⁴. Next, duplicates were removed and the

³ From hereon, these separate variables will be referred to as “engagement variables” for brevity and ease of reading.

⁴ See Appendix B for full information regarding search syntax used for each database.

titles and/or abstracts of remaining papers were read. Finally, the reference lists of all included papers were manually searched to identify any further papers that fulfilled inclusion criteria.

[TABLE 1 ABOUT HERE]

Data Extraction

Data from the included articles were extracted using a standardised form. The information extracted included: The author(s) and year of publication; where the study was conducted; study aims; study design; participant demographics and characteristics; psychological reactance measure(s), including Cronbach's alpha (if reported); engagement variable(s) investigated, including measure(s) used; any additional variables that were measured and included in statistical analyses relating to psychological reactance, and measure(s) utilised; statistical test(s) used; results; and study outcomes.

Information regarding additional variables measured (beyond psychological reactance and engagement variables) was extracted to increase the depth of the results obtained from this review and to demonstrate the theoretical nature of included studies.

Quality Assessment

Each study was subject to a quality assessment as described by Kmet et al. (2004). This tool was chosen as it is suitable for use with a range of study designs and includes an extensive manual for quality scoring with definitions and instructions. A scoping search of Google Scholar highlighted that the tool has been used extensively (cited 984 times) and in many systematic reviews pertaining to physical and mental health (a "search within results" search of "physical health" or "mental health" yielded 136 results).

The tool outlines 14 items that the quality can be assessed against (Appendix C). These include appropriateness of study design, internal validity, the extent to which conduct and

analyses biases/errors were minimised, the reporting of results, and the extent to which the results supported the study's conclusions. Items are scored depending on the degree to which the specific criteria were met ("yes" = 2, "partial" = 1, "no" = 0). Items not applicable to a study design are excluded. A summary score is calculated by summing the total score obtained across relevant items and dividing by the total possible score. This was converted into a percentage for ease of reference. No cut-off scores for quality categorisation are suggested by the authors, but higher scores indicate a higher quality of research. No papers were excluded based on quality, but the quality appraisal process, and subsequent ratings, was/were used to weigh the evidence from papers in drawing conclusions and to see patterns of strength and weakness across included studies. Studies were scored independently by the author. To improve the reliability of quality appraisal, a subsample ($n = 5$) were independently rated by a colleague. Respective scores were compared and discussed. There were two minor discrepancies. These were discussed, and in reference to the manual and with further consideration of the papers, these discrepancies were resolved and scores were agreed between both raters.

Results

See Figure 1 for an overview of the systematic screening process. The search yielded a total number of 2047 records. Following removal of duplicates, 1555 articles were retrieved. Of these, 1486 were excluded based upon title and abstract and 69 papers were deemed potentially relevant, the full-text versions then being read. Of these, 15 fulfilled the inclusion criteria. No further papers were found through reference list searching.

[FIGURE 1 NEAR HERE]

Study Characteristics

Table 2 summarises the main characteristics of the 15 studies (incorporating the data extracted from each study, as described above). Studies were published between 1999 and 2019 and assessed a total of 3672 participants.

Thirteen of the studies were cross-sectional, one employed a quasi-experimental design (Fogarty & Youngs, 2000), and one employed a longitudinal design (Orbell & Hagger, 2006). Three of the studies used the same sample (De las Cuevas et al., 2017; De las Cuevas & Peñate, 2015; De las Cuevas et al., 2016), and these studies are included within the same row in Table 2. From here on, for brevity, De las Cuevas et al. (2017) is the reference used to denote these three studies throughout the results section.

Six studies were conducted in the United States of America (Caruso et al., 2019; Fogarty & Youngs, 2000; Madsen et al., 2009; McNeil et al., 2013; Seibel & Dowd, 1999; Smith, Kim, & M'ikanatha, 2018); five in Tenerife, Spain (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014); two in the United Kingdom (Moore et al., 2000; Orbell & Hagger, 2006); one in Canada (Kealy et al., 2018); and one in Germany (Ungar et al., 2016).

[TABLE 2 NEAR HERE]

Participants

Sample sizes ranged from 42 (Moore et al., 2000) to 966 (De las Cuevas et al., 2017) with a mean of 244.8 participants. Mean age of participants ranged from 14.3 (Caruso et al., 2019) to 56.1 years (De las Cuevas, Peñate, & Sanz, 2014). Twelve studies utilised an adult patient sample, one utilised a paediatric patient sample (Caruso et al., 2019), and one sample consisted of parents/guardians of children (whom were responsible for making children's

medical decisions; Smith, Kim, & M'Ikanatha, 2018). The percentage of female participants ranged from 16% (Madsen et al., 2009) to 100% (Orbell & Hagger, 2006).

Three studies investigated participants with long-term physical health conditions: Chronic paediatric headache (Caruso et al., 2019); colposcopy clinic patients requiring up to three follow up appointments over a 15-month period (Orbell & Hagger, 2006); and cancer outpatients (Ungar et al., 2016). Two studies investigated acute health conditions: Bacterial infection (Fogarty & Youngs, 2000) and paediatric caregivers' intentions to comply with antibiotic recommendations (Smith, Kim, & M'Ikanatha, 2018). Ten studies investigated mental health conditions, with eight studies utilising samples of psychiatric outpatients: Two samples consisting of patients with depressive disorder diagnoses (De las Cuevas, Peñate, & Sanz, 2014; Madsen et al., 2009); three with wide ranging psychiatric diagnoses (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; McNeil et al., 2013); and one with schizophrenia spectrum diagnoses (Moore et al., 2000). One sample consisted of patients enrolled in a group therapy program for personality difficulties (Kealy et al., 2018), and one sample consisted of psychotherapy clients (Seibel & Dowd, 1999).

Quality Appraisal

Table 3 shows each study's scores on each item of the quality assessment tool (Kmet et al., 2004). Quality percentage scores ranged from 70% (Seibel & Dowd, 1999) to 100% (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Kealy et al., 2018; Orbell & Hagger, 2006; Smith, Kim, & M'Ikanatha, 2018), with a mean percentage score of 94%. Six studies scored less than 2 on item-8 (outcome measures well defined and robust to misclassification/measurement bias; means of assessment reported); this was largely because studies did not use validated measures for engagement variable(s) and did not report on reliability/validity for the measures employed (Caruso et al., 2019; Fogarty & Youngs, 2000; Madsen et al., 2009; McNeil et al., 2013; Moore et al., 2000;

Seibel & Dowd, 1999). Four studies were marked ‘partial-1’ for item-9 (sample size appropriate), due to (as per the manual’s guidance) large standard error sizes accompanying statistically significant findings, absence of variance estimates or power analyses within seemingly “small” samples (Caruso et al., 2019; Moore et al., 2000; Seibel & Dowd, 1999; Ungar et al., 2016). Three studies scored imperfectly on item-11 regarding estimates of variance being reported in the main results (Moore et al., 2000; Seibel & Dowd, 1999; Ungar et al., 2016). Two studies scored ‘partial-1’ for item-13 regarding the results being reported in sufficient detail (Fogarty & Youngs, 2000; Seibel & Dowd, 1999). Overall, the quality appraisal tool did not reveal any systematic methodological issues across the studies, and generally the quality of included studies could be considered high.

[TABLE 3 ABOUT HERE]

Psychological Reactance Measures

Table 4 summarises the psychological reactance measures employed. Seven studies utilised the HPRS (Hong & Page, 1989). Caruso et al. (2019) added “regarding my treatment plan” at the end of each item and reported a Cronbach’s alpha of 0.91⁵. Smith, Kim and M’Ikanatha (2018) calculated a mean score using five items from the “resisting influence” and “reactance to recommendations” subscales reported by Shen and Dillard (2005), with a reported Cronbach’s alpha of 0.76. In two of Des las Cuevas et al.’s samples, the HPRS was utilised based on a two-factor solution of affective and cognitive psychological reactance, with reported Cronbach’s alphas of 0.76 and 0.62, respectively (De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014); this was based on an earlier validation study of the HPRS in psychiatric patients (De las Cuevas, Peñate, Betancort, et al., 2014). Madsen et al. (2009) calculated HPRS total scores and Hong and Page’s (1989) four subscale scores, but

⁵ Note: The authors report using a 16-item HPRS, but this doesn’t exist – it is therefore assumed the authors incorrectly reported ‘16’ rather than ‘14’

did not report a reliability estimate. Moore et al. (2000) reported a HPRS Cronbach's alpha of 0.86. Thus, the reliability estimates, where provided, indicate that the internal consistency of the HPRS in included studies was generally acceptable (Tavakol & Dennick, 2011). In a study designed to validate the Patient Health Belief Questionnaire (De las Cuevas & de Leon, 2019), psychological reactance was measured using a subscale consisting of three items (8, 11, 13) from the original HPRS, with a reported corrected Cronbach's alpha of 0.18.

Four studies utilised the TRS (Dowd et al., 1991); none of these reported on reliability estimates (Fogarty & Youngs, 2000; Kealy et al., 2018; McNiel et al., 2013; Seibel & Dowd, 1999). Seibel and Dowd (1999) reported on TRS-Total score and TRS-behavioural/verbal subscales separately, whilst other studies reported only on TRS-Total scores. Seibel and Dowd (1999) also utilised the Questionnaire for the Measurement of Psychological Reactance (QMPR, Merz, 1983). Orbell and Hagger (2006) conceptualised reactance as a form of volitional control (Kuhl, 2000), and utilised the Volitional Components Inventory reactance subscale (Kuhl & Fuhrmann, 1998), with a reported Cronbach's alpha of 0.73.

Two studies attempted to measure state psychological reactance. Ungar et al. (2016) measured state reactance using four items developed for a previous intervention study on the impact of reactance on perceptions of health communication messages (Ungar et al., 2015), with a reported Cronbach's alpha of 0.71. Fogarty and Youngs (2000) attempted to elicit state psychological reactance by manipulating physician tone and choice conditions in a 2x2 study design, and attempted to measure the occurrence of state reactance via adherence outcomes.

[TABLE 4 ABOUT HERE]

Engagement Variables

Adherence was the engagement variable studied the most, being investigated in thirteen studies (ten samples). Nine studies investigated psychiatric medication adherence. Of

these, six studies utilised previously validated self-report measures of medication adherence (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Madsen et al., 2009), whilst Moore et al. (2000) and McNiel et al. (2013) used rating scales designed for their studies. Seibel and Dowd (1999) did not report on how medication adherence was measured.

Caruso et al. (2019) measured treatment adherence in paediatric headache (to medication, physical therapy, psychological treatment and lifestyle recommendations) using a neurologist-rated form developed for their study. Fogarty and Youngs (2000) measured antibiotic medication adherence using author-designed self-report methods, as well as adherence to physician requests via measuring whether participants followed instructions to return a medical questionnaire. Smith, Kim and M'Ikanatha (2018) measured paediatric caregivers' intentions to adhere to physician's antibiotic stewardship recommendations using a measure developed for a previous study. Ungar et al. (2016) measured cancer patients' adherence to exercise recommendations using a validated measure.

Attendance, treatment completion, treatment satisfaction and/or therapy disengagement were measured in four studies. Orbell and Hagger (2006) objectively measured attendance at follow-up colposcopy clinic appointments; Kealy et al. (2018) objectively measured program attendance and treatment completion in group psychotherapy for personality dysfunction; McNiel et al. (2013) measured psychiatric patients' self-reported appointment attendance using an author-designed rating scale, and treatment satisfaction with a previously validated scale; and Seibel and Dowd (1999) reported psychotherapy clients' previous disengagement according to patient records.

Additional Variables

Other factors that were measured in relation to psychological reactance and engagement variables were: maternal autonomy support, structure and controllingness (Caruso et al., 2019); TPB variables (Orbell & Hagger, 2006); social support and social control (Ungar et al., 2016); health locus of control and self-efficacy (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014); perceptions of group therapy processes (Kealy et al., 2018); perceived provider collaboration (Madsen et al., 2009); and working alliance and perceived coercion (McNiel et al., 2013).

Study Results

Physical health, Reactance and Engagement Variables

Fogarty and Youngs (2000) found no significant relationship between antibiotic medication adherence or adherence to physician request and trait or state reactance using correlations or ANOVAs. The authors do not report the correlation coefficients but argue this is due to sample size. In a structural equation model (SEM) they found a significant negative relationship between trait reactance and adherence. In a larger sample ($N=606$), Smith, Kim and M'Ikanatha (2018) found that paediatric caregivers with stronger trait psychological reactance were significantly more likely to belong to a profile of non-adherence and engage in “non-compliance behaviours”.

Caruso et al. (2019) found that, in chronic paediatric headache, psychological reactance was not significantly correlated with physician reported treatment adherence. However, they did find that higher levels of maternal autonomy support and structure, and lower levels of maternal controllingness, significantly predicted lower psychological reactance in children and better treatment adherence. Here, psychological reactance and adherence were both outcome variables (i.e. moderating effects were not investigated). Similarly, Ungar et al. (2016) found that whilst psychological reactance was not significantly

correlated with adherence to exercise recommendations in cancer patients, perceived and relative reported social control, and relative reported social support were significantly correlated with psychological reactance. It is noteworthy that both these studies utilised small samples of 58 and 56, respectively. In a much larger sample ($N=660$), Orbell and Hagger (2006) found that psychological reactance was significantly negatively correlated with attendance at colposcopy clinic appointments. Moreover, they found that psychological reactance augments the prediction of attendance from TPB variables, with 10% of the variance in attendance explained by these variables. There was a significant interaction between reactance and intention, with people higher in reactance being more likely to behave in accordance with their own intentions to attend/not attend appointments than people low in reactance.

Mental health, Reactance and Engagement Variables

Psychological reactance was found to be significantly associated with psychiatric medication adherence in six studies (four samples); as psychological reactance increased, adherence decreased (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Moore et al., 2000). Moore et al. (2000) also measured perceived threat to freedom from treatment provision, and found that people who scored higher in this and higher in psychological reactance were most likely to have been non-adherent in the past. They report psychological reactance didn't predict current adherence, with the best predictor of current adherence being past adherence. De las Cuevas et al. (2017) found significant interactions between health locus of control (HLOC) and psychological reactance; for pure internal believers, pure external believers and dual-control believers, there is better adherence in patients who are less reactant. However, this was not true for no-control believers. De las Cuevas and de Leon (2019) found that, together, low psychological reactance, low internal-HLOC and low negative attitudes towards medication have a high

predictive efficiency of psychiatric medication adherence (predicted 82% adequate adherence in Chi Squared Automatic Interaction Detector Analysis).

Madsen et al. (2009) found that psychological reactance was not significantly associated with medication adherence in depression. However, regression analyses showed that only the interaction between perceived provider collaboration and psychological reactance significantly predicted adherence, accounting for 18.3% of the variance. Among more reactant participants, greater collaboration predicted better adherence, whereas less collaboration predicted better adherence among less reactant participants. When the HPRS subscales were entered separately into the model, only the conformity subscale and provider collaboration interaction significantly predicted adherence (12.9% variance), with the authors suggesting reactance regarding conformity may moderate the relationship between collaboration and adherence. McNiel et al. (2013) and Seibel and Dowd (1999) reported that psychological reactance was not significantly associated with medication adherence.

Kealy et al. (2018) found that psychological reactance was significantly associated with reduced attendance and premature termination (both by administrative-discharge [*Cramér's V* = .15] and self-discharge [*Cramér's V* = .16]) from a group therapy program for personality dysfunction (symptom distress nor severity of difficulties were associated with attendance or termination); however, it is noteworthy that these effect sizes were relatively small. They also found psychological reactance significantly contributed to perceptions of both avoidant and conflictual group climate. McNiel et al. (2013) found no association between reactance and appointment attendance in psychiatric outpatients. However, they did find a significant association between psychological reactance and treatment being perceived as beneficial. They reported that, together, better working alliance, lower reactance and less perceived coercion significantly explained 24.8% of the variance in treatment satisfaction. Treatment satisfaction was the only variable measured related to the concept of therapeutic

engagement, as described by O'Brien et al. (2009). It is noteworthy that McNiel et al.'s (2013) non-significant findings regarding adherence and attendance were obtained via non-validated rating scales, whereas significant findings regarding treatment satisfaction were obtained via a previously validated measure. Seibel and Dowd (1999) reported that participants higher in TRS-behavioural reactance were significantly more likely to have terminated therapy prematurely, but reported no association between TRS-verbal reactance or the QMPR.

Discussion

This review aimed to synthesise findings from all studies examining relationships between psychological reactance and engagement variables (adherence, attendance, drop-out and/or engagement) across physical and mental healthcare. A systematic search identified 15 studies, utilising 12 samples, for inclusion. Psychological reactance was significantly associated with: adherence in nine studies; attendance in two studies; drop-out in two studies; and treatment satisfaction in one study. Non-significant associations between psychological reactance and engagement variables were reported in six studies.

Overall, the quality of the included studies was considered high (mean 94%). However, the quality appraisal indicated that there were potentially issues with some studies' statistical analyses being powered insufficiently due to small sample sizes (Caruso et al., 2019; Moore et al., 2000; Seibel & Dowd, 1999; Ungar et al., 2016). Moreover, use of non-validated scales in the measurement of engagement variables may have potentially impacted findings in some studies (Caruso et al., 2019; Fogarty & Youngs, 2000; Madsen et al., 2009; McNiel et al., 2013; Moore et al., 2000; Seibel & Dowd, 1999).

Measurement of Psychological Reactance

Psychological reactance was generally measured via (adaptations) of the HPRS (Caruso et al., 2019; De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Madsen et al., 2009; Moore et al., 2000; Smith, Kim, & M'Ikanatha, 2018) and the TRS (Fogarty & Youngs, 2000; Kealy et al., 2018; McNiel et al., 2013; Seibel & Dowd, 1999). This review's findings highlight that where the TRS was used, total scores were reported, which has been deemed unsuitable (Buboltz Jr et al., 2002). Future researchers considering employing the TRS should be mindful of the caution to not use it in its original form due to it being found to be psychometrically unstable (Buboltz Jr et al., 2002; Inman et al., 2019). The HPRS was generally reported via total score. De las Cuevas et al. (2014; 2017) reported on the affective and cognitive components they previously demonstrated in a sample of psychiatric patients (De las Cuevas, Peñate, Betancort, et al., 2014). Thus, the HPRS was generally used appropriately. Future researchers should be mindful of the recent research finding a bifactor model is the best fit for the HPRS, but advising calculating total scores is appropriate (Yost & Finney, 2018), and avoid using the originally described four factor solution (Hong & Page, 1989). Further research on the factor structure of the HPRS in samples of psychiatric patients would be beneficial to replicate De las Cuevas, Peñate, Betnacort et al.'s (2014) findings.

Measurement of Engagement Variables

Out of nine measures of medication adherence, only four were validated measures (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Madsen et al., 2009); with four studies employing self-report measures designed for their study or a previous study (Fogarty & Youngs, 2000; McNiel et al., 2013; Moore et al., 2000; Smith, Kim, & M'Ikanatha, 2018). Two studies measured adherence to treatment more

generally (Caruso et al., 2019; Ungar et al., 2016). Attendance, treatment completion and therapy disengagement were measured objectively in three studies (Kealy et al., 2018; Orbell & Hagger, 2006; Seibel & Dowd, 1999), with one study utilising a self-report measure of attendance (McNiel et al., 2013). The studies included demonstrate a lack of consistency in the measurement of engagement, especially with regards to adherence; constraints with time and resources, as well as consideration of patient burden, can contribute to short, unvalidated rating scales being employed (Basu et al., 2019). However, there are short, well-established measures of adherence available – such as the Morisky Medication Adherence Scale (Morisky et al., 2008). Employing validated measures ensures consistency in the validity of findings across populations and studies; and this should be considered in future research (Basu et al., 2019; Tan et al., 2014).

Psychological Reactance and Engagement

The findings from this review tentatively suggest psychological reactance is significantly negatively associated with psychiatric medication adherence. In nine studies (seven samples), psychological reactance was significantly correlated with medication adherence in six studies (De las Cuevas & de Leon, 2019; De las Cuevas et al., 2017; De las Cuevas, Peñate, & Sanz, 2014; Moore et al., 2000). Two studies found no association with psychiatric medication adherence (McNiel et al., 2013; Seibel & Dowd, 1999); it is possible these non-significant results were influenced by the measures used. Madsen et al. (2009) found no direct association between reactance and adherence, but found that only the interaction between provider collaboration and HPRS significantly predicted adherence, highlighting perceived provider collaboration as a potentially important factor relating to reactance and adherence.

Fogarty and Youngs (2000) reported non-significant correlations between reactance and antibiotic adherence; but reported finding a significant SEM model. Smith, Kim and M'Ikanatha (2018) found paediatric caregivers higher in reactance were significantly more likely to belong to a profile of non-compliance relating to intentions to engage in antibiotic adherence. Two studies found no association between reactance and treatment adherence in cancer patients and paediatric chronic headache; although both these studies utilised relatively small samples (Caruso et al., 2019; Ungar et al., 2016). Whilst this evidence for reactance in physical health medication/intervention adherence is inconclusive, and was investigated only in the above four studies, the significant findings in Smith, Kim and M'Ikanatha (2018) suggest this is an area warranting further consideration.

Psychological reactance was significantly associated (in the expected direction) with objectively measured: Attendance and treatment completion in group therapy – where symptom severity was not (Kealy et al., 2018); appointment attendance to colposcopy clinics (Orbell & Hagger, 2006): and premature termination in psychotherapy (Seibel & Dowd, 1999). In McNiel et al. (2013), reactance was not correlated with self-reported appointment attendance but results did show better working alliance, lower reactance and less perceived coercion significantly explained 24.8% of the variance in treatment satisfaction. These results tentatively suggest that when objective measures are employed, psychological reactance is significantly associated with lower attendance and premature termination of therapy.

Psychological Reactance Theory

When considering this review's findings, it is important to consider how trait psychological reactance is conceptualised within psychological reactance theory literature. Trait psychological reactance is a person's likelihood of experiencing stimuli as a threat to freedom and therefore state reactance, resulting in behavioural and cognitive efforts to restore

freedom/autonomy (Quick et al., 2011; Rosenberg & Siegel, 2018). Only one of the included studies (Fogarty & Youngs, 2000) considered all core components of the psychological reactance model. Ungar et al. (2016) was the only study to measure state reactance via self-report; they did not measure trait reactance. Perhaps freedom threat and state reactance components of the theory were generally not explicitly attended to within included studies as researchers were interested in the direct relationship between trait reactance and engagement. However, it is important to consider that, according to psychological reactance theory, trait reactance does not impact freedom restoration outcomes without the prior occurrence of a perceived threat to freedom and state reactance. It is noteworthy that whilst the impact of trait reactance on outcomes requires the occurrence of state reactance, state reactance's impact on outcomes is not dependent upon trait reactance. Indeed, reactance was originally proposed to be a state phenomenon only (Brehm, 1966), and there is a debate over the validity of trait reactance as a construct, with queries over whether trait reactance is a stable trait, and whether the HPRS and TRS measures reflect the construct of reactance (Rosenberg & Siegel, 2018; Shoham et al., 2004). Silvia (2006) argues that evidence for the validity of trait reactance is indirect, as researchers do not measure its relationship to state reactance. This view is rarely considered in trait reactance research within clinical/health psychology. However, this review has highlighted trait reactance as a potentially significant factor in healthcare engagement, and Orbell and Hagger (2006) showed that trait reactance predicted behavioural patterns up to 15 months later, suggesting trait reactance is strongly dispositional. Moreover, recent research has confirmed the psychometric properties, and supported the use of, the HPRS (Yost & Finney, 2018). Perhaps future research could consider all/more components of the psychological reactance model in study designs, especially state reactance, to provide further evidence for trait reactance as a construct and its important role in health-related behaviour.

Only two studies within this review considered the “freedom threat” component of psychological reactance theory. Fogarty and Youngs (2000) conceptualised physician tone and choice conditions as ways of creating freedom threat, but in their discussion noted design flaws contributed to these conditions not being successful in producing freedom threat. Moore et al. (2000) measured threat to freedom *from treatment provision*, and found a significant interaction between trait reactance and threat to freedom in predicting adherence. Thus, within included studies where a significant relationship between trait reactance and engagement was found, it remains unclear what aspects of healthcare provision participants were perceiving as a threat to freedom. In a relevant study published since this review’s search was conducted, Lowenthal et al. (2020) measured medication-specific state reactance and its association with adherence in adolescents living with HIV. The reactance measure was designed for their study, and adherence and attendance were measured objectively, as well as participants’ autonomy over medication taking (with lower medication autonomy conceptualised as a threat to freedom). Higher state reactance was significantly positively correlated with treatment failure; medication autonomy did not modify this association. Thus, in this sample, it is noteworthy that it was perhaps something other than the act of taking medication threatening freedom. Other research has suggested that, for adolescents living with HIV, it is the illness itself that restricts freedom, rather than the treatment for the illness (Brown et al., 2016).

It is important to understand what is being perceived as a threat to freedom, and not assume reduced engagement is related to certain aspects of treatment provision, i.e., reduced medication adherence is not necessarily the result of medication being perceived as a threat to freedom. As reactance theory describes, freedom may be restored behaviourally not only via engaging in the behaviour being threatened, but also in a similar/related behaviour (Brehm & Brehm, 1981). This leads to consideration of context in reactance’s role in healthcare

engagement; there are many factors which might influence people perceiving their freedom is threatened in long-term illnesses. This is in contrast to acute physical health conditions; as noted by Fogarty and Youngs (2000), restricted choice and collaboration in treatment received for bacterial infection is perhaps unlikely to be perceived as a valued freedom to be limited.

Other factors may also be relevant to the context of reactance in healthcare engagement; trait reactance is higher in younger and older people (relative to middle aged people), men, and Black, Asian and Minority Ethnic individuals (Woller et al., 2007). Moreover, Moore et al. (2000) suggest that threat perceived by treatment provision may decrease over time, possibly with age or length of time involved with mental health services. Madsen et al. (2009) found no significant relationships among collaboration, reactance, and adherence beyond the first 3 weeks of treatment. They suggest reasons provided for antidepressant non-adherence vary over the course of treatment; relationship dynamics may affect adherence immediately following treatment initiation, whereas patients' beliefs about treatment and depression might be more robust predictors later (Demyttenaere et al., 2001). Whilst there is no conclusive evidence regarding the impact of reactance on adherence at different time points, this is an interesting point to consider and one which could have useful clinical implications. Overall, the freedom threat component of reactance, considered in the context of the health condition/setting and individual factors, is important to understanding patient experiences and for the clinical implications of reactance in healthcare engagement research.

Autonomy Supportive Variables

Health communication research has shown that autonomy-supportive messages diminish reactance arousal, whereas controlling, persuasive messages increase perceived

freedom threat and evoke state reactance (Reynolds-Tylus, 2019; Reynolds-Tylus et al., 2020). In healthcare engagement, research has shown that patient perceptions of autonomy and autonomy-support are important predictors of better engagement across various health conditions/settings (Arrieta-Valero, 2019). In two included studies within this review, social control and autonomy support in parents of chronic paediatric headache patients, and perceived social support and social control in cancer patients, were significantly related to higher reactance and less adherence separately, where a direct relationship between reactance and engagement was not found (Caruso et al., 2019; Ungar et al., 2016). McNiel et al. (2013) showed perceived coercion, working alliance and reactance were all significantly associated with treatment satisfaction. Notably, interactions between these variables were not investigated in these studies. Madsen et al. (2009) did not find a direct relationship between reactance and medication adherence but did find only the interaction between trait reactance and provider collaboration significantly predicted psychiatric medication adherence. Among more reactant participants, greater collaboration predicted better adherence, whereas less collaboration predicted better adherence among less reactant participants. Trait reactance may interact with autonomy-supportive (collaboration, shared decision making, working alliance) variables; i.e. autonomy-supportive healthcare provision may reduce perceived freedom threat in high trait reactant individuals, and therefore reduce non-engagement behaviours. However, this is a tentative theoretical suggestion; future research examining such interactions, with consideration of the clinical implications of these, would be useful in furthering understanding of reactance's role in engagement.

Theory of Planned Behaviour (Ajzen, 1985)

Smith, Kim and M'Ikanatha (2018) showed that trait reactance was significantly associated with *intentions* to comply with antibiotic recommendations. Furthermore, Orbell and Hagger (2006) researched reactance's role in attendance in the context of TPB variables,

based on the suggestion that attention to volitional processes might augment the explanation of behaviour provided by the TPB (Ajzen, 1985; Kuhl, 2000). They found that psychological reactance augments the prediction of attendance from TPB variables via the interaction between intention and reactance. They found people least likely to keep their appointments possess both weaker intentions and higher reactance. These findings demonstrate how psychological reactance adds to the well-established model of the TPB in predicting health-related behaviour.

A previous systematic review found perceived behavioural control to be the strongest predictor of adherence in chronic illness (Rich, 2015). Based on TPB, De las Cuevas et al.'s (2017) research, utilising a large sample, has shown that there are significant interactions between HLOC and psychological reactance; for pure-internal believers, pure-external believers and dual-control believers, there is better adherence in patients who are less reactant. However, this was not true for no-control believers, with the authors suggesting this type of HLOC is a sufficient variable to explain adherence by which reactance loses its interaction role. This further adds to an understanding of reactance in healthcare; trait reactance and the evocation of state reactance is perhaps less important to engagement if people feel they have no control over the behaviour, as restoration of freedom through non-adherence won't be felt to be possible. This is perhaps important in situations where coercive or compulsory treatment is employed in psychiatric healthcare. In such situations where behavioural restoration of freedom via non-engagement does not feel possible, patients may instead only have cognitive means to restore freedom (derogating the source of threat, upgrading the restricted freedom or downgrading the imposed option's favourableness), with a potential result of better medication adherence but reduced therapeutic engagement (Hotzy & Jaeger, 2016; James & Quirk, 2017).

Clinical Implications

Whilst there is more research needed to confirm the exact nature of reactance's role within healthcare engagement, so far research indicates that reactance is an important issue for clinicians to consider. Potentially, clinicians could discuss the nature of reactance with patients (as has been done in qualitative studies [Lowenthal et al., 2014]) and collaboratively decide how treatments/interventions can be delivered in a way that feels most beneficial for the patient. Generally, provider collaboration, working alliance and autonomy-support are important factors in patient satisfaction and outcomes (Nafradi et al., 2017). However, some research suggests lower reactant individuals prefer more direction in treatment delivery (Beutler et al., 2018). Clinicians may therefore benefit from responding flexibly within the therapeutic relationship, i.e. encouraging autonomy/freedom of choice in those prone to reactance, whereas others, low in reactance, may prefer more direction, and engagement will improve as a result. Such an approach has indeed been shown to improve outcomes in therapeutic alcohol treatment (Karno et al., 2009; Karno et al., 2010).

Strengths and Limitations

A key strength of this review is it has been the first to synthesise data on the relationship between psychological reactance and engagement variables in healthcare. Moreover, the review was inclusive, not limiting health issues or engagement variables included, and considering additional relevant factors that were investigated in the included studies. This has facilitated an understanding of the current state of evidence regarding reactance and engagement research, how reactance and engagement variables are measured, as well as the theoretical nature of studies investigating reactance and engagement. Hopefully, this review forms a base to inform future research into reactance and engagement across health conditions. Another strength of the review is the rigorous methodology followed (Stewart et al., 2015) despite heterogeneity of the studies included. Additionally, the

thorough search strategy identified all relevant papers, with no further papers being identified via reference list searching.

Limitations of this review are reflective of limitations in the quality of some of the studies included. As mentioned above, four studies were potentially insufficiently powered, and six studies scored imperfectly in quality appraisal regarding outcome measures being robust to measurement error. The lack of utilisation of valid measures reflect that some studies were conducted ~two decades ago, before now validated measures were developed (e.g. Morisky et al., 2008). Additionally, the heterogeneity of included studies re: health conditions/settings/measures contributes to difficulty in drawing firm conclusions.

Conclusion

There are significant associations between psychological reactance and engagement variables (adherence, attendance, drop-out, treatment satisfaction) across physical and mental health conditions. Some studies reported non-significant findings. Whilst this is potentially due to some methodological issues within the studies, further research is needed before strong conclusions can be drawn regarding the role of reactance within engagement. Nonetheless, overall, the results of this review suggest that reactance is an important factor to consider, particularly in combination with sense of autonomy or restrictions of freedom of choice. Future research would be valuable to further understanding of the relationship between reactance and engagement and its clinical implications, incorporating consideration of: all reactance components (notably, freedom threat and state reactance); the context of health conditions/settings and individual factors in reactance's impact on engagement; the role autonomy-supportive variables have in the relationship between trait reactance and perceived freedom threat; and TPB variables.

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Tables and Figures

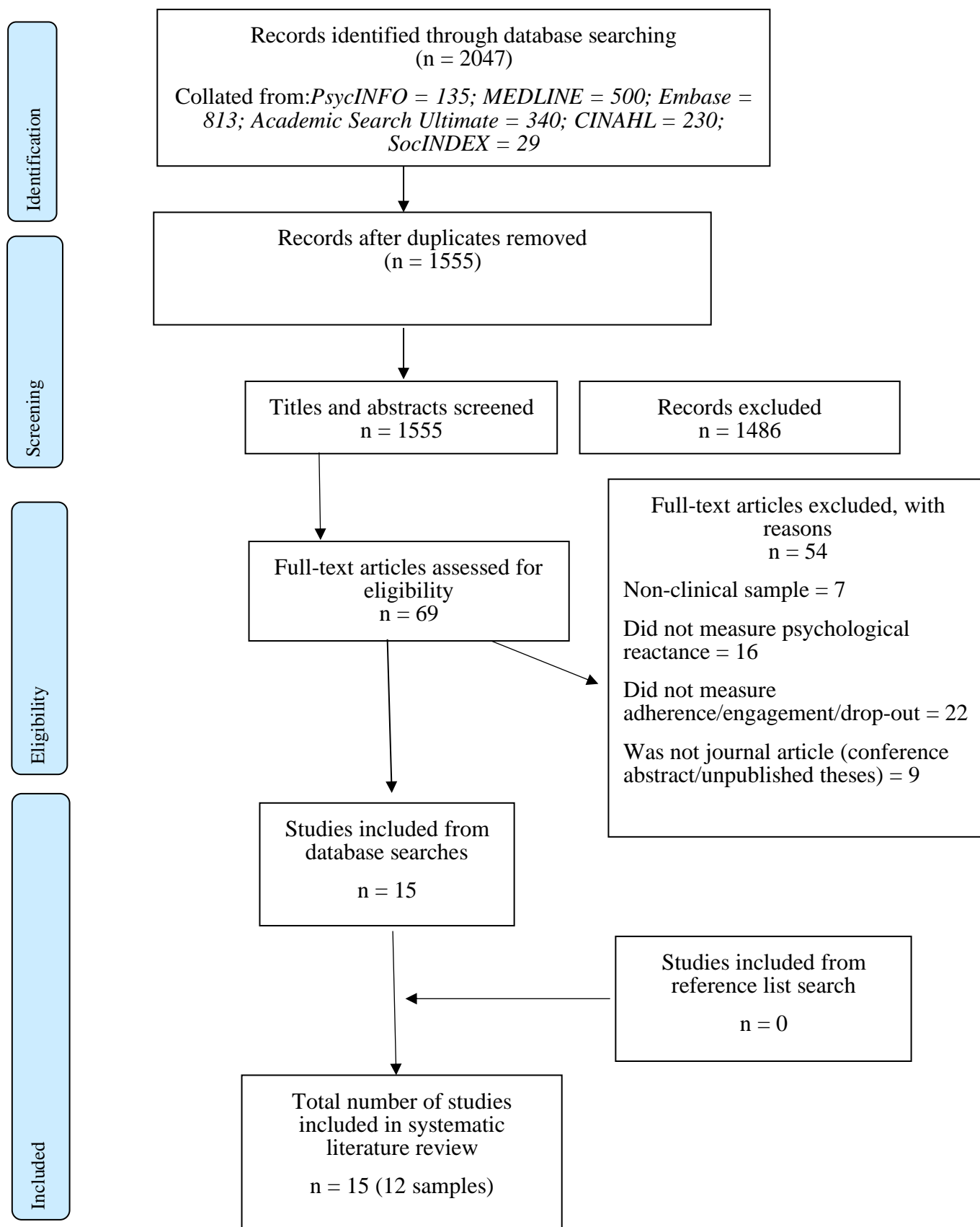


Figure 1: Overview of the systematic screening process

Table 1: *Search terms used*

String	Search Terms
String 1	"mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental"
String 2	AND "psych* reactance" or "reactan*"
String 3	AND "Adher*" or "complan*" or "concordan*" or "nonadher*" or "noncomplan*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*"

Table 2: *Study Characteristics and Findings*

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
Caruso et al. (2019) / Chronic pediatric headache / Massachusetts, USA	Cross-sectional / Aimed to investigate effect of mother's autonomy support, structure & controlling behaviours on "treatment related PR" & adherence	Trait PR - Adapted HPRS - Items were unchanged but "regarding my treatment plan" was added. Total scores calculated Cronbach's alpha = .91.	Treatment adherence re: medication, physical therapy, psychological treatment, lifestyle recommendations / Neurologist rated using scale developed for the study Parenting Factors / PSCQ	Children & adolescent patients at tertiary headache clinic in pediatric hospital. <i>N</i> = 58 10-17years age <i>M</i> = 14.3 (\pm 2.0) 74.1% Female 77.6% European American	PR was not significantly correlated with physician reported adherence ($r = -.26^+$). Simultaneous regression analyses with adherence & PR as outcome variables showed that higher maternal autonomy support & higher maternal structure were both associated with lower PR ($\beta = -0.46$, $t[53] = -3.11^{**}$ & $\beta = -0.58$, $t[53] = -4.75^*$, respectively) & greater treatment adherence ($\beta = 0.35$, $t[53] = 2.78^{**}$) & lifestyle adherence ($\beta = 0.28$, $t[53] = 2.30^*$). Higher controllingness was associated with higher PR ($\beta = 0.60$, $t[53] = 4.23^{***}$) & lower ratings of lifestyle adherence ($\beta = -0.28$, $t[53] = -2.04^*$).	PR & adherence were not significantly correlated ($p < .10$). Higher levels of parental autonomy support, lower levels of parental controllingness, & higher levels of structure around the children's treatment predicted lower PR & better adherence.
Fogarty and Youngs Jr (2000) /	Quasi-experimental / Aimed to investigate	Trait PR- TRS Total Scores Cronbach's alpha not reported.	Medication (antibiotic) Compliance ⁶ / Self-report of how soon prescription	Patients seeking help for bacterial infection	There were no significant interactions or main effects for "state reactance" IVs (tone & choice) on any adherence DVs. As TRS scores increased, postcard compliance declined ($r = -.32$). TRS scores	No relationship between adherence & "state PR" induced via tone & choice conditions.

⁶ Where the term "compliance" is used throughout this table, it is to replicate the named variable measured within the research study. However, throughout the main text, the variables termed "compliance" here are referred to as adherence. This is reflective of shifts in widely used and accepted terminology (Tilson, 2004).

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
Bacterial infection / Dakota, USA	relationship between PR & compliance behaviours. / Physician advice-giving tone & participant choice were manipulated in a 2 x 2 (Tone: Authoritative vs. Partnership x Choice: Choice vs. No Choice) design.	State PR - advice giving tone & choice conditions.	was filled, no. of times per day medication was taken, no. of days medication was taken, whether any pills were skipped & total no. of pills taken.	requiring antibiotics. <i>N</i> = 101 <i>M</i> age = 35 years 62% Female 56% never met physician before, 21% had met physician ≤ 3 times	correlated negatively with adherence: how soon prescription was filled ($r = -.51$); no. of days medication was taken ($r = -.35$); whether doses were skipped ($r = -.37$); & whether all medication was taken ($r = -.47$). Significance levels of correlations not reported. SEM showed a strong, inverse relationship between TRS scores & adherence. All paths were significant* & all goodness of fit statistics indicated a good fit between proposed model & the actual data ($\chi^2[8, N=101] = 10.19, p = .025$; RMR = .032; GFI = .97; & AGFI = .92). The most reactant participants provided the least consistent data ($r = -.28^{**}$).	Authors report study finds evidence for an inverse correlational relationship between trait-PR & treatment adherence & compliance with physician requests, but significance levels not clear. Most reactant participants provided the least consistent data. / Authors suggest design flaws contribute to non-significant findings i.e. whether having no “choice” in antibiotic treatment is a valued freedom to be limited.
Orbell and Hagger (2006) / Colposcopy clinic patients /	Longitudinal / Aimed to investigate whether PR could add to predictive value to theory of planned	Trait PR - Volitional Components Inventory (Kuhl & Fuhrmann, 1998).	Attendance at up to 3 colposcopy clinic follow-up appointments over 15month period / No. of appointments kept divided by no. of appointments recommended	Female patients referred to colposcopy clinic after abnormal cervical screening result & requiring further treatment	PR was significantly negatively correlated with attendance ($r = -.13^*$). When PR was entered into third step of regression (following demographics & planned behaviour variables), there was a significant increment in explained variance ($\beta = -.12^{**}, F \text{ change} = 10.39, R^2 \text{ change} = .015^{**}$). Interaction of PR X Intention was entered as final step, finding a	Women higher in PR were less likely to keep their appointments. PR augments the prediction of attendance from TPB variables & demonstrates that main effects of intention &

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
United Kingdom	behaviour (TPB) variables to appointment attendance behaviour. / Study conceptualised reactance as a form of volitional control (Kuhl, 2000).	Cronbach's alpha = .73	TPB variables: Intention, Attitude, Subjective norms, Perceived behavioural control / Likert scales developed for this study.	following first appointment at colposcopy clinic. Patients required up to 3 follow-up appointments. <i>N</i> = 660 <i>M</i> age = 33.92 (\pm 10.28) years 98% White British	significant increment in explained variance (β = .12**, <i>F</i> change = 9.79, <i>R</i> ² change = .014**). The final equation was significant (<i>F</i> (8, 651) = 8.56, <i>R</i> ² = .095**). Slopes were computed for the regression of attendance on intention at low & high PR. Unstandardized regression coefficients for intention were significantly different from zero for low PR (β = .0535, <i>t</i> = 5.1509**) & high PR (β = .1314, <i>t</i> = 4.5677**). The predictive validity of intention is greater at high levels than low levels of PR. Hierarchical discriminant analysis showed that demographic variables, TPB variables & PR (entered at third step) were able to significantly discriminate between "scheduled", "delayed" & "ceased" attenders (χ^2 difference [2] = 10.76**). Discriminant function two (canonical <i>r</i> = .16, χ^2 (6) = 17.05**) clearly discriminated delayed attenders from ceased attenders & had a strong positive correlation with PR (<i>r</i> = .51, <i>F</i> (2, 657) = 5.31**), with delayed attenders having lower PR than ceased attenders.	reactance on attendance are qualified by the interaction of intention X reactance. TPB variables and PR explained 10% variance in attendance. The predictive validity of intention is greater at high levels of PR, thus people high in PR were more likely to behave in accordance with their own intentions to attend/not attend appointments than were people low in PR. PR distinguished delayed attenders, who responded to repeat appointments issued by the clinic, from the ceased attenders, who refused these repeat appointments.
Smith, Kim and	Cross-sectional /	Trait PR - Five items from HPRS -	Compliance - intentions to engage in antibiotic	Medical decision makers for at least one	Used LCA to test whether PR predicted odds of membership in a profile of noncompliance relative to compliance.	Pediatric caregivers with stronger trait PR were more likely to engage in

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
M'Ikanatha (2018) / Pediatric caregivers' antibiotic stewardship / Northeastern USA	Aimed to investigate patterns of noncompliance with antibiotic stewardship, with predictors framed by the obstacle hypothesis, dissonance theory & PR.	subscales of resisting influence & reactance to recommendations were used (Shen & Dillard, 2005). Mean scores calculated Cronbach's alpha = .76.	stewardship actions related to their children / Eight items adapted from Smith et al. (2015) to assess intentions to engage in antibiotic stewardship actions.	child between ages of 6months to 12years. <i>N</i> = 606 <i>M</i> age = 35.60 (± 8.99) years 57% Female 65% Married 94% Employed 82% Caucasian 11% African American 4% Hispanic 6% Asian	Caregivers with higher PR were more likely to belong to one of three profiles of noncompliance: "stockers" ($OR = 1.45, \beta = 0.37, SE = 0.13$), "persuaders" ($OR = 1.37, \beta = 0.31, SE = 0.11$), "dissenters" ($OR = 1.34, \beta = 0.29, SE = 0.11$) than compliance profile ("stewards" – reference class) ($LL^2 = 9.78^*$). Overlapping CIs (not specified) for the ORs suggest that while reactant caregivers are more likely to engage in noncompliance, they are equally likely to restore their freedom through storing unused antibiotics, persuading providers to change their minds, or engaging in every act of noncompliance. "Stockers" & "Persuaders" show some level of compliance in vaccination.	noncompliance than compliance. Reactant caregivers were just as likely to restore their freedom by storing unused antibiotics, persuading providers to change their minds, or engaging in every act of noncompliance. However, two profiles of noncompliance did show some level of compliance with vaccinations, indicating that PR does not rule out compliance.
Ungar et al. (2016) / Cancer patients / Heidelberg, Germany	Cross-sectional / Aimed to investigate whether social support, social control & PR are predictors of cancer patients' self-	State PR – Four items of a scale developed for an intervention study on fruit & vegetable intake (Ungar et al., 2015). Cronbach's alpha = .71.	Adherence to exercise recommendations / Seven-Day Physical Activity Recall (Sarkin et al., 1997). Social Support & Social Control for exercise / SIPES	Cancer patients receiving outpatient treatment <i>N</i> = 56 27-75years age <i>M</i> = 53.6 (± 12.7) Sex: 53.6% Female	PR was not significantly correlated with exercise ($r = .05, p = -.08$). Men reported significantly more PR ($p = .001$). Perceived social control & relative-reported social control were both significantly correlated with PR ($r = .375, p = .004$ & $r = .407, p = .002$, respectively). Perceived social support was not significantly correlated with PR, but relative reported	PR was not significantly correlated with adhering to exercise recommendations. Men reported significantly more PR. Social control (perceived & relative reported) & relative-reported social support were significantly

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
	reported exercise behavior				social support was significantly correlated with PR ($r = .303, p = .023$).	correlated with PR. Perceived social support was not significantly correlated with PR.
De las Cuevas, Peñate and Sanz (2014)/ Depression / Tenerife, Spain	Cross-sectional / Aimed to investigate relationship of PR, health locus of control (HLOC) & sense of self-efficacy with medication adherence in depression.	Trait PR - Spanish validated version of HPRS (Pérez García, 1993). Affective & cognitive subscales reported separately, total scores calculated. Cronbach's alpha Affective = 0.76; Cognitive = 0.62	Psychiatric medication adherence / Spanish validated version of Morisky scale (Morisky et al., 1986; Val et al., 1992)	Psychiatric patients attending community mental health centres. $N = 119$ 30-82years age $M = 56.1$ (± 12.0) 76.5% Female 76.5% Depression, 23.5% Bipolar disorder. 50.4% classified as 'non-adherent'.	Cognitive PR & affective PR both significantly positively correlated with medication adherence scores ($r = .25^{**}$ & $r = .32^{**}$, respectively) – showing that as PR increases, medication adherence decreases. Cognitive PR significantly positively correlated with Chance HLOC ($r = .36^{**}$). Neither HLOC nor self-efficacy were significantly correlated with adherence. ANOVA showed cognitive & affective PR subscales attained significant differences between adherent & non-adherent patients ($F = 7.48, p = .007$ & $F = 9.57, p = .002$, respectively [df not reported]).	As PR increases, medication adherence decreases. 'Non-adherent' patients scored higher for both affective & cognitive PR subscales, indicating more PR in patients who do not follow medical prescriptions.
De las Cuevas and Peñate (2015);	Cross-sectional / Three papers using the same	Trait PR – Spanish validated version of HPRS	Psychiatric medication adherence / MMAS-8	Psychiatric outpatients $N = 966$ 18-87 years age	PR was significantly negatively correlated with adherence -both affective PR ($r = -.20^{***}$) & cognitive PR ($r = -.20^{***}$). MMAS-8 & self-efficacy not significantly correlated.	Adherence was significantly negatively correlated with affective & cognitive dimensions of PR.

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
<p>De las Cuevas et al. (2016); De las Cuevas et al. (2017) / Psychiatric outpatients / Tenerife, Spain</p>	<p>sample & same measures with different statistical analyses. / Studies aimed to validate the MMAS-8 scale (2015) & investigate the predictive value of PR, HLOC & self-efficacy to medication adherence in psychiatric outpatients (2016, 2017).</p>	<p>(reference as above) Affective & cognitive subscales reported separately, total scores calculated. Cronbach's alpha Affective subscale = 0.76 Cronbach's alpha Cognitive subscale = 0.62</p>	<p>HLOC / MHLC-C Self-efficacy / GPSES</p>	<p>$M = 49.6$ (± 13.8) 62.9% Female 47.8% Depressive Disorder, 18.5% Schizophrenia, 16.5% Anxiety Disorders, 12.2% Bipolar Disorder, 3.1% Personality Disorders, 1.9% Other diagnoses 66.3% no history of psychiatric admissions Psychotropic drugs $M = 2.9$ (± 1.4)</p>	<p>ANOVAs were performed to assess the relationship of HLOC with PR. There were significant differences between HLOC orientation groups (pure internal, pure external, dual-control believer & no-control believer) & patients' levels of cognitive & affective PR ($F = 4.227, p = .006$ & $F = 7.471, p = .000$, respectively). Analysed whether HLOC moderates the association of PR with adherence. There were significant differences in adherence between high & low affective & cognitive PR & pure internal (affective $F = 3.942, p = .048$; cognitive $F = 5.484, p = .020$), pure external (affective $F = 18.856, p = .000$; cognitive $F = 6.822, p = .010$) & dual-control believers (affective $F = 4.971, p = .027$; cognitive $F = 7.994, p = .005$). No significant interactions were found for the no-control believer group. Sociodemographic, clinical & control (HLOC, PR & self-efficacy) variables were examined through SEM to test patterns of relationships in predicting adherence, with measurement invariance re: drug attitudes & diagnoses tested – neither were significant ($p > .05$). The SEM showed adherence is influenced by cognitive PR (-0.14), the doctor's subscale of HLOC (0.26)</p>	<p>There were interactions between HLOC & PR; for pure internal believers, pure external believers & dual-control believers, there is better adherence in patients who are less reactant. However, this was not true for no-control believers. SEM demonstrated that adherence was associated: 1) negatively with cognitive PR (adherence decreased as cognitive PR increased), 2) positively with patients' trust in their psychiatrists (doctors' HLOC subscale), 3) negatively with patients' belief that they are in control of their mental</p>

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
De las Cuevas and de Leon (2019) / Psychiatric outpatients / Tenerife, Spain	Cross-sectional / Aimed to develop & validate the Patient's Health Belief Questionnaire on Psychiatric Treatment-measuring attitudes toward medications, PR & HLOC	Trait PR - Patient's Health Belief Questionnaire for Psychiatric Treatment (PHBQ) – PR subscale Total score calculated Cronbach's alpha of PR subscale = 0.39, $r_{ij} = 0.18$	Medication adherence / Spanish version of Sidorkiewicz tool (De las Cuevas et al., 2018; Sidorkiewicz et al., 2016) Internal HLOC (I-HLOC), Doctor HLOC (D-HLOC), Attitudes towards medications / PHBQ	Psychiatric outpatients $N = 588$ 30-82years age $M = 45.7$ (± 13.1) 53% Female Diagnoses: 38% Depressive disorder, 28% Anxiety disorder, 23% Schizophrenia, 7% Bipolar Disorder, 3%	& internal-HLOC (-0.15). Age was also weakly associated with adherence (0.14). Self-efficacy was indirectly related to adherence through its direct relationship with the internal HLOC (0.22). The significance of these relationships in SEM not reported. The model fit was significant ($\chi^2[163] = 303.696, p < .001, GFI = .99, AGFI = .99, NFI = .92, RMSEA = .03$). Adherence dichotomised as “adequate” and “inadequate”. In a univariate logistic regression, PR was significantly associated with adequate adherence ($OR = 0.945$ [95% CI = 0.914–0.978], significance level not specified). PR was dichotomised using median scores (low/high PR), & univariate logistic regression analysis showed low-PR was significantly associated with adequate adherence ($OR = 1.44$ [95% CI= 1.12–1.85], significance level not specified). CHAID was used to predict adherence. The first predictor was negative attitudes towards medication, with low-PR ($X^2(1) = 6.110, Adjusted p = 0.13$), I-HLOC & D-HLOC appearing after. High-PR and low	health & that their mental health depends on their own actions (internal HLOC subscale), & 4) positively (although weakly) with age. Self-efficacy indirectly influenced treatment adherence through internal health locus of control. PR was significantly associated with adherence in five independent analyses – as PR increases, adherence decreases. PR, Internal & Doctor HLOC & negative attitudes towards medications together

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Kealy et al. (2018) / Personality Dysfunction / Canada	Cross-sectional / Aimed to investigate relationship between PR & program attendance, premature termination, & patients' perceptions of the group therapy process.	Trait PR – TRS Total scores Cronbach's alpha not reported	Program attendance / No. of weeks patient attended program Treatment completion / Patients classified as: achieving therapeutic discharge (program completion), self-discharge or administrative discharge (asked to leave).	Personality Disorder 51% good-high self-reported adherence Patients enrolled in intensive outpatient group therapy program for personality dysfunction (18 weeks, 4 hours per day program). Program had psychodynamic-relational theoretical orientation. <i>N</i> = 138 <i>M</i> age = 37 (±10) years	negative attitudes towards medication predicted 67% adequate adherence; Low negative aspects of medication, low PR & high I-HLOC predicted 69% adequate adherence; Low negative aspects of medication, low PR and low I-HLOC predicted 82% adequate adherence. The effectiveness of this tree was high: total predictive efficiency was 66.1% and sensitivity was 100%. No association between gender & PR. PR was significantly negatively associated with weeks attended ($\rho = -.23, p = .007$). However, neither symptom distress nor severity of personality dysfunction were associated with weeks attended. A significant difference was found for type of discharge & PR ($X^2 = 12.79, p = .002$). No significant differences were found for general symptom or PD severity & type of discharge. Pairwise comparisons showed that PR tended to be greater among patients in the self-discharge category than among patients who achieved therapeutic discharge ($X^2 [2] = 7.26, p = .02, V = .16$). Patients who were administratively discharged also tended to have higher PR to those who	have a high predictive efficiency of medication adherence. PR was significantly associated with reduced attendance and both patient-initiated and administratively determined premature termination. Neither symptom distress nor severity of personality dysfunction were associated with attendance or discharge type. However, these effect sizes were relatively small. PR, within the context of overall personality

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
			<p>Perceptions of group therapy processes / Group Climate Questionnaire (MacKenzie, 1983)</p>	<p>65% Female 87% participants met DSM-IV criteria for one or two personality disorder diagnoses (29% borderline, 28% avoidant, 20% obsessive-compulsive). Most participants met criteria for a DSM-IV Axis 1 disorder: 49% OCD, 48% Major depression, 40% Agoraphobia</p>	<p>therapeutically discharged ($X^2 [2] = 6.31, p = .04, V = .15$). Though significant, the effect sizes of these differences were relatively small. Mediation analyses using bootstrapping found a significant indirect effect of personality dysfunction on perceptions of both Avoidance (unstandardized indirect effect = 0.61, 95% CI = 0.17 - .132*; $R^2 = .076, F[3, 113] = .576, p = .03$) & Conflict (unstandardized indirect effect = 0.67, 95% CI = 0.22 - .138*; $R^2 = .066, F[3, 113] = 2.680, p = .05$), via the mediating effect of PR. These findings were significant (indicated by an absence of zero within 95% CIs) after controlling for general symptom distress. No significant relationship was observed with regard to the GCQ Engagement subscale.</p>	<p>dysfunction, significantly contributed to perceptions of both avoidant and conflictual group climate, i.e. to view the group as excessively dependent on the direction of therapists, and as harbouring tension and conflict. However, PR was not significantly associated with the engagement subscale of the Group Climate Questionnaire.</p>
<p>Madsen et al. (2009) / Depression / San Diego, USA</p>	<p>Cross-sectional / Aimed to examine the interaction (moderation)</p>	<p>Trait PR – HPRS Total scores & Hong & Page’s (1989) four factor</p>	<p>Antidepressant medication adherence / Telephone interview based on Antidepressant Questionnaire</p>	<p>Outpatient US military veterans diagnosed with major depressive disorder beginning</p>	<p>PR was not associated with drop-out. Multiple regression analysis showed that at 3-weeks postbaseline, only the interaction between HPRS & PAQ-collaboration significantly predicted adherence ($\beta = .002, F[1, 42] = 9.38, p = .004, R^2 = .183$). PR alone was not significantly associated with</p>	<p>PR was not significantly associated with adherence. However, the interaction between provider collaboration & PR was significant & accounted</p>

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
	of provider collaboration & patient PR in the prediction of antidepressant adherence during the acute treatment phase.	scores calculated Cronbach's alpha not reported	(Maddox et al., 1994). Administered at 3, 6, 9 & 12 weeks after treatment initiation. Perceived provider collaboration / Physician Assessment Questionnaire designed for this study. Depression / BDI-II	antidepressant treatment within psychiatry clinics. <i>N</i> = 50 21.7-71 years age <i>M</i> = 41.3 (±12.6) 16% Female 62% history of antidepressant treatment 50% Caucasian 26% African American 14% Hispanic 8% Mixed ethnicity	adherence scores. Increase in HPRS score was associated with an increase in the positive slope of PAQ-collaboration. Conversely, decrease in HPRS score strengthened a negative relationship between PAQ-collaboration and 3-week adherence. No variables predicted adherence beyond 3-week post-baseline. The four HPRS subscale scores, the PAQ-collaboration score, the four interactions, & BDI-II were entered simultaneously into a regression model predicting 3-week adherence. Only the HPRS conformity subscale X PAQ-collaboration interaction significantly predicted 3-week adherence, accounting for 12.9% of the variance, $F(1, 36) = 5.35^*$, showing that increases in conformity increased the strength of a positive relationship between collaboration & adherence, whereas decreases in conformity strengthened a negative relationship.	for 18.3% of the variance in 3-week adherence. Among more reactant patients, greater collaboration predicted better adherence, whereas among patients lower in PR, less collaboration predicted better adherence. No relationships were observed beyond 3 weeks. HPRS conformity factor may be a particularly robust moderator of the relationship between provider collaboration and antidepressant adherence.
McNiel et al. (2013) / Psychiatric outpatients /	Cross-sectional / Aimed to investigate whether	Trait PR – TRS Total Scores Cronbach's alpha not reported	Psychiatric Medication adherence & Appointment attendance / Participants rating	Psychiatric outpatients attending community mental health centre	Logistic regression analyses showed that PR was not significantly associated with medication adherence or appointment attendance. Multiple regression analysis showed that when controlling for clinical & demographic characteristics as well as the experience of leverage, higher treatment	PR was not significantly associated with medication adherence or appointment attendance. However, PR was significantly associated with treatment

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
San Francisco, USA	working alliance, PR & perceived coercion were associated with treatment adherence & satisfaction in a group of patients at risk of experiencing leverage.		scales designed for this study. Treatment satisfaction / MHSIPCS-TSM Working alliance / WAI-Client Version Perceived Coercion / MPCS	<i>N</i> = 198 <i>M</i> age = 46.7 (±9.3) years 35% Female 49% Caucasian 28% African American 22% Other Diagnoses: 42% Psychotic Disorder; 31% Depression; 16% Bipolar Disorder	satisfaction (perception that treatment was beneficial) was associated with a better working alliance, lower PR ($\beta = -.020, t = -.280^{**}$), & less perceived coercion; ($F(13, 168) = 5.58, p = .001, R^2_{Adjusted} = .248$).	satisfaction (perceptions that treatment was beneficial). Together, better working alliance, lower PR & less perceived coercion significantly explained 24.8% of the variance in treatment satisfaction.
Moore et al. (2000) / Schizophrenia / United Kingdom	Cross-sectional / Aimed to investigate predictive value of socio-demographic, treatment, illness & attitudinal variables to past and current	Trait PR – HPRS Total Scores Cronbach’s alpha = 0.86	Current (previous 9months) & past (from initial diagnosis to 9months prior to survey completion) antipsychotic medication adherence / Two self-report Likert scales developed for a previous study	Outpatients attending local day hospital who had diagnoses of schizophrenia (<i>N</i> = 39) or schizoaffective disorder (<i>N</i> = 3). <i>N</i> = 42 36% Female 19-63 years age <i>M</i> = 39 (±11)	Current compliance was not significantly associated with PR or perceived threat to freedom from treatment provision. Past compliance was the best predictor of current compliance ($\beta(1) = -2.84; p = .008$), with drug attitudes also making a significant contribution ($\beta(1) = -0.17; p = .01$). Participants who had been non-compliant in the past scored higher on PR ($U = 66.0, p = .04$) & were more likely to feel that their personal freedom was being threatened by treatment provision ($U = 86.5, p = .0016$). Past compliance was significantly	Individuals who scored higher in trait PR & who perceived treatment provision to be a threat to their freedom of choice were the most likely to have been non-compliant in the past. PR only predicted past compliance, not current compliance. Authors suggest the degree to which treatment is perceived as a threat to

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
	compliance with antipsychotic medications		(Barrowclough et al., 1999) Perceived threat to personal freedom from treatment provision / Author designed Likert scale Drug Attitudes / Drug Attitude Inventory (Hogan et al., 1983)	<i>M</i> no. of admissions = 5.6 (\pm 4.1) <i>M</i> duration of illness = 14.3 years (\pm 10.1)	negatively correlated with PR ($r = -.56, p = .001$) & perceived threat to freedom from treatment provision ($r = -.56, p = .001$). Logistic regression showed that PR made the most significant contribution ($\beta(1)=0.17; p = .002$) to non-compliance, with age also making a significant contribution ($\beta(1)=-0.08, p = .02$). The interaction between PR X treatment being perceived as a threat to freedom significantly further contributed to compliance ($\beta(1)=0.005; p = .002$).	freedom may reduce over time. It is not clear what other variables were entered into regression model, but results suggest PR & threat to freedom from treatment better predicted compliance than drug attitudes, insight, family support. or sociodemographic variables.
Seibel and Dowd (1999) / Psychotherapy clients / Midwest & Northeast USA	Cross-sectional / Study aimed to investigate the relationship between PR & compliance behaviours & general improvement in psychotherapy.	Trait PR – TRS Total score & Verbal and Behavioural subscale scores calculated QMPR Total Score Cronbach’s alphas not reported	Medication adherence / Measurement method not specified Therapy disengagement / History of premature termination according to records	Psychotherapy clients of mental health facilities & private practices. <i>N</i> = 90 66% Female 21-60 years age <i>M</i> = 37.03 (\pm 8.68) 91% Caucasian Treatment duration <i>M</i> = 15.9months (\pm 18.1)	PR was not significantly correlated with medication compliance (number of participants prescribed medication not specified). Premature terminators were significantly more reactant on the TRS-Total ($t = -1.97^*$) & the TRS-Behavioral ($t=-1.97^*$). There were no significant differences associated with premature termination for the TRS-Verbal or the QMPR.	PR was not significantly correlated with medication compliance, although neither the number of participants prescribed medication nor method of measuring compliance are described. As measured by the TRS, participants higher in behavioural PR were significantly more likely to have terminated therapy prematurely.

Study / Health issue investigated / Location /	Design / Study Aims / Additional design or study information	Psychological Reactance Measure	Factor(s) investigated / Measure(s) used	Participant characteristics & Sample demographics	Analysis	Findings / Comments
				>30% Mood Disorder, ~30% No diagnosis, Exclusion criteria = schizophrenia / psychotic disorder		However, verbal PR had no association with disengagement. The QMPR was not associated with disengagement.

Note: BDI-II = Beck Depression Inventory (Beck et al., 1996); DSM-IV = The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 2000); GPSES = General Perceived Self-Efficacy Scale (Schwarzer & Jerusalem, 1995); HPRS = Hong Psychological Reactance Scale (Hong & Page, 1989); MHLC-C = Form C of Multidimensional Health Locus of Control Scale (Wallston et al., 1994); MHSIPCS-TSM = Mental Health Statistics Improvement Program Consumer Survey–Treatment Satisfaction Module (Teague et al., 1997); MMAS-8 = Spanish validated version of Morisky Medication Adherence Scale -8 item version (Morisky et al., 2008); MPCS = MacArthur Perceived Coercion Scale (Gardner et al., 1993); no. = number; OCD = Obsessive Compulsive Disorder; re: = regarding; PR = Psychological Reactance; PSCQ = Parents as Social Context Questionnaire (Skinner et al., 2005); QMPR = Questionnaire for the Measurement of Psychological Reactance (Merz, 1983); SIPES = Spousal Involvement in Patient Exercise Scale (Khan et al., 2013); TRS = Therapeutic Reactance Scale (Dowd et al., 1991); USA = United States of America; WAI-Client Version = Working Alliance Inventory (Horvath & Greenberg, 1989)

Analysis abbreviations: AGFI = Adjusted Goodness of Fit Index; CHAID = Chi-squared Automatic Interaction Detector Analysis; CI = Confidence Interval; df = degrees of freedom; DV = Dependent Variable; GFI = Goodness of Fit Index; IV = Independent Variable; LCA = Latent Class Analysis; *M* = Mean; NFI = Normed Fit Index; *OR* = Odds Ratio; r_{ij} = Cronbach correction (see Rogers, Schmitt & Mullins [2002]); RMR = Root Mean Square Residual; RMSE = Root Mean Square Error of Approximation; *SE* = Standard Error; SEM = Structural Equation Modelling; (\pm) = Standard Deviation; + = reported as significant at $p < .10$ level; * = reported as significant at $p < .05$ level; ** = reported as significant at $p < .01$ level; *** = reported as significant at $p < .001$ level.

Table 3: *Quality appraisal of studies using the standard quality assessment criteria for evaluating primary research papers from a variety of fields (Kmet et al., 2004)*

Study	1. Question / objective sufficiently described?	2. Study design evident and appropriate?	3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	4. Subject (and comparison group, if applicable) characteristics sufficiently described?	5. If interventional and random allocation was possible, was it described?	6. If interventional and blinding of investigators was possible, was it reported?	7. If interventional and blinding of subjects was possible, was it reported?	8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?	9. Sample size appropriate?	10. Analytic methods described/justified and appropriate?	11. Some estimate of variance is reported for the main results?	12. Controlled for confounding?	13. Results reported in sufficient detail?	14. Conclusions supported by the results?	Score
Caruso et al. (2019)	2	2	2	2	N/A	N/A	N/A	1	1	2	2	N/A	2	2	18/20 90%
Fogarty and Youngs Jr (2000)	2	2	2	2	N/A	N/A	2	1	2	2	2	N/A	1	2	20/22 90%
Orbell and Hagger (2006)	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
Smith, Kim and M'Ikanatha (2018)	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
Ungar et al. (2016)	2	2	2	2	N/A	N/A	N/A	2	1	2	1	N/A	2	2	18/20 90%

Study	1. Question / objective sufficiently described?	2. Study design evident and appropriate?	3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	4. Subject (and comparison group, if applicable) characteristics sufficiently described?	5. If interventional and random allocation was possible, was it described?	6. If interventional and blinding of investigators was possible, was it reported?	7. If interventional and blinding of subjects was possible, was it reported?	8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?	9. Sample size appropriate?	10. Analytic methods described/justified and appropriate?	11. Some estimate of variance is reported for the main results?	12. Controlled for confounding?	13. Results reported in sufficient detail?	14. Conclusions supported by the results?	Score
De las Cuevas et al. (2014)	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
De las Cuevas and Peñate (2015) ^a	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
De las Cuevas et al. (2016) ^a	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
De las Cuevas et al. (2017) ^a	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
De las Cuevas and de Leon (2019)	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
Kealy et al. (2018)	2	2	2	2	N/A	N/A	N/A	2	2	2	2	N/A	2	2	20/20 100%
Madsen et al. (2009)	2	2	2	2	N/A	N/A	N/A	1	2	2	2	N/A	2	2	19/20 95%

Study	1. Question / objective sufficiently described?	2. Study design evident and appropriate?	3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	4. Subject (and comparison group, if applicable) characteristics sufficiently described?	5. If interventional and random allocation was possible, was it described?	6. If interventional and blinding of investigators was possible, was it reported?	7. If interventional and blinding of subjects was possible, was it reported?	8. Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?	9. Sample size appropriate?	10. Analytic methods described/justified and appropriate?	11. Some estimate of variance is reported for the main results?	12. Controlled for confounding?	13. Results reported in sufficient detail?	14. Conclusions supported by the results?	Score
McNiel et al. (2013)	2	2	2	2	N/A	N/A	N/A	1	2	2	2	N/A	2	2	19/20 95%
Moore et al. (2000)	2	2	2	2	N/A	N/A	N/A	1	1	2	1	N/A	2	2	17/20 85%
Seibel and Dowd (1999)	2	2	2	2	N/A	N/A	N/A	0	1	2	0	N/A	1	2	14/20 70%

Note: ^a = these studies utilised the same sample

Table 4: *Psychological reactance measures used within included studies*

Measure	Trait / State reactance	Measure type	Example items	Factor structure / scoring	Studies utilising (variations) of this measure
Hong Psychological Reactance Scale (Hong & Page, 1989)	Trait	Self-report 5-point Likert scale (strongly disagree – strongly agree) 14 items	<i>“I become angry when my freedom of choice is restricted”;</i> <i>“I consider advice from others to be an intrusion”;</i> <i>“Regulations trigger a sense of resistance in me”.</i>	The HPRS was originally reported to have four factors by Hong and Page (1989), but researchers commonly report a total score. Yost and Finney (2018) found calculating a total score is appropriate, but a bifactor model is the best fit for the HPRS.	Caruso et al. (2019); De las Cuevas, Peñate and Sanz (2014); De Las Cuevas and De Leon (2017); De las Cuevas and de Leon (2019); Madsen et al. (2009); Moore et al. (2000); Smith, Kim and M’Ikanatha (2018).
Therapeutic Reactance Scale (Dowd et al., 1991)	Trait	Self-report 5-point Likert scale (strongly disagree – strongly agree) 28 items	<i>“If I am told what to do, I often do the opposite”;</i> <i>“I am sometimes afraid to disagree with others”;</i> <i>“I usually go along with others’ advice”.</i>	Dowd et al. (1991) reported a two factor solution – Behavioural and Verbal reactance. Total TRS scores are often reported. Validation studies have found four factor solution most appropriate and cautioned against using total scores, or Verbal or Behavioural subscale scores (Buboltz Jr et al., 2002; Inman et al., 2019).	Fogarty and Youngs Jr (2000); Kealy et al. (2018); McNiel et al. (2013); Seibel and Dowd (1999).
Questionnaire for the Measurement of Psychological Reactance (Merz, 1983)	Trait	Self-report 6-point Likert scale (not at all appropriate – extremely appropriate) 18 items	<i>“I seldom behave according to others’ standards”;</i> <i>“The thought of being dependent on others is very unpleasant to me”;</i> <i>“When I get advice, I take it more as a demand”</i>	Seibel and Dowd (1999) reported QMPR total scores. The QMPR was originally written in German. The English version has never been found to be psychometrically stable and hence no recommended scoring method was ever reported in translation/validation studies (Donnell et al., 2001; Hong & Ostini, 1989; Tucker & Byers, 1987).	Seibel and Dowd (1999)

Measure	Trait / State reactance	Measure type	Example items	Factor structure / scoring	Studies utilising (variations) of this measure
Volitional Components Inventory Reactance subscale (Kuhl & Fuhrmann, 1998)	Trait	Self-report 7-point Likert scale (almost never-almost always) 7 items	When I take on something difficult or unpleasant, I am the type of person who... <i>“refuses to satisfy others’ demands”</i> ; <i>“avoids being forced to meet others’ expectations”</i> ; <i>“becomes angry when others’ rules restrict my freedom”</i>	Reported to be unidimensional (Kuhl, 2000; Kuhl & Fuhrmann, 1998) and total scores were calculated by Orbell and Hagger (2006).	Orbell and Hagger (2006)
Author designed scale measuring reactions to the behaviour of relatives & asking for cognitions that have been described as typical indicators of reactance (Ungar et al., 2015)	State	Self-report 7-point Likert scale (does not apply at all – applies completely) 4 items	<i>“Through my relative’s behavior concerning my exercise during the last month, I felt very restricted in my personal freedom”</i> . (only one example item given in paper).	Ungar et al. (2016) reported total scores.	Ungar et al. (2016)
Study designed to manipulate state reactance via physician tone (authoritative vs partnership) and choice (choice vs no choice) conditions (Fogarty & Youngs, 2000)	State	Attempted to measure occurrence of state reactance via impact of tone and choice conditions on compliance/adherence dependent variables.	N/A	N/A	Fogarty and Youngs Jr (2000)

Appendix

Appendix A: Social Science and Medicine Author Guidelines

DESCRIPTION

Social Science & Medicine provides an international and interdisciplinary forum for the dissemination of social science research on health. We publish original research articles (both empirical and theoretical), reviews, position papers and commentaries on health issues, to inform current research, policy and practice in all areas of common interest to social scientists, health practitioners, and policy makers. The journal publishes material relevant to any aspect of health from a wide range of social science disciplines (anthropology, economics, epidemiology, geography, policy, psychology, and sociology), and material relevant to the social sciences from any of the professions concerned with physical and mental health, health care, clinical practice, and health policy and organization. We encourage material which is of general interest to an international readership.

The journal publishes the following types of contribution:

Peer-reviewed original research articles and critical or analytical reviews in any area of social science research relevant to health. These papers may be up to 9,000 words including abstract, tables, and references as well as the main text. Papers below this limit are preferred.

...

PREPARATION

References

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/ book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged.

The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

Formatting Requirements

The journal operates a double blind peer review policy. For guidelines on how to prepare your paper to meet these criteria please see the attached guidelines. The journal requires that your manuscript is submitted with double spacing applied. There are no other strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

Divide the article into clearly defined sections.

Essential cover page information

The Cover Page should only include the following information:

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible and make clear the article's aim and health relevance.

Author names and affiliations in the correct order. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address.

Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be kept up to date by the corresponding author.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Text

In the main body of the submitted manuscript this order should be followed: abstract, main text, references, appendix, figure captions, tables and figures. Author details, keywords and acknowledgements are entered separately during the online submission process, as is the abstract, though this is to be included in the manuscript as well. During submission authors are asked to provide a word count; this is to include ALL text, including that in tables, figures, references etc.

Title

Please consider the title very carefully, as these are often used in information-retrieval systems. Please use a concise and informative title (avoiding abbreviations where possible). Make sure that the health or healthcare focus is clear.

Highlights

Highlights are optional yet highly encouraged for this journal, as they increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any).

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Abstract

An abstract of up to 300 words must be included in the submitted manuscript. An abstract is often presented separately from the article, so it must be able to stand alone. It should state briefly and clearly the purpose and setting of the research, the principal findings and major conclusions, and the paper's contribution to knowledge. For empirical papers the country/countries/locations of the study should be clearly stated, as should the methods and nature of the sample, the dates, and a summary of the findings/conclusion. Please note that excessive statistical details should be avoided, abbreviations/acronyms used only if essential or firmly established, and that the abstract should not be structured into subsections. Any references cited in the abstract must be given in full at the end of the abstract.

Keywords

Up to 8 keywords are entered separately into the online editorial system during submission, and should accurately reflect the content of the article. Again abbreviations/acronyms should be used only if essential or firmly established. For empirical papers the country/countries/locations of the research should be included. The keywords will be used for indexing purposes.

Methods

Authors of empirical papers are expected to provide full details of the research methods used, including study location(s), sampling procedures, the date(s) when data were collected, research instruments, and techniques of data analysis. Specific guidance on the reporting of qualitative studies are provided here.

Systematic reviews and meta-analyses must be reported according to PRISMA guidelines.

Tables

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References

Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full at the end of the abstract.

Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal (see below) and should include a substitution of the publication date with either "Unpublished results" or "Personal communication" Citation of a reference as "in press" implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in special issue articles, commentaries and responses to commentaries

Please ensure that the words 'this issue' are added to any references in the reference list (and any citations in the text) to other articles which are referred to in the same issue.

Reference management software

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Reference formatting

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/ book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style

Text: All citations in the text should refer to:

Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;

Two authors: both authors' names and the year of publication;

Three or more authors: first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999)... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...'

List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

Examples:

Reference to a journal publication:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. *J. Sci. Commun.* 163, 51–59. <https://doi.org/10.1016/j.Sc.2010.00372>.

Reference to a journal publication with an article number:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2018. The art of writing a scientific article. *Heliyon.* 19, e00205. <https://doi.org/10.1016/j.heliyon.2018.e00205>.

Reference to a book:

Strunk Jr., W., White, E.B., 2000. *The Elements of Style*, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp.281–304.

Reference to a website:

Cancer Research UK, 1975. *Cancer statistics reports for the UK*. <http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/> (accessed 13 March 2003).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. *Mendeley Data*, v1. <https://doi.org/10.17632/xwj98nb39r.1>.

Appendix B: Search syntax table*Search Syntax*

<u>Database</u>	<u>Syntax</u>
MEDLINE Complete 500 results	(MH "Mental Health") OR (MH "Health+") OR (MH "Day Care, Medical") OR (MH "Patient Care Team") OR (MH "Health Services Research") OR (MH "Psychiatric Nursing") OR (MH "Psychiatric Rehabilitation") OR (MH "Social Work, Psychiatric") OR (MH "Involuntary Treatment, Psychiatric") OR (MH "Emergency Services, Psychiatric") OR (MH "Mental Disorders") OR (MH "Mentally Ill Persons") OR TI ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") OR AB ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") AND TI ("psych* reactance" or "reactan*") OR AB ("psych* reactance" or "reactan*") AND (MH "Compliance") OR (MH "Patient Compliance") OR (MH "Treatment Adherence and Compliance+") OR (MH "Medication Adherence") OR (MH "Guideline Adherence") OR (MH "Patient Participation") OR (MH "Treatment Refusal+") OR TI ("Adher*" or "complian*" or "concordan*" or "nonadher*" or "noncomplian*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*") OR AB ("Adher*" or "complian*" or "concordan*" or "nonadher*" or "noncomplian*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*")
APA PSYCIInfo 135 results	(((((DE "Mental Health" OR DE "Mental Status") AND (DE "Physical Health" OR DE "Physical Health Assessment" OR DE "Health Screening" OR DE "Pain Measurement" OR DE "Physical Illness (Attitudes Toward)" OR DE "AIDS (Attitudes Toward)")) OR (DE "Health Care Psychology" OR DE "Health Belief Model" OR DE "Medical Psychology"))) OR (DE "Medical Diagnosis" OR DE "Autopsy" OR DE "Biopsy" OR DE "Cardiography" OR DE "Dexamethasone Suppression Test" OR DE "Echoencephalography" OR DE "Electro Oculography" OR DE "Electroencephalography" OR DE "Electromyography" OR DE "Electronystagmography" OR DE "Electroplethysmography" OR DE "Electroretinography" OR DE "Encephalography" OR DE "HIV Testing" OR DE

"Magnetoencephalography" OR DE "Ophthalmologic Examination" OR DE "Plethysmography" OR DE "Pneumoencephalography" OR DE "Prenatal Diagnosis" OR DE "Rheoencephalography" OR DE "Roentgenography" OR DE "Spectroscopy" OR DE "Tomography" OR DE "Urinalysis")) OR (DE "Medical Psychology") OR TI ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") OR AB ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") AND (DE "Psychological Reactance") OR (DE "Psychotherapeutic Resistance") OR TI ("psych* reactance" or "reactan*") OR AB ("psych* reactance" or "reactan*") AND (((((DE "Treatment Refusal") OR (DE "Treatment Termination")) OR (DE "Compliance" OR DE "Treatment Compliance"))) AND (DE "Treatment Compliance" OR DE "Treatment Dropouts")) OR (DE "Treatment Dropouts")) AND (DE "Client Participation" OR DE "Treatment Barriers") OR TI ("Adher*" or "complan*" or "concordan*" or "nonadher*" or "noncomplan*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*") OR AB ("Adher*" or "complan*" or "concordan*" or "nonadher*" or "noncomplan*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*")

CINAHL
230 results

(MH "Mental Health") OR (MH "Mental Health Services+") OR (MH "Community Mental Health Services+") OR (MH "Medical Practice+") OR (MH "Medical Care") OR (MH "Health+") OR (MH "Psychiatry+") OR (MH "Child Psychiatry") OR (MH "Forensic Psychiatry") OR (MH "Telepsychiatry") OR (MH "Geriatric Psychiatry") OR (MH "Adolescent Psychiatry") OR (MH "Psychiatric Service") OR (MH "Psychiatric Patients") OR TI ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") OR AB ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") AND (MH "Psychotherapeutic Processes+") OR TI ("psych* reactance" or "reactan*") OR AB ("psych* reactance" or "reactan*") AND

(MH "Medication Compliance") OR (MH "Compliance with Medication Regimen (Saba CCC)") OR (MH "Patient Compliance+") OR (MH "Compliance, Physical") OR (MH "Compliance with Therapeutic Regimen (Saba CCC)") OR (MH "Compliance with Medical Regimen (Saba CCC)") OR (MH "Compliance Care (Saba CCC)") OR (MH "Guideline Adherence") OR (MH "Compliance Behaviour (Iowa NOC)") OR (MH "Patient Dropouts") OR (MH "Treatment Refusal") OR (MH "Treatment Termination") OR (MH "Treatment Failure") OR

TI ("Adher*" or "complan*" or "concordan*" or "nonadher*" or "noncomplan*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*") OR AB ("Adher*" or "complan*" or "concordan*" or "nonadher*" or "noncomplan*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*")

Academic Search Ultimate

340 results

(((((DE "MENTAL health" OR DE "INTERVIEWING in mental health" OR DE "MENTAL competency (Law)" OR DE "MENTAL health & social status" OR DE "ORTHOPSYCHIATRY" OR DE "PERSONALITY" OR DE "PSYCHOLOGICAL stress" OR DE "RELAXATION (Health)" OR DE "SELF-actualization (Psychology)" OR DE "SOCIAL psychiatry" OR DE "STRESS management" OR DE "VOLUNTEER workers in mental health") OR (DE "HEALTH" OR DE "ADVERSE childhood experiences" OR DE "ALEXANDER technique" OR DE "ANIMAL health" OR DE "ASTROLOGY & health" OR DE "ATHLETES' health" OR DE "ATTITUDES toward health" OR DE "CARDIOVASCULAR fitness" OR DE "CHILDREN'S health" OR DE "DIET" OR DE "ENVIRONMENTAL health" OR DE "EXERCISE" OR DE "FAMILY health" OR DE "HEALTH & income" OR DE "HEALTH & race" OR DE "HEALTH of LGBTQ people" OR DE "HEALTH of artists" OR DE "HEALTH of authors" OR DE "HEALTH of executives" OR DE "HEALTH of older people" OR DE "HEALTH of refugees" OR DE "HEALTH self-care" OR DE "HEALTH status indicators" OR DE "MEN'S health" OR DE "MENTAL health" OR DE "NUTRITION" OR DE "OPTIMAL health (Philosophy)" OR DE "ORAL health" OR DE "PHYSICAL activity" OR DE "PHYSICAL fitness" OR DE "PLANT health" OR DE "RELAXATION (Health)" OR DE "REPRODUCTIVE health" OR DE "REST" OR DE "RURAL health" OR DE "SELF-neglect" OR DE "SEXUAL health" OR DE "SLEEP" OR DE "STRESS management" OR DE "TEENAGERS' health" OR DE "VITALITY" OR DE "WOMEN'S health"))) OR (DE "MEDICAL care" OR DE "ACUTE medical care" OR DE "ADVANCE directives (Medical care)" OR DE "ADVERSE health care events" OR DE "CHILD health services" OR DE "CLEFT palate services" OR DE "CLINICAL competence" OR DE "COMMUNITY health services" OR DE "CONSUMER-driven health care" OR DE "CURATIVE medicine" OR DE "DENTAL care" OR DE "DIAGNOSIS" OR DE "DIAGNOSTIC services" OR DE "DISCRIMINATION in medical care" OR DE

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((DE "MENTAL health" OR DE "MENTAL health & social status" OR DE "PERSONALITY" OR DE "PSYCHOLOGICAL stress" OR DE "SELF-actualization (Psychology)" OR DE "SOCIAL psychiatry") OR (DE "PSYCHIATRY" OR DE "CHILD psychiatry" OR DE "COMMUNICATION in psychiatry" OR DE "COMMUNITY psychiatry" OR DE "FORENSIC psychiatry" OR DE "MENTAL illness treatment" OR DE "PSYCHIATRIC treatment" OR DE "PSYCHOTHERAPY" OR DE "SOCIAL psychiatry")) OR (DE "HEALTH" OR DE "ADVERSE childhood experiences" OR DE "ATTITUDES toward health" OR DE "CHILDREN'S health" OR DE "ENVIRONMENTAL health" OR DE "EXERCISE" OR DE "FAMILY health" OR DE "HEALTH & income" OR DE "HEALTH & race" OR DE "HEALTH of LGBTQ people" OR DE "HEALTH of older people" OR DE "HEALTH of refugees" OR DE "HEALTH self-care" OR DE "HEALTH status indicators" OR DE "MEN'S health" OR DE "MENTAL health" OR DE "NUTRITION" OR DE "PHYSICAL fitness" OR DE "REPRODUCTIVE health" OR DE "RURAL health" OR DE "SELF-neglect" OR DE "SEXUAL health" OR DE "SLEEP" OR DE "TEENAGERS' health" OR DE "WOMEN'S health")) OR (DE "MEDICAL care" OR DE "ADVANCE directives (Medical care)" OR DE "CHILD health services" OR DE "COMMUNITY health services" OR DE "CURATIVE medicine" OR DE "DENTAL care" OR DE "DISCRIMINATION in medical care" OR DE "EMERGENCY medical services" OR DE "HEALTH disparities" OR DE "HEALTH facilities" OR DE "HEALTH self-care" OR DE "HEALTH services accessibility" OR DE "HETEROSEXISM in medical care" OR DE "HOSPITAL care" OR DE "HUMANISTIC medicine" OR DE "MANAGED care plans

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 AB ("mental health" or "physical health" or "healthcare" or "health care" or "health-care" or "patient*" or "nursing" or "condition*" or "diagnos*" or "chronic" or "illness*" or "disease*" or "syndrome*" or "depress*" or "anxi*" or "psychiatr*" or "severe mental") AND
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 AB ("Adher*" or "compliant*" or "concordant*" or "nonadher*" or "noncompliant*" or "persisten*" or "treatment us*" or "attend*" or "non-attend*" or "engag*" or "disengag*" or "reject* ADJ2 therapy" or "reject* ADJ2 treatment" or "DNA" or "did not attend" or "drop out" or "drop-out" or "service use" or "retention" or "attrition" or "premature termination" or "treatment ADJ2 refus*" or "therapy ADJ2 refus*")

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Note. MH; DE; / = Subject Headings; AB; ab = Abstract; TI; ti = Titl

Appendix C: Quality Appraisal Tool (Standard Quality Assessment criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet et al., 2004).

Table 1. Checklist for assessing the quality of quantitative studies

Criteria		YES (2)	PARTIAL (1)	NO (0)	N/A
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

Section Two: Empirical Paper

Engagement with mental health services for people with experiences of psychosis: the role of psychological factors

Word count (excluding references, tables and appendices): 8000 words

Abstract: 246 words

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Prepared in accordance with guidelines for authors for *Social Science and Medicine*¹

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Declarations of interest: none

¹ See Appendix A for submission guidelines

Abstract

People who experience psychosis have a high rate of disengagement from mental health services. This has led to investigations of correlates of service (dis)engagement, in an effort to further understanding of how engagement can be increased. This study aimed to investigate the predictive value of potentially important psychological variables in therapeutic engagement in this group. Perceptions of autonomy, control beliefs, psychological reactance and expressed emotion were predicted to be associated with engagement levels.

Participants ($N=113$) completed an online survey comprising of measures of the above variables and demographic questions. Those included were 18 years+ of age, experiencing psychosis and currently or previously a service user of mental health services.

An exploratory factor analysis showed the author-devised autonomy scale was unidimensional, and accounted for 58.67% of the variance in overall scale score. Participants who reported one previous hospital admission had significantly lower engagement scores compared with participants who reported no previous admissions. There were no other significant relationships between sociodemographic variables and engagement. Expressed emotion was not significantly associated with engagement. In a regression model, autonomy, psychological reactance and control beliefs significantly accounted for 46.2% of the variance in engagement; although at the final step, autonomy was the only significant predictor, accounting for 28.2% of the variance in engagement alone.

This study demonstrated the utility of measuring perceptions of autonomy in relation to service engagement in psychosis. Findings highlight the importance of considering psychological variables in predicting therapeutic engagement, something future research should continue to do.

Keywords: psychological reactance; autonomy; control beliefs; expressed emotion; engagement; psychosis; mental health; predictors.

Introduction

The prevalence of clinical levels of psychosis is high, with meta-analyses finding annual incidence of psychotic disorders being 32 cases per 100,000 people in the UK (Kirkbride et al., 2012), and 26.6 per 100,000 people based on multinational samples (Jongsma et al., 2019), with both reviews finding higher rates in men and Black and Minority Ethnic (BAME) groups. Whilst each individual's experiences of psychosis are unique, psychosis is typically characterised by experiences of hallucinations, delusions, changes in mood and/or cognitive and interpersonal difficulties (British Psychological Society, 2017). Psychosis often causes individuals, and their families, significant distress and is associated with poorer health outcomes and reductions in global functioning (Hjorthøj et al., 2017; Kelleher et al., 2015). People experiencing psychosis benefit from long-term, recovery-oriented support from multi-disciplinary services to achieve improvements in mental health and quality of life (Csillag et al., 2016). Therapeutic benefits associated with mental health services are influenced by the degree to which participants engage with the service (Mitchell & Selmes, 2007). Disengagement rates from mental health services by people experiencing psychosis are high, at around one in three for Early Intervention for Psychosis services (EIS; Doyle et al., 2014). A recent study found disengagement rates in First Episode Psychosis (FEP) of 56.3% (Brown et al., 2019). This presents an important clinical challenge for researchers and services to consider (Mascayano et al., 2020).

There are inherent challenges in measuring and researching such (dis)engagement, due to it being a complex and multifaceted concept (Reynolds, Brown, Tindall, et al., 2019; Tindall et al., 2018). A recent review found that across psychosis studies, there is little consensus between researchers in how (dis)engagement is conceptualised, operationalised and measured, and that researchers tend to measure engagement categorically (i.e. non-attendance at appointments; Reynolds, Brown, Tindall et al., 2019). However, measuring

(dis)engagement categorically implies engagement is a binary outcome, rather than a dynamic, relational process that changes in relation to stage of treatment and service user needs (Lal & Malla, 2015).

“Therapeutic engagement” is conceptualised differently from engagement in the literal sense of adherence/attendance (Tetley et al., 2011). O’Brien et al. (2009) suggest therapeutic engagement includes “the acceptance of a need for help, the formation of a therapeutic alliance with professionals, satisfaction with the help already received, and a mutual acceptance and working towards shared goals”. The Singh O’Brien Level of Engagement Scale (SOLES; O’Brien et al., 2009) is a self-report scale designed to measure therapeutic engagement with services for people experiencing psychosis. Items were developed representing concepts related to engagement: attendance, satisfaction, therapeutic alliance, insight and adherence. The SOLES has good predictive validity in terms of longitudinal disengagement, cross-sectional disengagement and attendance at appointments (O’Brien et al., 2009).

Facilitating engagement is a key priority within EIS; this is based on the rationale that the initial stages of support received when experiencing psychosis are crucial in terms of longer-term outcomes (Aceituno et al., 2019; Correll et al., 2018). Studies of (dis)engagement with EIS have largely focused on sociodemographic and clinical variables. Substance use, low baseline severity of illness, insight, past forensic history, unemployment, duration of untreated psychosis, lack of family support, medication non-adherence, symptomatology and socioeconomic status have been found to be associated with non-engagement (Doyle et al., 2014; Mascayano et al., 2020; Reid & Murray, 2018; Reynolds, Brown, Geros, et al., 2019), with equivocal evidence for associations with BAME status (Casey et al., 2016; Kline & Thomas, 2018; Solmi et al., 2018; Wang, 2007).

Whilst the issue of engagement with EIS is undoubtedly important, the literature's predominant focus upon EIS and prevention (Fusar-Poli et al., 2012) seems to have been at the cost of sufficient attention being paid to this issue in longer-term psychosis. There seem to be no existing studies investigating the prevalence rates of disengagement from mental health services for individuals with established psychosis/schizophrenia-spectrum diagnoses; although it has been recognised that secondary care services experience difficulties in engaging this group (Bouras et al., 2018; Edwards et al., 2016; Kreyenbuhl et al., 2009). Whilst research into FEP tends to focus upon attendance/drop-out, research into established psychosis typically focuses on medication adherence (Chaudhari et al., 2017; Czobor et al., 2015; Goff et al., 2011) – with less overall focus on therapeutic engagement. Regardless of the stage of illness, there remains an assumption that mental health service input improves outcomes for individuals. Understanding factors that impact therapeutic engagement (not just attendance/adherence) at all stages of illness is, therefore, important (Kline & Thomas, 2018).

Psychological factors should be considered, but have been largely absent from reviews. Psychological variables have the potential to be amenable to intervention, thus leading to the identification of treatment targets to enhance engagement. Interestingly, quantitative research investigating psychological factors tends to include participants experiencing established psychosis as well as individuals in earlier stages (Reid & Murray, 2018). Studies have investigated associations between engagement and recovery style (Tait et al., 2003); beliefs and attributions about illness (Casey et al., 2016; Shah et al., 2009; Williams & Steer, 2011); stigma and discrimination (Clement et al., 2015; Hack et al., 2020; Tsang et al., 2010); attachment (MacBeth et al., 2011); psychosocial functioning (Rossi et al., 2017); quality of life and self-esteem (Staring et al., 2009); therapeutic alliance (Farrelly et al., 2014); and experiences of childhood abuse (Lecomte et al., 2008; Spidel et al., 2010). Qualitative research into engagement with EIS has also highlighted the importance of

psychological factors; with an emphasis on the importance of shared goals, client autonomy and therapeutic relationships (Cowan et al., 2020; Loughlin et al., 2020; Tindall et al., 2020; Tindall et al., 2018). These findings highlight the potential utility of further investigating psychological factors in relation to service engagement in psychosis.

Autonomy

Self-determination theory posits that autonomy, defined as the ability to act out of personal choice (rather than control), is a basic psychological need of all people (Ryan & Deci, 2002). Discussions of autonomy in healthcare generally focus on patients' decisional autonomy (freedom to deliberate and choose a course of action/treatment from among a range of options), and experiences of autonomy-support (the extent to which individuals feel empowered and supported to make informed choices based on their own values and preferences; Arrieta-Valero, 2019; Hagger & Protoyerou, 2020). Indeed, there is evidence that patient perceptions of autonomy and autonomy-support predict increased adherence across various health conditions/settings (Kennedy et al., 2004; Koponen et al., 2017; Nafradi et al., 2017; Ng et al., 2014; Russell & Bray, 2010; Sandman et al., 2012; Umeukeje et al., 2016).

These are interrelated concepts; clients' decisional autonomy is dependent, at least in part, upon the autonomy-support provided by services/professionals. Within psychosis literature, client autonomy and autonomy-support are generally considered in the context of treatment-related empowerment, via implementing shared decision making and reducing experiences of coercion and compulsory treatment. Treatment-related empowerment is associated with increased service user satisfaction, medication adherence and quality of life, and reduced hospitalisations (Ahmed et al., 2016; Baker et al., 2019; Delman et al., 2015;

Elwyn et al., 2012; Fiorillo et al., 2020; Holttum, 2020; Stovell, Morrison, et al., 2016; Stovell, Wearden, et al., 2016).

Despite attention to treatment-related empowerment, there has been relatively little focus on client perceptions of autonomy and autonomy-support in psychosis (Gleeson et al., 2020). Individuals with FEP experience low levels of perceived autonomy, and report loss of autonomy as one of the main difficulties associated with experiencing psychosis (Breitborde et al., 2012; Breitborde et al., 2019; Jordan et al., 2018). Moreover, a recent study was the first to measure autonomy-support in FEP, and showed autonomy-support is associated with increased quality of life and potentially reduced depression (Browne et al., 2017). These findings, alongside research evidencing the impact of increased autonomy-support on healthcare adherence, suggest research into the relationship between client perceptions of autonomy and therapeutic engagement in psychosis would be valuable.

Control beliefs

Control beliefs are another related construct which may play an important role in predicting engagement in psychosis. Locus of control beliefs have been extensively studied in healthcare, with findings often being that external control beliefs (where individuals believe they have little or no control over their life/health) are predictive of less adherence compared with internal control beliefs (where individuals believe they can control factors which influence their life and health; Nafradi et al., 2017). These findings have been replicated in psychiatric samples, with recognition that individuals experiencing psychosis tend to possess more external than internal control beliefs (De las Cuevas et al., 2017; De las Cuevas et al., 2016; Hutcheson et al., 2014; Jaeger et al., 2014). Control beliefs do not seem to have yet been investigated in the context of therapeutic engagement. Understanding whether control

beliefs predict therapeutic engagement for people who experience psychosis would also be valuable in furthering understanding of engagement.

Psychological Reactance

Psychological reactance theory (Brehm, 1966) proposes that freedom of behaviour is an important and pervasive aspect of people's lives. When this freedom is threatened, individuals become motivated to restore their sense of autonomy; this motivational state is termed psychological reactance (Rosenberg & Siegel, 2018). Psychological reactance results in behavioural and cognitive efforts to re-establish autonomy (Dillard & Shen, 2005). Behaviourally, people may attempt to engage in the behaviour being threatened or a similar/related behaviour. Cognitively, people may derogate the source of threat, upgrade the restricted freedom or downgrade the imposed option's favourableness (Miron & Brehm, 2006; Reynolds-Tylus, 2019; Shen & Dillard, 2005). Based on the assumption that people vary in the strength of their need for autonomy, researchers have shown the amount of state reactance experienced is influenced by trait reactance proneness; that is, a person's likelihood of perceiving stimuli as freedom/autonomy threatening (Brehm & Brehm, 1981; Dillard & Shen, 2005; Miller et al., 2006; Quick et al., 2011; Quick & Stephenson, 2008; Rains, 2013; Rosenberg & Siegel, 2018; Shen & Dillard, 2005).

Several studies have shown trait psychological reactance predicts medication adherence and appointment attendance in psychiatric patient samples (Section One). Moreover, Wilson and Deane (2012) showed that need for autonomy was a strong barrier to seeking mental healthcare in FEP. Various aspects of mental healthcare provision could be deemed as threatening to freedom of behaviour/autonomy, and even more so by individuals high in trait reactance – leading to reduced therapeutic engagement (Grinter, 2012). This may be further influenced by whether clients experience healthcare provision as autonomy-

supportive (collaborative) or autonomy-restrictive (controlling). Perceived autonomy may moderate the relationship between trait reactance and engagement, so that higher perceived autonomy increases engagement for participants higher in trait psychological reactance. Indeed, it has been shown in psychotherapy clients that those high in trait reactance had better therapy outcomes when the therapist assumed a nondirective, autonomy-supportive stance, rather than a directive and authoritative one (Beutler et al., 2018).

Expressed Emotion

Patterns of family interactions are another area of potential importance related to engagement. Expressed Emotion (EE) is a construct comprised of emotional over involvement, criticism, hostility and warmth. High-EE (criticism and emotional over involvement) relatives of people experiencing psychosis act in more controlling ways in comparison to low-EE relatives (Hooley & Campbell, 2002; Peterson & Docherty, 2004; Vasconcelos e Sa et al., 2013; Wuerker et al., 2002). Such experiences likely lead to a reduction in perceived autonomy (Aguilera et al., 2010), although there are no studies investigating this relationship.

High levels of EE predict poorer service user outcomes, including more frequent relapse and hospital admissions (Cechnicki et al., 2013; Domínguez-Martínez et al., 2014; O'Driscoll et al., 2019). In a recent study, da Silva et al. (2020) did not find a relationship between high-EE and medication adherence in FEP, but suggested this warrants further consideration in the context of therapeutic engagement. However, Sellwood et al. (2003) did find that high-EE was associated with reduced medication adherence in psychosis. Moreover, high-EE is associated with high levels of carer burden (Marom et al., 2005; Patel et al., 2014), and a recent study found an association between high levels of carer burden and reduced EIS engagement (Reid & Murray, 2018). Family interventions, targeted at EE, have

also been shown to increase medication adherence in psychosis (Pharoah et al., 2010). It therefore seems that the relationship between EE and therapeutic engagement, in the context of perceived autonomy in relation to mental healthcare, is worthwhile investigating further.

Aims

Using the SOLES (O'Brien et al., 2009), this study aimed to investigate factors that predict therapeutic engagement with mental health services for people who self-report experiencing psychosis.

First, in an effort to utilise demographic data and identify potential covariates, this study aimed to investigate whether demographic variables were associated with engagement. Next, we sought to investigate the relationships between perceived autonomy, control beliefs, psychological reactance, EE and engagement. It was hypothesised that autonomy, psychological reactance, control beliefs and EE would be significantly correlated with engagement, and that together these variables would predict a significant amount of the variance in engagement in a regression model.

Finally, it was hypothesised that perceived autonomy would significantly moderate the relationship between trait psychological reactance and engagement.

Method

Design

Participants

Participants were recruited between 27th May and 9th September 2020. Eligibility criteria were participants who self-reported: being ≥ 18 years of age; experiencing psychosis; and are, or had previously been, mental health service users. No exclusions were placed on location.

Procedure

The study received ethical approval from Lancaster University's Faculty of Health and Medicine Research Ethics Committee. Feedback on design was obtained from experts by experience from Lancaster University's Public Involvement Network via a focus group. Additionally, an EIS's Participation Consultant provided feedback. This was used to refine the accessibility of the information/survey, to understand the potential time burden of participating, and to re-word some of the demographic and autonomy questions. Suggested changes were included in the final design.

Participants responded to an anonymous online survey which was advertised on social media platforms (Facebook, Twitter, Instagram and Reddit). Key stakeholders were also asked to circulate the study advertisement; these included mental health charities, student research websites, academic researchers and public champions for people with lived experience of psychosis.

Prior to beginning the survey, participants completed a consent form and indicated that they had read the participant information sheet fully. They were informed that the purpose of the study was to investigate factors that influence whether people experiencing psychosis decide/feel able to engage with services. Next, participants were asked to confirm their eligibility. Here, and within the study advertisement and information sheet, psychosis was described as "*psychosis might be seeing or hearing things (voices) that other people cannot, or having strong beliefs that others think are very unusual. Experiencing psychosis is sometimes linked with diagnoses like "schizophrenia", "schizoaffective disorder" or "delusional disorder", but not necessarily*". Examples of mental health teams were given. Following survey completion, participants were given the option to enter a prize draw for an opportunity to win one of five £30 Amazon vouchers. This information was gathered

separately to maintain participants' anonymity. Within the information and debrief sheets, participants were directed to supportive resources for if they felt any distress².

Demographic Questions

Respondents entered sociodemographic information relating to a range of variables (Table 1). For the questions regarding diagnoses and type(s) of mental health service, participants could select more than one option or specify a different answer in an 'other' category – this was to acknowledge that participants may identify as having/experiencing multiple mental health diagnoses/difficulties, as well as having had experience of multiple mental health services.

Measures

SOLES (O'Brien et al., 2009). The SOLES is a 16-item self-report measure of engagement with services for people experiencing psychosis. Example items include *"I have benefited from mental health services"*, *"I attend appointments with my care coordinator/key worker"*, *"I feel listened to by health professionals"*, *"I need to take my psychiatric medication"*, *"I always take my medication"*. For questions that included the term 'keyworker', '/care coordinator' was added, to reflect a term many UK secondary care service users may be more familiar with. Participants were asked to rate their agreement with statements on a 10-point scale (0 = not at all – 10 = entirely). Participants who were not currently service users were asked to answer based on how they felt when they were previously a service user.

The SOLES is scored by calculating the mean of all non-missing items. Item 13 is reverse scored. The authors report that three items can be missed if a person does not have a keyworker. In this study, participants were instructed to leave any questions that were not

² Full details of the study procedure and ethical approval are included in Section 4.

relevant to them blank, because additional questions were also potentially irrelevant for some participants (e.g. questions regarding medication or hospital admissions). Higher scores indicate better engagement. O'Brien et al.'s (2009) analysis revealed that the scale had good internal consistency ($\alpha=.843$). An additional supplementary question was asked on whether the participant feels there have been times in the past they have disengaged from mental health services.

Autonomy. At the time of study design, a scoping search of the literature did not identify measures of perceptions of autonomy related to mental health. Throughout physical healthcare literature, autonomy-support is often measured via the Health Care Climate Questionnaire (Williams et al., 1996), which asks about perceptions of autonomy-support provided by a patients' key physician. For this study, it was important to have questions designed around both decisional autonomy and autonomy-support, in relation to others and mental health services more generally (rather than one key physician). After reviewing both autonomy and psychosis literature, the authors generated seven items to measure this. These were taken to experts by experience to receive feedback on the concept being measured and wording of items. Item six was changed in response to service user feedback.

Participants were asked to rate the extent to which they agreed with each statement (1 = not at all – 4 = all of the time). Participants who were not currently service users were asked to answer based on how they felt when they were previously a service user. Items are shown in Table 2. Items 3, 4 and 5 are reverse scored. Total scores are calculated, with higher scores reflecting greater perceived autonomy.

Mastery Scale – short version. This is a five item self-report scale which measures individual's control beliefs; the extent to which individuals view themselves as being in control over things that happen in their lives (Clench-Aas et al., 2017; Pearlin & Schooler,

1978). Individuals answer on a five-point scale their agreement with the statements that: they have little control over things that happen to them; are unable to solve problems they have; cannot change important things in their life; feel helpless when dealing with problems in life; and sometimes feel they are being pushed around in life. The total scores are summed with higher scores indicating higher sense of mastery.

The Mastery scale short version has been shown to be internally consistent ($\alpha=.84$) (Clench-Aas et al., 2017; Gadalla, 2009). The mastery scale has previously been used in psychosis research (Eklund et al., 2012; Hsiung et al., 2010).

Hong Psychological Reactance Scale (HPRS). The HPRS is a 14-item scale measuring trait psychological reactance proneness (Hong & Page, 1989). Individuals rate their agreement with each item (1=strongly disagree – 5=strongly agree). Items include: “*I consider advice from others to be an intrusion*”, “*The thought of being dependent on others aggravates me*”, and “*When something is prohibited, I usually think ‘that is exactly what I am going to do’*”. Total item scores are summed, with higher scores indicating higher reactance proneness. The appropriateness of utilising total HPRS score as an overall index of trait reactance has been verified (Brown & Finney, 2011; Brown et al., 2011; Moreira et al., 2020; Waris et al., 2020; Yost & Finney, 2018). Yost and Finney (2018) describe HPRS reliability via explained common variance (ECV), reporting that ECV is between 63-69%, higher than the 50% ‘acceptable’ standard (Brown & Finney, 2011; Brown et al., 2011).

Brief Dyadic Scale of Expressed Emotion (BDSEE). This is a 14-item scale measuring patients’ perceptions of EE (Medina-Pradas et al., 2011). It is composed of three subscales: perceived criticism, perceived emotional over involvement and perceived warmth, which accounted for 73.1% of the variance. Items are scored on a 10-point scale (1=not at all/never – 10=very/always). Participants were asked to answer the questions about “*the person you*

are closest to, whom you spend the most time with through the week and whom helps support you with your mental health". Sum scores for each subscale are calculated, with higher scores indicating more perceived criticism, emotional over involvement or warmth. The criticism factor consists of four items with a Cronbach's alpha of .90 (e.g. "*How critical is this person of you?*"). The emotional over involvement factor consists of six items with a Cronbach's alpha of .82 (e.g. "*This person does not let me do things on my own.*"). The warmth factor consists of four items with a Cronbach's alpha of .92 (e.g. "*How caring is this person of you?*"). Medina-Pradas et al. (2011) validated the scale in a sample of people who had received eating disorder diagnoses. The scale was originally validated by Keefe et al. (2006 – as cited in Medina-Pradas et al., 2011) on a sample of people who had received schizophrenia diagnoses. Whilst this study was never published, Medina-Pradas et al. (2011) report Cronbach's alphas from the sample of patients with schizophrenia diagnoses was .67 to .79. Medina-Pradas et al. (2011) also investigated the BDSEE's construct validity via comparison with several EE instruments, including with the Camberwell Family Interview (CFI) – the gold standard for investigating EE. They found participants' perceptions and the "objective" ratings derived from the CFI were significantly correlated for criticism and emotional over involvement, and a positive but non-significant relationship was observed between the BDSEE and CFI's measure of warmth. Thus, their findings suggest the BDSEE's construct validity is good.

Before participants completed the BDSEE, three accompanying questions were asked about who the participant lives with, whom the closest person in their life is, and how much time per week the participant spends with this person.

Analysis Strategy

First, descriptive statistics of demographics were examined to understand sample characteristics. An exploratory factor analysis (EFA) was conducted to examine the structure of the autonomy measure; principal axis factoring with varimax rotation, and extraction criteria of eigenvalue > 1 were utilised (Costello & Osborne, 2005).

Next, the relationships between demographic variables and engagement were investigated, using independent samples t-tests, one-way ANOVAs and correlational analyses. Due to participants self-reporting as experiencing/being given multiple conditions/diagnoses, and as having been involved with multiple services, it was not possible to analyse these variables' relationships with engagement in a way that would provide meaningful results. Additionally, for ethnicity and country variables, the non-dominant groups (i.e. non-White and non-UK) had too small a sample sizes to allow for meaningful analysis. The nature of the relationships between reactance, mastery, autonomy, EE and engagement variables was then explored using correlational analysis. Assumptions underlying correlational analysis, t-tests and ANOVAs were considered. Scatterplots, histograms, boxplots and Q-Q plots for each variable were inspected. There were no "extreme" outliers (± 3.29 standard deviations away from the mean), and assumptions of linearity and normality were met. For t-tests/ANOVAs, homogeneity of variances was assumed, as assessed by Levene's test for equality of variances (Field, 2018).

Next, a hierarchical multiple linear regression analysis, using forced entry method, was employed to determine the combined predictive value of the independent variables on engagement. During design of the study, an *a priori* power analysis using G*power for a multiple regression with seven predictors at an alpha level of 0.05 and a power of 0.80 predicted requiring a sample size of $N = 103$ in order to identify a medium effect size ($f^2 =$

0.15). It was hypothesised that each of the key variables (EE [perceived criticism, emotional over involvement], autonomy, mastery, psychological reactance) would significantly predict engagement in a regression model. Correlational analysis findings did not indicate for any demographic variables to be entered into the model as control variables. Moreover, following correlational analysis, EE subscales were not included in regression analyses, as it was clear these would not add predictive value to the model. Thus, the remaining predictors were entered sequentially. HPRS was entered in the first step; followed by mastery in the second step; and autonomy in the final step.

Finally, a moderation analysis was conducted using the Hayes PROCESS Tool Version 3.5 (Hayes, 2012) to investigate whether perceived autonomy moderated the relationship between psychological reactance and engagement. Predictor variables were centred to improve the interpretability of the results by providing meaningful zero points (Aiken et al., 1991).

Prior to conducting the analyses, the assumptions of regression were tested. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.533. Assumptions of homoscedasticity and linearity were met, as observed via a residual scatterplot between the model and engagement. There was no evidence of multicollinearity, as assessed by tolerance values of greater than 0.1. No cases had standardised residuals greater than ± 3 standard deviations from the mean, and the value for Cook's distance was .310, indicating there were no residual outliers in the data. The assumption of normal distribution of residuals was also accepted as illustrated by the histogram (Field, 2018).

Results

Participant characteristics

A total of 113 complete participant responses were recorded. There were some partial responses; 117 participants completed only demographics, SOLES, Autonomy, Mastery and

HPRS measures; 115 completed only demographics, SOLES, and HPRS; and 119 completed only demographics and SOLES. These partial responses were retained to include, where possible, within analyses.

Participant characteristics are summarised in Table 1. Participants' mean age was 31.47 years, ranging from 18-74, and 64.7% of participants were female. The majority of participants lived in the United Kingdom (53.8%) or the USA (22.7%). A large proportion of participants reported being White (82.4%). Approximately half the sample reported currently working or studying (56.2%) and currently being in a relationship (50.4%). Most participants lived with their partner/family or parents (63%); 21.8% reported living alone.

Participants ($N=119$) identified as having/experiencing 469 diagnoses/conditions, in total: 90 participants selected 'Psychosis'; 23 selected 'First Episode Psychosis'; 14 selected 'At Risk of Developing Psychosis'; 51 participants selected Schizophrenia Spectrum Disorder diagnoses; 63 participants reported experiencing Depression and 67 reported experiencing Anxiety; 43 participants selected 'Post-Traumatic Stress Disorder'. Most participants reported being currently involved with a mental health team (70.6%).

Participants identified as being/having previously been involved with 267 mental health services in total: 71 participants selected Community Mental Health Team; 70 selected Crisis Team; 35 selected Early Intervention for Psychosis Service. 71.4% of participants reported a history of psychiatric hospital admissions. 60.5% of participants reported having previously disengaged from services.

[TABLE 1 ABOUT HERE]

Autonomy Scale EFA

The factorability of the items was examined. Cronbach's alpha was .905, suggesting strong internal consistency; analysis showed Cronbach's alpha would not have improved if

any items were deleted. The coherence of the criterion set was further supported by the strength of the intercorrelations among the items; all correlation coefficients were between .409 and .844, and were all significant (Table 2). The determinant statistic was .011, confirming there was no multicollinearity; this was further confirmed by the fact none of the correlations were above 0.9. Together these results suggested good factorability (Field, 2018). The Kaiser-Meyer-Olkin measure of sampling adequacy was very good, at .877, above the commonly recommended value of .5 (Field, 2018), and Bartlett's Test of Sphericity was significant ($\chi^2(21) = 511.958, p < .001$). Finally, the communalities were all above .3, further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable with all seven items. Results of the principal axis factoring are shown in Table 2. Examination of the scree plot suggested a unidimensional structure. Indeed, a one factor solution was extracted, with an eigenvalue of 4.486 (other eigenvalues ranged from .145 - .704). This factor accounted for 58.67% of the variance. Factor loadings ranged from .604 to .879. The mean Autonomy score was 17.17 ($SD = 5.55$), with a range of 21.

[TABLE 2 ABOUT HERE]

Scale Reliabilities

All Cronbach's alphas were high, indicating strong internal consistencies (Gliem & Gliem, 2003): SOLES $\alpha = .897$; Mastery $\alpha = .841$; HPRS $\alpha = .847$; BDSEE Criticism $\alpha = .773$; BDSEE Emotional over involvement $\alpha = .820$; BDSEE Warmth $\alpha = .909$.

Relationships between variables and engagement

Descriptive statistics and Pearson correlations among variables are included in Table 3. Age was not significantly correlated with engagement. There was no significant difference in SOLES scores between: Male and female participants ($t = 1.325, p = .188$); participants in

a relationship and those who reported being single ($t = .731, p = .466$); and participants who reported currently working and those who reported not currently working ($t = -.158, p = .874$).

Participants who reported currently being involved with a mental health team had a significantly higher SOLES score ($M = 7.37, SD = 1.89$) than participants who were not currently service users ($M = 5.68, SD = 2.04; M Difference = 1.69, 95\% CI [0.9-2.48], t(115) = 4.245, p < .001$). Participants who reported having previously disengaged from mental health services ($M = 6.49, SD = 2.13$) had a significantly lower SOLES score than participants who reported no previous instances of disengagement ($M = 7.96, SD = 1.97; M Difference = 1.06, 95\% CI [0.26-1.87], t(111) = 2.621, p = .01$). The number of times participants reported having previously disengaged from services was significantly positively correlated with the time they spent with the closest person in their life ($r = .386, p = .004$), but not with any other variables.

A one-way ANOVA showed there were significant differences in SOLES scores between participants who reported one, more than one or no previous psychiatric hospital admissions ($F(3, 115) = 3.109, p = .029, \eta^2 = .02$). Tukey post hoc analysis revealed that mean SOLES scores were significantly lower in those who reported one previous hospital admission ($M = 7.84, SD = 1.94$), compared to participants who reported no previous admissions ($M = 6.26, SD = 2.09; M Difference = 1.57, 95\% CI [0.07 to 3.07], p = .035$); the differences between no previous admissions and more than one previous admission, and one admission and more than one previous admission, were nonsignificant.

Two further one-way ANOVAs showed that there were no significant differences in SOLES scores depending on who the participant lives with ($F(6, 112) = .436, p = .853$); nor whom participant reported being the closest person in their life ($F(4, 114) = .591, p = .670$).

As hypothesised, SOLES score was significantly positively correlated with control beliefs ($r = .406, p < .001$) and autonomy ($r = .663, p < .001$); and significantly negatively correlated with psychological reactance ($r = -.219, p = .019$). However, contrary to the hypotheses, none of the BDSEE subscales were significantly correlated with engagement.

[TABLE 3 ABOUT HERE]

Relationships between other variables

Psychological reactance was significantly negatively correlated with mastery ($r = -.269, p = .004$), and significantly positively correlated with BDSEE Critical ($r = .222, p = .018$). However, reactance was not significantly correlated with autonomy or BDSEE warmth or emotional over involvement. Autonomy was significantly correlated with mastery ($r = .494, p < .001$). Autonomy was not significantly correlated with any of the BDSEE subscales. Mastery was significantly negatively correlated with emotional over involvement ($r = -.201, p = .033$), but not warmth or criticism. Length of time involved with a mental health service was significantly negatively correlated with criticism ($r = -.245, p = .012$); and time spent per week with the closest person in participants' life was significantly positively correlated with warmth ($r = .281, p = .012$).

Regression and moderation

Full results of the regression are included in Table 4. At the first step, psychological reactance was found to be a significant predictor ($\beta = -.219, p = .019$), explaining 4.8% of the variance in engagement ($F(2, 112) = 5.683, Adjusted R^2 = .039$). In the second step, the addition of mastery significantly accounted for 13.3% additional variance ($F(2, 112) = 12.355, p < .001, Adjusted R^2 = .166$). Mastery obtained a significant beta value ($\beta = .378, p < .001$), but psychological reactance was no longer significant. At the final step, the addition of autonomy significantly explained an additional 28.2% of the variance in engagement ($F(3,$

111) = 31.819, $p < .001$, *Adjusted R*² = .448). Autonomy obtained a significant positive beta value ($\beta = .611$, $p < .001$); at this step, both reactance and mastery were non-significant. In total, the model explained 46.2% of the variance in engagement ($p < .001$). These findings indicate that whilst psychological reactance and mastery independently predict engagement, when these are controlled for within regression analysis, autonomy remains the only significant predictor; higher perceived autonomy predicts better engagement.

[TABLE 4 ABOUT HERE]

Autonomy did not significantly moderate the relationship between psychological reactance and engagement ($F[1, 111] = 2.659$, $p = .106$, *R*² *Change* = .013, $\beta = -.005$, $t = -1.631$).

Discussion

This observational, cross-sectional study aimed to further understanding of psychological factors associated with therapeutic engagement with mental health services in psychosis. It was hypothesised that autonomy, psychological reactance, control beliefs and EE would be significantly correlated with engagement, and that together these variables would predict a significant amount of the variance in engagement in a regression model. This hypothesis was partially met; whilst EE was not significantly correlated with engagement, in a regression model, autonomy, psychological reactance and control beliefs significantly accounted for 46.2% of the variance in engagement. At the final step, autonomy was the only significant predictor, accounting for 28.2% of the variance in engagement. The second hypothesis was that perceived autonomy would significantly moderate the relationship between psychological reactance and engagement; this hypothesis was rejected.

The mean age of participants was 31.47, and the mean length of time participants reported being involved with a mental health team was 5.5 years. Only 35 and 23 participants reported having been involved with an EIS and identified as experiencing FEP, respectively. Community mental health and crisis teams were the services participants most reported being/having previously been involved with. These sample characteristics suggest that this sample consisted of participants with established psychosis and/or longer-term mental health difficulties, rather than primarily FEP as in previous studies (Doyle et al., 2014). 119 participants reported having/experiencing 469 diagnoses/conditions in total, and as having been involved with 267 mental health services in total.

Participants were given the option of providing multiple answers to these questions, to acknowledge that many service users feel their difficulties cannot be explained by one diagnosis or “label” (Forgione, 2019; Grinter, 2012), and to reflect that many people transition between services at different stages of treatment/illness. Every participant chose more than one diagnosis, and 63% of participants identified as being/having been involved with multiple mental health services. Whilst data did not allow for further analysis of this in a meaningful way, this is important to acknowledge and raises important questions. The literature shows that psychiatric service users experience difficulties with diagnosis, finding them stigmatising (Forgione, 2019). Moreover, therapeutic relationships between professionals and clients with psychosis are important in facilitating recovery (Tindall et al., 2020). Transitions between services will often mean the loss of these attachments, and perhaps make it harder to create new ones (especially in the context of crisis teams, where there is often no key worker/care coordinator). Thus, the number of diagnoses clients have been given, or the number of times they’ve transitioned between services, could potentially have a significant impact on engagement; this does not seem to have been considered previously.

Here, we did find significantly lower engagement in participants who reported one previous psychiatric hospital admission, compared to more than one or no previous admissions. Although this was a small effect size, it does suggest experiences of admissions impact engagement. This is perhaps unsurprising. First experiences of admission could lead to reduced engagement due to individuals losing trust in services/professionals. Moreover, people may perceive their freedom/autonomy as being threatened (this would occur more in those high in trait reactance), and attempt to reinstate this via non-engagement. Perhaps this effect no longer occurs following multiple admissions, as clients might feel less able to not engage (perhaps due to compulsory treatment orders and/or worries of readmission). Although the SOLES measures therapeutic engagement, it perhaps captures this via questions around medication and appointment attendance. This is a tentative suggestion, but one which may warrant further investigation in future studies.

Previous studies' findings were replicated here, in that there were no associations between engagement and age, gender, partnership status, who the participant lives with/identifies as being the closest person in their life, or occupational status (Doyle et al., 2014). Due to 82.4% of the sample identifying as White, it was not possible to examine differences in engagement between ethnicities. Given the known mental health disparities among BAME populations, and to date inconclusive findings around the impact of ethnicity on engagement, this remains an important focus for future research (Casey et al., 2016; Kline & Thomas, 2018; Solmi et al., 2018; Vahdaninia et al., 2020; Wang, 2007).

Significantly higher SOLES scores in participants who reported being currently involved with a mental health service, and significantly lower scores in participants who identified as having previously disengaged from services, provides some reassurance as to the validity of the SOLES. However, the number of times participants reported having previously disengaged was not significantly correlated with SOLES. This is a variable that previous

studies have found difficult to capture (Reynolds, Brown, Tindall, et al., 2019). Perhaps varying engagement is an area qualitative research could explore in depth, to provide further insights into factors related to this.

Independently, increased sense of control over one's life and higher autonomy, and lower trait reactance, predicted better therapeutic engagement. However, EE was not significantly associated with engagement. When reactance, control beliefs and autonomy were entered into a regression model, the addition of each variable explained a significant increment of explained variance in engagement. However, at the final step, when autonomy was entered, autonomy remained the only significant predictor. The model explained 46.2% of the variance in engagement, with autonomy accounting for 28.2% of this. Moderation analysis showed that autonomy did not significantly moderate the reactance and engagement relationship.

This has been the first study to investigate these variables in relation to therapeutic engagement in psychosis. All findings therefore contribute to understanding engagement. Autonomy was measured using an author-devised scale, as a scoping search of the literature did not identify an existing, appropriate measure. The author aimed to devise a short, complete and easy to administer scale, capturing the interrelated concepts of decisional autonomy and autonomy-support in relation to mental healthcare. The scale captures participants' perceptions of whether they are supported, and therefore feel able, to make their own treatment decisions, and whether their views are heard and acknowledged as important by others. Whilst pre-EFA tests indicated the data had strong factorability and some papers suggest smaller sample sizes can be used in EFAs, others recommend samples >300 (Kyriazos, 2018). However, results of the EFA showed the autonomy scale had strong psychometric properties, with one factor explaining a large amount of the variance (58.67%).

Future research into further development of this, or a new, autonomy scale is probably important.

Client autonomy is infrequently given considerable attention to as a concept in its own right within mental health literature; it is generally implicitly considered in the context of treatment-related empowerment (e.g. shared decision making; Stovell, Morrison, et al., 2016). Literature in physical healthcare has demonstrated the importance of autonomy-support to adherence and health-related behaviour (Sandman et al., 2012). A few recent studies have shown that individuals with FEP experience low levels of perceived autonomy (Breitborde et al., 2012; Breitborde et al., 2019; Jordan et al., 2018), and that autonomy-support is associated with increased quality of life (Browne et al., 2017). We have now shown that perceived autonomy in relation to mental healthcare in psychosis is predictive of therapeutic engagement, accounting for 28.2% of the variance alone. This emphasises the importance of increased research focus on autonomy, and psychological variables generally, in understanding (dis)engagement; and perhaps justifies a move away from predominantly focussing on demographic variables.

Whilst control beliefs and reactance were no longer significant in the final step of the regression, their predictive value to engagement remains important. Both these variables have been previously found to predict psychiatric medication adherence (De las Cuevas et al., 2016); this study extends these findings to therapeutic engagement. Mastery (control beliefs) and autonomy were significantly correlated, and perhaps mastery was no longer significant in the regression due to shared variance with autonomy; whilst different, they are highly related concepts. However, reactance and autonomy were not significantly correlated. This was expected; we measured *trait* reactance and *state* autonomy. Trait psychological reactance is based on the assumption that individuals vary in the strength of their needs for autonomy (Reynolds-Tylus, 2019). It describes a person's likelihood of perceiving situations as a threat

to their freedom/autonomy, and is assumed to be a relatively stable trait (Rosenberg & Siegel, 2018). Ungar et al. (2015) argue the role of trait reactance becomes less important when situational challenges restrict people's personal freedom and autonomy, i.e. when state autonomy is low, trait reactance is no longer important, as the threat to freedom/autonomy has already occurred. Moreover, we found autonomy did not significantly moderate the relationship between reactance and engagement. Previous studies have found significant interactions between autonomy-supportive variables (e.g. provider collaboration) and trait reactance in predicting medication adherence (Section One). Perhaps the fact that we attempted to directly measure perceptions of autonomy, rather than a related autonomy-supportive variable, impacted these findings. We also used an author-devised scale, and measured therapeutic engagement rather than medication adherence/attendance. Each of these factors may have impacted our findings. Whilst our findings may further highlight the importance of considering autonomy as a concept in its own right, future research investigating the interaction between reactance and autonomy on therapeutic engagement would be useful.

Mastery and reactance were also significantly correlated with each other, with higher trait reactance being associated with lower beliefs of having control over one's life. Similarly, EE-criticism was significantly positively associated with reactance. Perhaps individuals high in trait reactance are more likely to perceive others' behaviour as controlling and criticising, and therefore threatening to autonomy. This may increase individuals' beliefs that their own control over their life is reduced. We hypothesised that EE would significantly predict engagement; however, EE subscales were not significantly correlated with SOLES, nor with autonomy. However, autonomy here was measured in relation to mental health service provision, not autonomy generally – so this non-significant correlation may be understandable. However, the number of times participants reported having previously

disengaged from services was significantly positively correlated with the time they spent with the closest person in their life; EE-criticism was significantly negatively correlated with length of time participants reported having been involved with a mental health team; and EE-emotional over involvement was significantly correlated with mastery. These findings may suggest that EE plays an important role in factors related to engagement. This supports recent findings that EE is not related to adherence in FEP (da Silva et al., 2020).

Limitations

This was a cross-sectional study, preventing causal relationships from being inferred. Moreover, this was an online sample of participants who self-reported their experiences of psychosis and involvement with mental health teams; thus, it is impossible to validate that participants were experiencing psychosis or their actual engagement levels. Furthermore, the sample were self-selected and may have had a particular interest in (dis)engagement and other relevant factors. The sample may therefore not be representative of the mental health service user population in general, or of service users who experience psychosis.

The study was originally designed to collect data through mental health services in the North West of England. This was not possible due to the 2019 novel coronavirus (COVID-19). The study design was adapted, and online data collection commenced in May 2020 – in the midst of a global pandemic and wide-spread restrictions on people's freedom. The overwhelming amount of social media posts relating to COVID-19 seemingly made it more difficult to advertise the study widely. Most importantly, people experiencing psychosis were likely faced with additional challenges during the time of data collection, likely further limiting opportunities for recruitment. Thus, the overall sample size in this study is smaller than originally hoped for. Nonetheless, it was adequately powered and significant results were obtained. It is also a possibility that collecting data during a global pandemic may have

influenced findings; for example, perceptions of autonomy in relation to mental health services (at a time when support was likely reduced) may have been different to usual; as may have control beliefs.

There are also demographic limitations. Whilst 53.8% of participants were living in the UK, and 22.7% in the USA, the remaining participants either chose not to disclose their location, or lived in one of ten other countries. This prevented meaningful analysis of the relationship between location and engagement. As abovementioned, 82.4% of the sample were White, meaning other ethnicities were significantly underrepresented in the sample, and limiting the generalisability of findings across groups.

Clinical implications and future directions

Typically, the purpose of research into predictors of engagement in psychosis is to increase understanding of ways engagement can be increased. Trait reactance and control beliefs are important variables to consider in therapeutic engagement (De las Cuevas & de Leon, 2019). Psychological reactance is a social psychology construct that has been available in the literature for over fifty years, but is rarely used in clinical practice. Considerations of trait reactance and consequent adaptations to care delivery are likely commonly carried out, unconsciously, by clinicians. For example, providing a less-directive stance to clients whom clearly value autonomy (Beutler et al., 2018; Henderson et al., 2020). Further research into both trait reactance and control beliefs, in the context of therapeutic engagement, could facilitate these concepts being usefully and easily brought consciously into clinical practice to increase provision of person-centred care.

Shared decision making has been shown to be beneficial, increasing medication adherence and treatment satisfaction (Fiorillo et al., 2020; Stovell, Morrison, et al., 2016). Here, we have shown the importance of client perceptions of autonomy to therapeutic

engagement. This suggests that the process by which shared decision making improves adherence and engagement is perhaps via increased perceptions of autonomy. It is important for services to evaluate whether they provide support in a way that promotes decisional autonomy and autonomy-support, and recognise barriers to this within their service. Focusing on reduced autonomy as a barrier to therapeutic engagement facilitates consideration of relational and service-level (rather than solely individual) factors that are amenable to change. This allows more scope for improvements in care and engagement, and increases acknowledgement of the responsibility of services to adapt service provision in order to increase engagement.

This study has highlighted the utility of investigating psychological factors in engagement across all stages of illness, and encourages a future research focus on psychological variables. Finally, this study has measured therapeutic engagement from the service user perspective; one of only a few studies to do so in quantitative psychosis engagement research (Casey et al., 2016; Perry et al., 2019). Qualitative research has consistently highlighted the importance of therapeutic engagement (Tindall et al., 2018). A continued focus in future quantitative research on the concept of therapeutic engagement, rather than adherence or attendance, could facilitate increasingly relevant and meaningful findings. Similarly, service focus on therapeutic engagement, as opposed to solely attendance/attrition rates, would be more helpful for understanding how they, as a service, can work to increase engagement rates.

Conclusion

The findings of this study highlight the importance of trait psychological reactance, control beliefs and perceived autonomy in predicting therapeutic engagement in psychosis, together significantly predicting 46.2% of the variance in engagement. Measuring client

perceptions of autonomy in relation to mental healthcare in psychosis is clearly important.

Findings highlight the importance of considering psychological variables in predicting therapeutic engagement, something future research should continue to do.

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Tables

Table 1: Participant Characteristics (*N* = 119)

		Mean (Min-Max)	SD
Age		31.47 (18-73)	11.03
Length of time involved with mental health service		66.42months/ 5.54years (1-420mnths)	80.98months/ 6.75 years
		N	%
Gender	Female	77	64.7%
	Male	33	27.7%
	Other	9	7.6%
Country Residing In	United Kingdom	64	53.8%
	USA	27	22.7%
	Canada	4	3.4%
	Ireland	3	2.5%
	Norway	3	2.5%
	Germany	2	1.7%
	Argentina	1	0.8%
	Australia	1	0.8%
	Brasil	1	0.8%
	Denmark	1	0.8%
	Finland	1	0.8%
	Nigeria	1	0.8%
Prefer not to say	10	8.4%	
Ethnicity	White British/Irish	71	59.7%
	White Other	27	22.7%
	Mixed Multiple (any other mixed ethnic background)	6	5%
	Mixed Race – White and Black African/Caribbean	3	2.5%
	Asian	3	2.5%
	Black African/Caribbean	2	1.6%
	Mixed Race – White and Asian	2	1.7%
	Other	1	0.8%
	Prefer not to say	4	3.4%
Occupational status	Working	46	38.6%
	Not currently working	41	34.5%
	Student	21	17.6%
	Retired	3	2.5%
	Other	5	4.2%
	Prefer not to say	3	2.5%
Partnership status	Single	59	49.6%
	Married/Civil Partnership	25	21%
	Living together	17	14.3%
	In a relationship but not living together	14	11.8%
	Other	3	2.5%

	Prefer not to say	1	0.8%
<i>NB: 119 participants identified as having/experiencing 469 diagnoses/conditions in total.</i>	Psychosis	90	75.5%
	First Episode Psychosis	23	19.3%
	At Risk of Developing Psychosis	14	11.8%
	Schizophrenia	26	21.8%
	Schizoaffective Disorder	24	20.1%
	Schizophreniform Disorder	1	0.8%
	Delusional Disorder	7	5.8%
	Bipolar Disorder	34	28.6%
	Depression	63	52.9%
	Anxiety	67	56.3%
	Post-Traumatic Stress Disorder	43	36.1%
	Personality Disorder (any type)	34	29.3%
	Obsessive Compulsive Disorder	4	3.3%
	Other	23	19.3%
	Other - Psychotic Depression	1	0.8%
	Other - Cannabis Induced Psychosis	1	0.8%
	Other – Psychotic Disorder NOS	1	0.8%
	Other – Dissociative Identity Disorder	4	3.2%
	Other – Other Specified Dissociative Disorder	1	0.8%
	Other – Complex Post Traumatic Stress Disorder	3	2.4%
	Other - Anorexia	1	0.8%
	Other - ADHD	2	1.6%
	Other - Autistic Spectrum Condition	2	1.6%
			<i>Cumulative percentage = 393.7%</i>
Currently involved with mental health service	Yes	84	70.6%
	No	33	27.7%
	Prefer not to say	2	1.7%
Type of mental health service currently/previously involved with	Community Mental Health Team	71	59.6%
	Crisis Team / Home Based Treatment Team	70	58.8%
	Early Intervention for Psychosis Service	35	29.4%
	Assertive Outreach Team	10	8.4%
	Rehab Team	9	7.6%
	Prefer not to say	1	0.8%
	Other	30	24%
	Other – ‘Inpatient mental health service’	6	4.8%
	Other – ‘Therapy’	8	6.4%
	Other - ‘Psychiatrist’ / ‘Psychologist’ / ‘Therapist’	7	5.6%
	Other – ‘A&E crisis liaison’	1	0.8%
Other – ‘Charity mental health service’	1	0.8%	
Other ‘Substance Misuse Service’ / ‘Mental health Homeless Outreach Team’	2	1.6%	
			<i>Cumulative percentage = 221.4%</i>
Previously been hospitalised due to mental health	One previous admission	22	18.5%
	More than one previous admission	63	52.9%
	No previous admissions	32	26.9%
	Prefer not to say	2	1.7%

Previous instances of disengagement from mental health services	Yes	72	60.5%
	No	41	34.5%
	Prefer not to say	6	5%
	No. of times if yes (<i>N</i> =56 responses):		
	1-5	50	89.3%
	6-10	3	5.4%
	10-40	3	5.4%
Who participant lives with	Partner / Family	50	42%
	Parent(s)	26	21.8%
	Alone	26	21.8%
	Friend / Roommates	6	5%
	Carers	1	0.8%
	Prefer not to say	10	8.4%
Person whom participant reports most supports them with their mental health	Partner	45	37.8%
	Parent	29	24.4%
	Friend	23	19.3%
	Professional	6	5%
	Sibling	5	4.2%
	Other / Prefer not to say	11	9%
Hours (awake) participant reports spending with this person per week (<i>N</i> =113)			<i>Mean</i> = 35.92 <i>SD</i> = 37.51 <i>Range</i> = 153 <i>Minimum - Maximum</i> = 0 - 153

Table 2
Inter-correlations between Autonomy scale items and factor loadings

	Factor Loadings^a	1	2	3	4	5	6	7
<i>1. I feel in control of what the mental health service provides for me</i>	.879	-	.421***	.409***	.538***	.606***	.650***	.643***
<i>2. I decide what treatments to take, not other people</i>	.858	-	-	.426***	.528***	.443***	.584***	.540***
<i>3. Other people tell me what to do about my mental health</i>	.824	-	-	-	.607***	.488***	.443***	.487***
<i>4. Other people make decisions about my mental health without my input</i>	.808	-	-	-	-	.745***	.646***	.667***
<i>5. People ignore what I want to do about my mental health</i>	.713	-	-	-	-	-	.646***	.702***
<i>6. My views are considered important when developing my treatment plan</i>	.626	-	-	-	-	-	-	.844***
<i>7. I feel supported to make my own informed treatment decisions</i>	.604	-	-	-	-	-	-	-

*** = $p < .001$

^a Eigenvalue = 4.486; percent of variance = 58.67%.

Table 3
Means, standard deviations, ranges, and Pearson's correlation coefficients among variables

	1	2	3	4	5	6	7	8	9	10	11
1. SOLES	-	-.037	-0.74	.009	.036	-.219* <i>p</i> = .019	.663*** <i>p</i> < .001	.406*** <i>p</i> < .001	.009	.127	.075
2. Age	-	-	.453*** <i>p</i> < .001	-.130	-.043	-.060	.017	.019	-.173	-.043	-.025
3. Length of time involved with mental health team (months)	-	-	-	.070	-.043	-.042	-.085	-.043	-.245* <i>p</i> = .012	.077	-.105
4. Number of times previously disengaged	-	-	-	-	.386** <i>p</i> = .004	.219	-.027	-.174	.052	.151	.165
5. Time spent with closest person per week (hours)	-	-	-	-	-	.044	.083	.081	.043	.281** <i>p</i> = .003	-.006
6. HPRS	-	-	-	-	-	-	-.132	-.269** <i>p</i> = .004	.222* <i>p</i> = .018	-.053	.171
7. Autonomy	-	-	-	-	-	-	-	.494*** <i>p</i> < .001	-.184	.127	-.111
8. Mastery	-	-	-	-	-	-	-	-	-.134	.097	-.201* <i>p</i> = .033
9. BDSEE Critical	-	-	-	-	-	-	-	-	-	-.380*** <i>p</i> < .001	.756*** <i>p</i> < .001

											<i>N=113</i>	<i>N=113</i>
10. BDSEE Warm	-	-	-	-	-	-	-	-	-	-	-	-.328***
												<i>p < .001</i>
												<i>N=113</i>
11. BDSEE Emotional over involvement	-	-	-	-	-	-	-	-	-	-	-	-
Mean	6.89	31.47	66.42	4.43	35.92	43.51	17.17	13.21	15.99	32.89	18.59	
SD	2.13	11.03	80.98	6.91	37.51	8.55	5.55	4.51	8.35	7.97	10.97	
Range	9.12	55	419	39	153	48	21	20	33	35	50	

* *p* < .05
 ** *p* < .01
 *** *p* < .001

Table 4
 Hierarchical regression of engagement on psychological reactance, mastery and autonomy variables

Step	Predictors	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>P</i>	R Square	Adjusted R Square	R Square Change	F Change	Sig. F Change
1. Psychological Reactance	HPRS	-.055	.023	-.219	-2.384	.019	.048	.039	.048	5.683	.019
2. Mastery	HPRS	-.029	.022	-.117	-1.316	.191					
	Mastery	.179	.042	.378	4.262	< .001	.181	.166	.133	18.164	<.001
3. Autonomy	HPRS	.030	.018	-.118	-1.633	.105					
	Mastery	.035	.039	.075	.903	.368					
	Autonomy	.234	.031	.611	7.625	<.001	.462	.448	.282	58.140	<.001

Appendix

Appendix A: Social Science and Medicine Author Guidelines

DESCRIPTION

Social Science & Medicine provides an international and interdisciplinary forum for the dissemination of social science research on health. We publish original research articles (both empirical and theoretical), reviews, position papers and commentaries on health issues, to inform current research, policy and practice in all areas of common interest to social scientists, health practitioners, and policy makers. The journal publishes material relevant to any aspect of health from a wide range of social science disciplines (anthropology, economics, epidemiology, geography, policy, psychology, and sociology), and material relevant to the social sciences from any of the professions concerned with physical and mental health, health care, clinical practice, and health policy and organization. We encourage material which is of general interest to an international readership.

The journal publishes the following types of contribution:

Peer-reviewed original research articles and critical or analytical reviews in any area of social science research relevant to health. These papers may be up to 9,000 words including abstract, tables, and references as well as the main text. Papers below this limit are preferred.

...

PREPARATION

References

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/ book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged.

The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

Formatting Requirements

The journal operates a double blind peer review policy. For guidelines on how to prepare your paper to meet these criteria please see the attached guidelines. The journal requires that your manuscript is submitted with double spacing applied. There are no other strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

Divide the article into clearly defined sections.

Essential cover page information

The Cover Page should only include the following information:

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible and make clear the article's aim and health relevance.

Author names and affiliations in the correct order. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address.

Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be kept up to date by the corresponding author.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Text

In the main body of the submitted manuscript this order should be followed: abstract, main text, references, appendix, figure captions, tables and figures. Author details, keywords and acknowledgements are entered separately during the online submission process, as is the abstract, though this is to be included in the manuscript as well. During submission authors are asked to provide a word count; this is to include ALL text, including that in tables, figures, references etc.

Title

Please consider the title very carefully, as these are often used in information-retrieval systems. Please use a concise and informative title (avoiding abbreviations where possible). Make sure that the health or healthcare focus is clear.

Highlights

Highlights are optional yet highly encouraged for this journal, as they increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any).

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Abstract

An abstract of up to 300 words must be included in the submitted manuscript. An abstract is often presented separately from the article, so it must be able to stand alone. It should state briefly and clearly the purpose and setting of the research, the principal findings and major conclusions, and the paper's contribution to knowledge. For empirical papers the country/countries/locations of the study should be clearly stated, as should the methods and nature of the sample, the dates, and a summary of the findings/conclusion. Please note that excessive statistical details should be avoided, abbreviations/acronyms used only if essential or firmly established, and that the abstract should not be structured into subsections. Any references cited in the abstract must be given in full at the end of the abstract.

Keywords

Up to 8 keywords are entered separately into the online editorial system during submission, and should accurately reflect the content of the article. Again abbreviations/acronyms should be used only if essential or firmly established. For empirical papers the country/countries/locations of the research should be included. The keywords will be used for indexing purposes.

Methods

Authors of empirical papers are expected to provide full details of the research methods used, including study location(s), sampling procedures, the date(s) when data were collected, research instruments, and techniques of data analysis. Specific guidance on the reporting of qualitative studies are provided here.

Systematic reviews and meta-analyses must be reported according to PRISMA guidelines.

Tables

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References

Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full at the end of the abstract.

Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal (see below) and should include a substitution of the publication date with either "Unpublished results" or "Personal communication" Citation of a reference as "in press" implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in special issue articles, commentaries and responses to commentaries

Please ensure that the words 'this issue' are added to any references in the reference list (and any citations in the text) to other articles which are referred to in the same issue.

Reference management software

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Reference formatting

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/ book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style

Text: All citations in the text should refer to:

Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;

Two authors: both authors' names and the year of publication;

Three or more authors: first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999)... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...'

List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

Examples:

Reference to a journal publication:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. *J. Sci. Commun.* 163, 51–59. <https://doi.org/10.1016/j.Sc.2010.00372>.

Reference to a journal publication with an article number:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2018. The art of writing a scientific article. *Heliyon*. 19, e00205. <https://doi.org/10.1016/j.heliyon.2018.e00205>.

Reference to a book:

Strunk Jr., W., White, E.B., 2000. *The Elements of Style*, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp.281–304.

Reference to a website:

Cancer Research UK, 1975. *Cancer statistics reports for the UK*. <http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/> (accessed 13 March 2003).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. *Mendeley Data*, v1. <https://doi.org/10.17632/xwj98nb39r.1>.

Section Three: Critical Appraisal

Issues surrounding the conceptualisation and measurement of engagement, autonomy and psychological reactance.

Word count (excluding references): 3980

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Issues surrounding the conceptualisation and measurement of engagement, autonomy and psychological reactance constructs.

This thesis has considered the predictive value of psychological factors to healthcare engagement, with a key focus upon psychological reactance and autonomy. Throughout the completion of both papers, consideration of issues associated with conceptualising, operationalising and measuring these complex, multidimensional constructs has been important. Issues regarding defining and measuring psychological constructs are frequently important and necessary to consider, where the phenomena under investigation often do not permit direct observation. Whilst the practice of measuring and quantifying complex, unobservable psychological constructs and processes is ubiquitous in psychological sciences, the validity and appropriateness of such practice is often questioned and criticised (Maree, 2019; Maul et al., 2016). This is based on various philosophical and scientific issues, but a common remark is often around lack of agreement amongst researchers concerning the meaning and measurement of psychological concepts. For example, there remains controversy and disagreement around even very high-profile constructs such as “intelligence” and “depression” (Maul et al., 2016). Furthermore, despite the foundational role that measurement plays in the ability to draw conclusions from research, important information regarding measurement is often absent from manuscripts, sometimes without even a description of what the measure included (e.g. questionnaire items not reported). These issues have resulted in increased emphasis on the importance of researchers avoiding questionable measurement practices and increasing transparency (Flake & Fried, 2019). In light of this, and given the multidimensional and complex nature of engagement, autonomy and psychological reactance constructs, this paper aims to further discuss and reflect on the conceptualisation and measurement of these constructs.

Engagement

A key discussion point in both papers was around the conceptualisation and measurement of “engagement”, with previous research having acknowledged that there is no one gold-standard (or even generally accepted) definition or measurement of engagement (Reynolds et al., 2019). As has been discussed, this is reflective of the complexity of engagement as a construct. Throughout this thesis, the term engagement has been used broadly, like an “umbrella-term”, to encapsulate all factors that have previously been associated with healthcare engagement. The term engagement has therefore been used to refer to adherence (to medication and physician recommendations), attendance, drop-out and therapeutic engagement. Indeed, this was necessary for the literature review, where included papers were required to have measured at least one of these aspects of engagement. In contrast, the empirical paper attempted to measure therapeutic engagement via a self-report questionnaire – the Singh O’Brien Level of Engagement Scale (SOLES; O’Brien et al., 2009).

Adherence, attendance and drop-out are discrete constructs that lend themselves to being measured objectively and categorically (attends vs does not attend, adherent vs non-adherent). Self-report measures of adherence are also commonly utilised (e.g. Morisky Medication Adherence Scale; Morisky et al., 2008). Whilst there are some questions as to the validity of such scales, the wide utilisation of these at least provides some consistency, allowing stronger conclusions to be drawn (Basu et al., 2019; Tan et al., 2014). Categorical conceptualisations of engagement via attendance and adherence are perhaps more relevant and meaningful in physical healthcare research, and especially in the context of acute illnesses or where healthcare provision primarily involves periodically required attendance at appointments. For example, the literature review included papers measuring engagement via adherence to antibiotic treatment/recommendations (Fogarty & Youngs, 2000; Smith et al.,

2018) and attendance at colposcopy clinic appointments (Orbell & Hagger, 2006); for these, and similar study designs, it is clearly not necessary (or perhaps even appropriate) to consider/measure therapeutic engagement.

The issue becomes more complex in relation to mental healthcare (and chronic physical health illnesses). Within mental healthcare literature, with good reason, many researchers are only interested in investigating engagement via the discrete constructs of adherence and/or attendance. Indeed, these are individually important constructs for many reasons, and it is certainly important to understand factors that predict and improve psychiatric medication adherence and appointment attendance in mental healthcare (Karpov et al., 2018). However, as discussed in Sections One and Two, the concept of engagement in mental healthcare is more complex than just attendance or adherence. Within psychosis literature, engagement being a relational process, rather than an outcome, is frequently acknowledged within papers' discussions of the concept and of why understanding (dis)engagement is important – although, a recent review found that, despite this, psychosis studies tend to measure engagement via categorical, binary methods (Reynolds et al., 2019).

Unique to mental healthcare is a legal framework by which service users can be given compulsory treatment, and the nature of illnesses often means service users' clinical/cognitive insight and capacity to make treatment-related decisions is reduced (Owen et al., 2016). Thus, issues and impacts of control, coercion and power asymmetry in mental healthcare are widely recognised in both research and clinical practice (McKeown et al., 2019). This context is therefore unique in that service users may feel they *have to* attend appointments and/or adhere to medication (which frequently also entails attendance at clinics e.g. for antipsychotic depot injections). As such, categorical measurement methods may not reflect that some service users attend reluctantly, or are passive recipients of, rather than active participants in, their healthcare. Indeed, it has been suggested that coercive/compulsory

treatment may increase medication adherence, but reduce therapeutic engagement (Hotzy & Jaeger, 2016; James & Quirk, 2017). Alternatively, service users may actively participate in some aspects of treatment (e.g. group therapy), but not others (e.g. pharmacological treatment).

This is important, because within models of service delivery, it is acknowledged that not only medication adherence and/or appointment attendance alone lead to “recovery”. For example, Early Intervention for Psychosis Services (EIS) involve pharmacological, psychological, social, occupational and educational interventions, with a key focus upon service user engagement, to enable recovery (Singh, 2010). Whilst it is often clear what the interventions themselves entail, what is meant by a focus upon engagement is not. Are EIS focused upon service users attending appointments, adhering to medication, participating in treatment discussions/decisions, being committed to working towards goals/recovery? Are some of these domains of engagement deemed more important than others within EIS? Certainly with regards to psychological therapy interventions, literature recognises engaging involves various factors, including attendance, therapeutic alliance, emotional involvement during sessions, completion of between-session tasks, self-disclosure of thoughts, emotions and difficulties, as well as clients’ confidence in the intervention being effective and commitment to treatment (Yoskowitz, 2018). This highlights the necessity of a therapeutic understanding of engagement, if research is to effectively identify ways engagement can be improved.

Clearly, therapeutic engagement is a complex construct and one which is difficult to conceptualise. Whilst it is widely acknowledged that service users being therapeutically engaged with mental health services is different to attending appointments/adhering to medication, the additional factors that are involved in being therapeutically engaged are less clear. O’Brien et al. (2009) suggest therapeutic engagement is often conflated with

therapeutic alliance; and note that therapeutic engagement is related to individuals' relationships with/attitudes towards a service, rather than individual professionals. O'Brien et al. (2009) go on to suggest therapeutic engagement (additionally to adherence/attendance) encompasses "the acceptance of a need for help, the formation of a therapeutic alliance with professionals, satisfaction with the help already received and a mutual acceptance of and working towards shared goals". Indeed, this is in line with qualitative research findings of what the "essential ingredients" of engagement in First Episode Psychosis (FEP) are – treatment meeting the service user's perceptions of their own needs, reduced control and coercion in treatment provision and promoting empowerment, and therapeutic alliance (Tindall et al., 2018). However, it is noteworthy that in qualitative research findings, there is often not a distinction between what therapeutic engagement is, and the factors that promote service users being therapeutically engaged, with a seemingly implicit assumption that what facilitates therapeutic engagement *is* therapeutic engagement (e.g. therapeutic relationships). Perhaps this overlap is what makes therapeutic engagement so difficult to conceptualise. Moreover, such relational phenomena will vary widely between individuals. Thus, the conceptualisation of therapeutic engagement remains ambiguous, and differs across studies (Bright et al., 2015). However, across studies there is agreement that therapeutic engagement is a relational process, rather than static behaviour(s), and common themes have been identified, including: therapeutic relationships, treatment satisfaction, adherence, attendance, perceived need for treatment, patient availability/collaboration, and help-seeking (Bright et al., 2015).

Despite researchers not yet having agreed upon a definition of therapeutic engagement in mental healthcare, quantitative measures have been devised; most notably, the SOLES (O'Brien et al., 2009) and the Service Engagement Scale (Tait et al., 2002). The self-report SOLES was designed to measure engagement with services for people who experience

psychosis. Items were developed representing concepts related to engagement: attendance, satisfaction, therapeutic alliance, insight and adherence. The original paper showed that the SOLES had good predictive validity in terms of longitudinal disengagement, cross-sectional disengagement and appointment attendance. However, this was a relatively small sample for scale development ($N = 184$), and there appear to have been no further studies investigating/validating the psychometric properties of the SOLES. Our research paper did find significantly higher SOLES scores in participants who reported being currently involved with a mental health service, and significantly lower scores in participants who identified as having previously disengaged from services, providing a small amount of reassurance as to the validity of the SOLES. Moreover, the SOLES has not been widely utilised. Google Scholar states that the original paper has been cited 31 times, and only two previous studies employing the SOLES within psychosis research were identified - in one study investigating treatment beliefs and engagement in FEP (Perry et al., 2019), and in another investigating predictors of engagement with EIS (Casey et al., 2016).

When originally designing the research study, it was planned that the Service Engagement Scale (Tait et al., 2002) would be utilised. However, this scale is clinician-rated, and upon further discussion with clinicians, it seemed this would perhaps significantly impact recruitment; care coordinators have extremely high workloads, and time/motivation to complete this scale would have likely not been often available. Thus, I opted to utilise the SOLES due to it being self-report. Another advantage of using the SOLES is that it provides an opportunity to measure engagement from the service user perspective; arguably the most important perspective, and one which is lacking within engagement literature (Bright et al., 2015). Although the SOLES has not been extensively validated, given the advantages of being self-report and therefore relatively easy to administer/incorporate in study designs, and gaining service user ratings of engagement, it is somewhat surprising it has not been

employed more widely. This is perhaps reflective of engagement in psychosis research still being a relatively new area of literature, and with many studies focusing on disengagement using prospective designs, where data have previously been routinely collected.

In contrast, the clinician-rated Service Engagement Scale (Tait et al., 2002) has been employed more widely, with 207 citations on Google Scholar. This scale was designed to measure engagement with Community Mental Health Services, and was originally validated on a sample of five community psychiatric nurses completing the scale for 66 service users of Assertive Outreach Teams, all of whom had received schizophrenia-spectrum diagnoses. The Service Engagement Scale measures provider reports of client availability, collaboration, help seeking, and adherence. The authors demonstrated that the scale had good internal consistency, test re-test reliability and construct validity (via the criterion group method, showing the scale was capable of distinguishing between groups of clients based on their level of engagement with services). Whilst this has been employed more widely than other scales, its psychometric properties do not seem to have been investigated further in subsequent studies.

More recently, Kline et al. (2018) conducted a pilot study to validate a new measure of engagement with EIS; the Client Engagement and Service Use Scale (CENSUS). The authors state that whilst the Service Engagement Scale has been employed widely, it is narrow in focus and is limited due to not considering the service user perspective; thus, they state the Service Engagement Scale is poorly suited to the purpose of assessing engagement within EIS models of care (integrated, multi-component models), and acknowledge that clients may be “engaged” in some aspects of a service (e.g. psychological therapy) and poorly engaged with others (e.g. medication). The authors attempted to create a scale that could account for differences in engagement across various treatment components, conceptualise engagement as a process rather than a binary construct, and be used clinically to address both client and

provider perspectives of engagement in speciality care for FEP. The CENSUS is a questionnaire to be completed in a semi-structured interview with a client, with the aim that the measure would also facilitate an open conversation with clients about their specific needs and concerns, thus encouraging better engagement. Scores are obtained for engagement with different domains of treatment, based on scoring guidelines anchored in behavioural observations. This pilot study suggested strong inter-rater reliability and construct validity when considered in relation to appointment attendance and Service Engagement Scale scores. However, the sample was extremely small, with only six participants. This paper does not seem to have yet been cited in subsequent research; indeed, whilst it is reported it is suitable for research use, it seems it may be more useful clinically. Nonetheless, this scale is useful in providing new considerations of how to approach measurement of therapeutic engagement with EIS. Moreover, if it became utilised more widely in a clinical capacity, this would perhaps allow for results to be used in research, too.

Other scales have been developed to measure therapeutic engagement in mental healthcare. Hall (2001) developed a clinician-rated measure of engagement, assessing domains of appointment keeping, client-keyworker relationship, communication/openness with keyworker, usefulness of treatment, involvement with treatment and medication adherence. The scale was validated on a sample of 44 keyworker-client dyads from community psychiatric rehabilitation services, and the authors stated it had good test re-test reliability and discriminant capacity. Gillespie et al. (2004) adapted Hall's (2001) measure to be client-rated, measuring the same engagement domains. Gillespie (2004) validated the client-rated scale with 25 assertive outreach clients; they found good test re-test reliability, but found the client-rated version did not correlate with the clinician-rated version (this provides further evidence for the likely importance of capturing service user perspectives). Meaden et al. (2012) developed the clinician-rated Residential Rehabilitation Engagement

Scale as a measure of engagement in inpatient mental health rehabilitation services. The scale measured quality of relationships, patient communication and openness, goal-setting, perceived usefulness of rehabilitation, collaboration with rehabilitation, appointment keeping and adherence. The scale development sample consisted of 92 service users; the authors reported good internal consistency and test re-test reliability. These three scales have not been widely employed or cited, and little evidence for their validity has been reported. However, they do show similarities in the approach to therapeutic engagement scale development with the SOLES, Service Engagement Scale and CENSUS.

Whilst therapeutic engagement research within psychosis is still at an early stage, it is clear that conceptualising, and attempting to measure, engagement in this way is important. Continuing to attempt to understand how engagement can be improved via only measuring adherence/attendance will significantly limit the clinical utility of research. Qualitative research that focuses on understanding the experiences and perspectives of service users, families and service providers in relation to service engagement has been, and will continue to be, important in furthering understanding. Hopefully, there will be continued future research focus on developing an operational and patient-oriented definition of engagement, as well as reliable and valid measures of therapeutic engagement – with the aim of developing understanding of how engagement can be increased, and therefore outcomes improved.

Autonomy

As discussed in Section Two, perceptions of autonomy are important to consider in relation to engagement with services in psychosis. Researchers have distinguished between different types of perceptions of autonomy (Arrieta-Valero, 2019), but in relation to perceptions of autonomy in mental healthcare, perceptions of *decisional autonomy* and *autonomy-support* seem most pertinent. Decisional autonomy refers to service users' freedom to deliberate and choose a course of action/treatment from among a suitable range of options.

For mental health service users, decisional autonomy is dependent, at least in part, upon experiences of autonomy-support. Autonomy-support refers to the extent to which individuals feel empowered and supported to make informed choices based on their own values and preferences; Arrieta-Valero, 2019; Hagger & Protogerou, 2020). Within mental healthcare literature, autonomy is generally implicitly considered in relation to treatment-related empowerment (e.g. shared decision making) or experiences of control and coercion, and is rarely considered or measured as an individual construct. Thus, it seems to be assumed that experiences of autonomy-support (via approaches such as shared decision making) increase perceptions of autonomy (a dimension of treatment-related empowerment), and therefore improve outcomes (including increased engagement) – although this does not appear to have been measured previously (De las Cuevas, Peñate, & de Rivera, 2014; Fiorillo et al., 2020). Moreover, only one previous psychosis study has actually measured perceptions of autonomy-support (Browne et al., 2017), and none were identified that considered decisional autonomy.

In physical healthcare literature, perceptions of autonomy-support are generally measured via the Health Care Climate Questionnaire (HCCQ; Williams et al., 2000). The HCCQ measures patients' perceptions concerning the extent of autonomy support provided by their health care providers. According to Williams et al. (2000), autonomy-support in health care settings “refers to providers' interacting with patients by taking full account of their perspectives, affording choice, offering information, encouraging self-initiation, providing a rationale for recommended actions, and accepting the patients' decisions”. The HCCQ was designed to assess these specific aspects of autonomy-support in healthcare environments. The full version includes 14 items, but the brief six-item version is used widely. This includes items: “*I feel that my physician has provided me choices and options*”; “*I feel understood by my physician*”; “*My physician conveys confidence in my ability to*

make changes"; *"My physician encourages me to ask questions"*; *"My physician listens to how I would like to do things"*; and *"My physician tries to understand how I see things before suggesting a new way to do things"*. It has good validity and reliability with respect to internal consistency, structural validity and construct validity, as well as acceptable test re-test reliability (Czajkowska et al., 2017).

Whilst this seems a good measure, the present research study focussed on perceptions of autonomy in relation to services, not one physician - although, it would have perhaps been feasible to amend questions to begin with "Mental health professionals". Importantly, I wanted to capture participants' perceptions of decisional autonomy, as well as autonomy-support. As can be seen in the HCCQ's items, none capture respondents' perceptions of whether they feel able to make their own treatment decisions. Thus, after consideration of the literature, we devised a scale with inclusion of items aimed to measure decisional autonomy, as well as items designed to measure perceptions of autonomy-support. Due to the cross-sectional nature of the study, it was not possible to measure the validity or test-retest reliability of this scale. However, preliminary Exploratory Factor Analysis indicated a unidimensional structure, accounting for 58.6% of the variance. Moreover, this scale significantly predicted 28.2% of the variance in engagement (SOLES) alone. Thus, whilst the psychometric properties of this scale are indeed both unclear and questionable, the research findings (and a review of the literature) highlight that considering and measuring autonomy is important – and perhaps justifies a move away from implicitly assuming its role in relation to various outcomes, including engagement. By only implicitly acknowledging it, we may be conflating other variables with autonomy. For example, control beliefs are likely highly related to autonomy (as was evidenced by finding a significant correlation between autonomy and control beliefs, $r = .494, p < .001$); indeed, the first item on the autonomy scale is, *"I feel in control of what the mental health service provides for me"*. Further conceptualisation of

autonomy, in relation to other important factors in psychosis research, would be useful; as would further consideration of the appropriateness of measuring autonomy in psychosis research, and how best to undertake this.

Psychological Reactance

It has been argued that research into trait psychological reactance is understudied and underutilised; and that one reason for this may be confusion regarding its measurement (Yost & Finney, 2018). The measurement of trait psychological reactance is inherently complex due its multidimensional nature (Rosenberg & Siegel, 2018). Thus, the factor structure and validity of reactance scales has been queried, as has the validity of trait reactance as a construct in itself (as discussed in Section One). It has been suggested that future research acknowledging and potentially addressing these queries could improve the validity of both the construct and its measurement (Rosenberg & Siegel, 2018). However, the psychometric properties of trait psychological reactance measures are rarely adequately considered in clinical and health psychology research studies. Thus, here I will briefly outline the current state of evidence regarding the measurement of trait reactance.

A scale used in early studies, the Questionnaire for the Assessment of Psychological Reactance (QMPR; Merz, 1983) was deemed psychometrically unstable. The now most widely used scales of trait psychological reactance are the Hong Psychological Reactance Scale (HPRS; Hong & Page, 1989) and the Therapeutic Reactance Scale (TRS; Dowd, Milne & Wise, 1991); both developed in response to the limitations of the QMPR (Rosenberg & Siegel, 2018) - although the TRS was designed with intent for use within psychotherapy settings, it measures trait reactance generally. Only two studies (since scale development) have investigated the validity and factor structure of the TRS; Buboltz Jr et al. (2002) concluded that psychological reactance is a multidimensional construct and cannot be adequately assessed by a single dimension (TRS-total score), nor by the two originally

proposed TRS Verbal and Behavioural subscales. Buboltz Jr et al. (2002) advise caution utilising the TRS, and propose that, if used, a four factor solution is most appropriate, with subscales: Resentment of authority, Susceptibility to influence; Avoidance of conflict; and preservation of freedom. Inman et al. (2019) replicated these findings.

The HPRS was originally proposed as having four factors (emotional response toward restricted choice, reactance toward compliance, resisting influence from others, and reactance toward advice and recommendations), although researchers often report a total HPRS score (Yost & Finney, 2018). Recently, numerous studies have demonstrated that a bifactor model is the best fit for the HPRS, but that a total HPRS score is appropriate as an overall index of trait reactance (Brown & Finney, 2011; Brown et al., 2011; Moreira et al., 2020; Waris et al., 2020; Yost & Finney, 2018). Moreover, studies have also found strong correlations between the HPRS and TRS (Inman et al., 2019; Moreira et al., 2020; Waris et al., 2020). Yost and Finney (2018) report that trait reactance is a broad unidimensional construct that becomes multidimensional when operationalised in the HPRS, with multiple factors emerging in past research because the HPRS items, worded purposefully to be heterogeneous, converged into artefact factors based on similar wording, content, or both. However, it is noteworthy that in a large sample of psychiatric patients, De las Cuevas, Peñate, Betancort, et al. (2014) found evidence for a two factor solution to the HPRS, comprising of cognitive and affective factors, with the one-factor solution being unverifiable. The authors suggest the nature of their sample, with mostly “affective disorders”, may have influenced results – with an emotional method of processing information (as opposed to cognitive) being “over-represented” in the sample. Future research replicating these findings in psychiatric samples would be useful.

Conclusion

This thesis has investigated and measured constructs that are complex and multidimensional in nature; a practice that inherently presents methodological issues to consider. This paper has attempted to address these methodological concerns further, through further discussions around the conceptualisation and measurement of engagement, autonomy and reactance constructs; alongside some reflections of how these issues related to the research conducted and subsequent findings. Overall, despite methodological issues and the complexity of constructs measured, this thesis has provided unique contributions to the healthcare engagement research literature, and has been successful in gaining further insights into the roles of psychological constructs influencing engagement.

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Section Four: Ethics Proposal

Ethics proposal for the empirical study: “*Engagement with mental health services for people with experiences of psychosis: the role of psychological factors.*”

Word count (excluding references, tables and appendices): 3752 words

Amy Nickson

Doctorate in Clinical Psychology

Division of Health Research, Lancaster University

January 2021



Faculty of Health and Medicine Research Ethics Committee (FHMREC)
Lancaster University

Application for Ethical Approval for Research

for additional advice on completing this form, hover cursor over 'guidance'.

Guidance on completing this form is also available as a word document

Title of Project: Investigating factors that may influence whether people experiencing psychosis engage with mental health services.

Name of applicant/researcher: Amy Nickson

ACP ID number (if applicable)*: N/A **Funding source (if applicable)** N/A

Grant code (if applicable): N/A

*If your project has *not* been costed on ACP, you will also need to complete the Governance Checklist [\[link\]](#).

Type of study

Involves existing documents/data only, or the evaluation of an existing project with no direct contact with human participants. Complete sections one, two and four of this form

Includes *direct* involvement by human subjects. Complete sections one, *three* and four of this form

SECTION ONE

1. Appointment/position held by applicant and Division within FHM Trainee Clinical Psychologist, Doctorate in Clinical Psychology, Division of Health Research

2. Contact information for applicant:
E-mail: a.nickson@lancaster.ac.uk **Telephone:** 078059 15156 (please give a number on which you can be contacted at short notice)

Address: C34 Furness College, Lancaster University, Bailrigg, Lancaster, LA1 4YG

3. Names and appointments of all members of the research team (including degree where applicable)

Professor Bill Sellwood (Research Supervisor); Programme Director, Division of Health Research, Lancaster University, Lancaster, LA1 4YG
 Dr Helena Lockett (Field Supervisor, DClinPsy); Senior Clinical Psychologist, Lancashire Early Intervention Service East Team, The Mount, Whalley Road, Accrington, BB5 1AR.

3. If this is a student project, please indicate what type of project by marking the relevant box/deleting as appropriate: (please note that UG and taught masters projects should complete FHMREC form UG-tPG, following the procedures set out on the [FHMREC website](#))

PG Diploma Masters by research PhD Thesis PhD Pall. Care
 PhD Pub. Health PhD Org. Health & Well Being PhD Mental Health MD
 DClinPsy SRP [if SRP Service Evaluation, please also indicate here:] DClinPsy Thesis

4. Project supervisor(s), if different from applicant: As above

5. Appointment held by supervisor(s) and institution(s) where based (if applicable): As above

SECTION TWO

Complete this section if your project involves existing documents/data only, or the evaluation of an existing project with no direct contact with human participants

1. Anticipated project dates (month and year)

Start date: _____ End date: _____

2. Please state the aims and objectives of the project (no more than 150 words, in lay-person's language):

Data Management

For additional guidance on data management, please go to [Research Data Management](#) webpage, or email the RDM support email: rdm@lancaster.ac.uk

3. Please describe briefly the data or records to be studied, or the evaluation to be undertaken.

4a. How will any data or records be obtained?

4b. Will you be gathering data from websites, discussion forums and on-line 'chat-rooms'? n o

4c. If yes, where relevant has permission / agreement been secured from the website moderator? n o

4d. If you are only using those sites that are open access and do not require registration, have you made your intentions clear to other site users? n o

4e. If no, please give your reasons

5. What plans are in place for the storage, back-up, security and documentation of data (electronic, digital, paper, etc)? Note who will be responsible for deleting the data at the end of the storage period. Please ensure that your plans comply with General Data Protection Regulation (GDPR) and the (UK) Data Protection Act 2018.

6a. Is the secondary data you will be using in the public domain? n o

6b. If NO, please indicate the original purpose for which the data was collected, and comment on whether consent was gathered for additional later use of the data.

Please answer the following question *only* if you have not completed a Data Management Plan for an external funder

7a. How will you share and preserve the data underpinning your publications for at least 10 years e.g. PURE?

7b. Are there any restrictions on sharing your data?

8. Confidentiality and Anonymity

a. Will you take the necessary steps to assure the anonymity of subjects, including in subsequent publications?

yes

b. How will the confidentiality and anonymity of participants who provided the original data be maintained?

9. What are the plans for dissemination of findings from the research?

10. What other ethical considerations (if any), not previously noted on this application, do you think there are in the proposed study? How will these issues be addressed?

SECTION THREE

Complete this section if your project includes *direct* involvement by human subjects

1. Summary of research protocol in lay terms (indicative maximum length 150 words):

This research aims to investigate the influence of three psychological factors on engagement with mental health services for people experiencing psychosis: autonomy, psychological reactance and expressed emotion. Autonomy has been identified by people experiencing psychosis as important to recovery. However, mental health services' support may be perceived as restrictive. When autonomy is restricted, people are motivated to act to reinstate this. This is termed psychological reactance. People may display psychological reactance by disengaging from services. Expressed emotion is a term used to describe relatives who are critical, controlling or emotionally over-involved in their relative's life. Expressed emotion may evoke psychological reactance, and thereby influence engagement. This research will increase understanding of why people choose not to engage with services.

Anybody who self-reports: being 18 years+; experiencing psychosis; being involved with a mental health team will be eligible. Participants will be recruited via online methods. Participants will complete an online survey.

2. Anticipated project dates (month and year only)

Start date: May 2020

End date October 2020

Data Collection and Management

For additional guidance on data management, please go to [Research Data Management](#) webpage, or email the RDM support email: rdm@lancaster.ac.uk

3. Please describe the sample of participants to be studied (including maximum & minimum number, age, /):

Inclusion criteria are participants who self-report: being 18 years of age or over; have experienced psychosis/have received a psychosis-related diagnosis; and are service users or have been service users of a mental health service. Provided participants meet inclusion criteria, there are no exclusion criteria. However, participants who are not able to read, understand and complete the survey in English will not be able to participate. This is because it is not feasible to translate the measures/survey into other languages. Approximately 100 participants will be required for the proposed analysis, with no maximum number of participants.

The necessary sample size to enable regression and mediation analyses to be conducted was calculated. For the regression analyses, an a priori power analysis using G*power using a multiple regression with five predictors at an alpha level of 0.05 ($p < .05$) and a power of 0.80 is predicted to require a sample size of $N = 92$ in order to identify a medium effect size ($f^2 = 0.15$).

Sample sizes necessary for mediation analyses were calculated using MacKinnon, Fairchild, and Fritz (2007) guidance which is based on effect sizes. Based on this guidance, conservatively assuming both relationships would be in the region of 0.26 and with a plan to utilise a bias-corrected bootstrap method of mediation, a sample size

of 148 would be required. If the relationship between autonomy and reactance had an effect size of approximately 0.26, but reactance and engagement had effect size of 0.39, a sample size of 115 would be needed. If, as seems possible, both relationships had a medium effect size, the required sample size would be 71. Thus, the minimum required sample size for this study is $N = 92$.

4. How will participants be recruited and from where? Be as specific as possible. Ensure that you provide the full versions of all recruitment materials you intend to use with this application (eg adverts, flyers, posters).

Participants will be recruited online using principally, but not exclusively, the Twitter, Facebook and Instagram social media platforms. The study poster will be used as a picture in social media posts to advertise the study (please see Appendix A). Hashtags will be used to accompany the post; at time of recruitment, the researcher will conduct an optimisation analysis to determine trending hashtags / which hashtags are most used relating to mental health / psychosis and utilise these. All online posts will be posted from a Twitter/social media account set up specifically for the purposes of disseminating recruitment materials for this study. No pre-existing personal social media accounts belonging to the researcher will be used for the initial posting of any materials relating to this study. The student's Lancaster university email will be used to set up these professional, rather than personal accounts.

Advocacy groups and charities for people experiencing psychosis will be approached directly to seek assistance in recruitment, in the form of asking them to reshare the link to the online survey on their social media platforms or advertise the poster in appropriate online places e.g. websites. These approaches will principally, but not exclusively, be done via email to a publicly available email address. These contacts will be focussed on resharing recruitment materials (posters, Tweets) and will not take the form of direct recruitment.

Interested potential participants who view the study advertisement will indicate they want to participate by following the link in the post / given in the recruitment poster (bit.ly/psychosisresearch). All volunteering participants who meet the inclusion criteria will be included, i.e. none will be "turned away". The survey/recruitment will close once participant numbers reach the sample size required to conduct the proposed analyses. On the online survey, following the participant information sheet, participants are asked to confirm their eligibility to participate (Appendix D) by checking online boxes within the online survey prior to answering any questions (that they are 18+ years of age, experience psychosis, and are involved/have been involved with a mental health service). Participants who do not check the box confirming their eligibility will be directed to a page explaining why they do not currently meet eligibility criteria for this study, thanking them for their time and interest in the study, and directing them to the same sources of support as found in the Debrief materials (Appendix E).

5. Briefly describe your data collection and analysis methods, and the rationale for their use.

This study will utilise a quantitative cross-sectional design using an online survey methodology. Participants will answer questions from validated instruments and provide demographic details using the secure online questionnaire service, Qualtrics. An initial exploration of data will be conducted using correlations and t-tests. Following this, assumptions of parametric data and collinearity will be explored. A hierarchical multiple linear regression analysis will be used to determine the predictors of engagement. Any demographic variables that significantly correlate with engagement will be entered first (e.g. age, gender). It is likely that some of the independent variables will be significantly correlated (potentially violating assumption of no multicollinearity), e.g. reactance and autonomy. Thus, when calculating power/sample size necessary, it was calculated with five predictors entered into the model –e.g. potential demographic variable, reactance, criticism, emotional overinvolvement, warmth. Final regression models will be tested to confirm that the assumptions of a multiple regression are met by assessing multicollinearity, linearity, homoscedasticity and independence of residuals. I will then explore the viability of a mediation analysis, and if underlying assumptions are met I will conduct mediation analysis to investigate whether psychological reactance mediates the relationship between autonomy and engagement.

Finally, viability of moderation analysis will be explored. If underlying assumptions are met, a moderation analysis will be conducted to investigate whether EE moderates the relationship between psychological reactance and engagement.

If in any case the data are non-parametric / assumptions are not met, transformations may be applied if appropriate. If not appropriate, alternative non-parametric methods of analysis will be explored.

6. What plan is in place for the storage, back-up, security and documentation of data (electronic, digital, paper, etc.)? Note who will be responsible for deleting the data at the end of the storage period. Please ensure that your plans comply with General Data Protection Regulation (GDPR) and the (UK) Data Protection Act 2018.

Online survey information will be completed using the Qualtrics survey system and completed survey data will be stored within the Qualtrics software. This is an anonymous survey. Aggregated data will be transferred onto the University's secure servers and all analysis will be managed on these servers. Amy Nickson will hold guardianship of the data until the assignment is submitted, after which, Professor Bill Sellwood (research supervisor) will hold guardianship of the data. Data will be held for 10 years, after which it will be deleted by Professor Bill Sellwood. For entry into the optional prize draw or to request a summary of the study's findings (detailed below), participants will be required to enter an email address for contact. In order to ensure anonymity, participants wishing to enter the prize draw/request a summary of study results will be directed to a second Qualtrics survey, which will collect and store email addresses separately from survey data. Email will be similarly transferred to the University's secure servers and stored within an encrypted Microsoft Excel file. Upon completion of data collection, five email addresses will be selected at random from this file (using a random number generator) and the winners will be contacted. Upon completion of the study, a summary of the results will be sent to participants who requested this. The Excel file will then be immediately deleted by Amy Nickson.

7. Will audio or video recording take place? no audio video

a. Please confirm that portable devices (laptop, USB drive etc) will be encrypted where they are used for identifiable data. If it is not possible to encrypt your portable devices, please comment on the steps you will take to protect the data.

N/A

b What arrangements have been made for audio/video data storage? At what point in the research will tapes/digital recordings/files be destroyed?

N/A

Please answer the following questions *only* if you have not completed a Data Management Plan for an external funder

8a. How will you share and preserve the data underpinning your publications for at least 10 years e.g. PURE?

Following analysis, data will be deposited in Lancaster University's institutional data repository and made available upon request with an appropriate data license. Lancaster University uses Pure as the data repository which will hold, manage, preserve and provide access to datasets produced by Lancaster University research.

8b. Are there any restrictions on sharing your data ?

Supporting data will only be shared on request. Access will be granted on a case by case basis by the Faculty of Health and Medicine.

9. Consent

a. Will you take all necessary steps to obtain the voluntary and informed consent of the prospective participant(s) or, in the case of individual(s) not capable of giving informed consent, the permission of a legally authorised representative in accordance with applicable law? yes

b. Detail the procedure you will use for obtaining consent?

Consent will be obtained via a consent form and a forced choice question at the beginning of the online survey. Participants will be required to check a box to confirm: that they have read and understood the "participant information sheets"; that they understand they can stop completing the survey at any time and for any reason; that they understand once they have submitted/returned their anonymous survey responses it will not be possible to remove/withdraw them; that they understand their responses may be published as part of an

anonymous dataset; and that they consent to Lancaster University keeping the anonymous data from the study for 10 years post-study completion. Participants will not be able to undertake the outcome measures section of the survey, or submit their responses, if they do not first indicate informed consent to participate.

As it will not be possible to identify participants from the data they submit, participants will be informed that they will not be able to withdraw their data once they have started the survey (information sheets). However, participants are informed they can stop the survey at any point.

10. What discomfort (including psychological e.g. distressing or sensitive topics), inconvenience or danger could be caused by participation in the project? Please indicate plans to address these potential risks. State the timescales within which participants may withdraw from the study, noting your reasons.

The student is a trainee clinical psychologist and is supervised by two qualified clinical psychologists who are experienced in conducting psychological research. Thus, the study has been designed with an aim to minimise the potential psychological distress for participants and any time burden due to the questionnaires chosen.

Whilst it is not anticipated that completing the survey will cause distress, it is outlined in the consent form that participants may be answering questions about topics they find emotional and that they may find these upsetting at times. This is because it cannot be anticipated that, for some participants, answering questions about their mental health may sometimes be upsetting. Moreover, information relating to appropriate sources of support if a person is experiencing distress are provided in both the participant information and debrief materials presented at the end of the survey.

11. What potential risks may exist for the researcher(s)? Please indicate plans to address such risks (for example, noting the support available to you; counselling considerations arising from the sensitive or distressing nature of the research/topic; details of the lone worker plan you will follow, and the steps you will take).

None identified.

12. Whilst we do not generally expect direct benefits to participants as a result of this research, please state here any that result from completion of the study.

Participants may enter for a prize draw of one of five £30 Amazon vouchers.

13. Details of any incentives/payments (including out-of-pocket expenses) made to participants:
5 x £30 Amazon vouchers to be won (optional entry following completion).

14. Confidentiality and Anonymity

a. Will you take the necessary steps to assure the anonymity of subjects, including in subsequent publications?

yes

b. Please include details of how the confidentiality and anonymity of participants will be ensured, and the limits to confidentiality.

No personal information will be taken and demographic information is sufficient that participants will not be identifiable based on information. It will not be possible for researchers to break confidentiality. Whilst email addresses will be taken for the optional prize draw, these will be collected and stored separately to the survey content, as aforementioned.

15. If relevant, describe the involvement of your target participant group in the *design and conduct* of your research.

Anonymous focus group feedback was collected from experts by experience who are members of a service user involvement group that is linked with Lancaster University's Public Involvement Network. This group was contacted via Lancaster DCLinPsy's staff representative of the group. An NHS Early Intervention Service participation consultant also provided expert by experience feedback. None of the experts by experience are currently under the care of any individual involved in this study. Their feedback was used to refine the

accessibility of the information provided to participants, to understand the potential time burden of completing the survey, and to re-word some of the demographic and supplementary autonomy questions.

16. What are the plans for dissemination of findings from the research? If you are a student, include here your thesis.

Submission of research in a thesis as partial fulfilment for the degree of Doctor in Clinical Psychology. There are plans to submit research for publication following viva. The research may be presented at relevant professional conferences.

17. What particular ethical considerations, not previously noted on this application, do you think there are in the proposed study? Are there any matters about which you wish to seek guidance from the FHMREC?

One ethical issue is the potential de-anonymisation of responses as, although survey responses and email addresses are stored separately, the researcher will have access to both prior to formal analysis. If there is a low or slow response rate, it may be possible that the researcher will be able to identify which email addresses are associated with which survey responses. To address this, the researcher will not access content until data collection is complete.

SECTION FOUR: signature

Applicant electronic signature: Amy Nickson

Date 04/05/2020

Student applicants: please tick to confirm that your supervisor has reviewed your application, and that they are happy for the application to proceed to ethical review

Project Supervisor name (if applicable): Professor Bill Sellwood

Date application discussed 04/05/2020

Submission Guidance

1. Submit your FHMREC application by email to Becky Case (fhmresearchsupport@lancaster.ac.uk) as two separate documents:
 - i. **FHMREC application form.**
Before submitting, ensure all guidance comments are hidden by going into 'Review' in the menu above then choosing *show markup>balloons>show all revisions in line*.
 - ii. **Supporting materials.**
Collate the following materials for your study, if relevant, into a single word document:
 - a. Your full research proposal (background, literature review, methodology/methods, ethical considerations).
 - b. Advertising materials (posters, e-mails)
 - c. Letters/emails of invitation to participate
 - d. Participant information sheets
 - e. Consent forms
 - f. Questionnaires, surveys, demographic sheets
 - g. Interview schedules, interview question guides, focus group scripts
 - h. Debriefing sheets, resource lists

Please note that you **DO NOT** need to submit pre-existing measures or handbooks which support your work, but which cannot be amended following ethical review. These should simply be referred to in your application form.

2. Submission deadlines:
 - i. Projects including direct involvement of human subjects [section 3 of the form was completed]. The *electronic* version of your application should be submitted to [Becky Case](#) by the committee deadline date. Committee meeting dates and application submission dates are listed on the [FHMREC website](#). Prior to the FHMREC meeting you may be contacted by the lead reviewer for further clarification of your application. Please ensure you are available to attend the committee meeting (either in person or via telephone) on the day that your application is considered, if required to do so.
 - ii. The following projects will normally be dealt with via chair's action, and may be submitted at any time. [Section 3 of the form has *not* been completed, and is not required]. Those involving:
 - a. existing documents/data only;
 - b. the evaluation of an existing project with no direct contact with human participants;
 - c. service evaluations.
3. You must submit this application from your Lancaster University email address, and copy your supervisor in to the email in which you submit this application

Ethical Approval Letter

Applicant: Amy Nickson
Supervisor: Bill Sellwood
Department: Health Research
FHMREC Reference: FHMREC19082

26 May 2020

Re: Approval FHMREC19082
Investigating factors that may influence whether people experiencing psychosis engage with mental health services.

Dear Amy Nickson,

Thank you for submitting your research ethics application for the above project for review by the Faculty of Health and Medicine Research Ethics Committee (FHMREC). The application was recommended for approval by FHMREC, and on behalf of the Chair of the Committee, I can confirm that approval has been granted for this research project.

As principal investigator your responsibilities include:

- ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licenses and approvals have been obtained;
- reporting any ethics-related issues that occur during the course of the research or arising from the research to the Research Ethics Officer at the email address below (e.g. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress);
- submitting details of proposed substantive amendments to the protocol to the Research Ethics Officer for approval.

Please contact me if you have any queries or require further information.

Email:- fhmresearchsupport@lancaster.ac.uk

Yours sincerely,

A handwritten signature in black ink that reads "E. Suri-Payer".

Dr. Elisabeth Suri-Payer
Business Gateway Officer and Interim Research Ethics Officer



Investigating factors that may influence whether people with experiences of psychosis engage with mental health services.

Version 0.1

Date: 22/01/2020

Researcher: Amy Nickson (Trainee Clinical Psychologist, Lancaster University)

Supervised by:

Professor Bill Sellwood (Research supervisor, DCLinPsy); Clinical Psychology, Div. Of Health Research, Lancaster University, Lancaster, LA1 4YG

Dr Helena Lockett (Field Supervisor, DCLinPsy); Senior Clinical Psychologist, Lancashire Early Intervention Service East Team, The Mount, Whalley Road, Accrington, BB5 1AR.

Introduction

People experiencing psychosis benefit from long-term, recovery-oriented support from multi-disciplinary services to achieve improvements in mental health and quality of life (Kreyenbuhl, Nossel, & Dixon, 2009). To provide this support, it is important for services to be able to fully engage a person in the service being offered (Tibbo, 2015). However, it is recognised that many clients choose to disengage from services (or aspects of it), and this presents an important clinical challenge for services and researchers to consider (O'Brien, White, Fahmy, & Singh, 2009)

Disengagement from mental health services for people experiencing psychosis has been the focus of much research (Doyle et al., 2014; Kreyenbuhl et al., 2009). This research recognises the challenges inherent in measuring and researching (dis)engagement due to it being a complex and multifaceted concept (Doyle et al., 2014). Following discussion of differences in operationalizing and measuring engagement, Doyle et al. (2014) commented on the distinction between engagement in the literal sense of appointment attendance or recommended intervention, and the more intangible concept of therapeutic engagement. In a systematic review, O'Brien et al. (2009) concluded that engagement should be seen as a more “complex phenomenon” encompassing factors that include “acceptance of a need for help, the formation of a therapeutic alliance with professionals, satisfaction with the help already received, and a mutual acceptance and working towards shared goals”.

The research on engagement in psychosis is focused primarily upon first-episode psychosis (FEP) and early intervention for psychosis services (EIS). This is based on the rationale that the initial stages of support received when experiencing psychosis are crucial in terms of longer-term outcomes, making facilitating engagement a priority for EIS (Fusar-Poli, McGorry, & Kane, 2017). Despite the difficulties in researching disengagement, the general consensus is that clients are at high risk of disengagement, with disengagement rates

around one in three for EIS (E. Brown et al., 2019; Doyle et al., 2014). In contrast to the benefits shown to be associated with engagement, disengagement from EIS has been associated with poorer clinical outcomes, including increased levels of perceived distress, increased risk of relapse and persistent psychotic symptoms (Doyle et al., 2014; Turner, Boden, Smith-Hamel, & Mulder, 2009). Disengagement is associated with substance use, low severity of illness at baseline, past forensic history, unemployment, duration of untreated psychosis and lack of family support during treatment (see Doyle et al., 2014 for a review).

The above findings emphasise the importance of the issue of engagement in EIS. However, the literature's predominant focus upon EIS and prevention (Fusar-Poli, 2017) seems to have been at the cost of sufficient attention being paid to the issue of engagement in longer-term psychosis. An underlying assumption of mental health services is that people experiencing serious mental health difficulties require services' help to achieve improvements in their mental health. However, it has been recognised that community mental health teams (CMHTs) experience difficulties in engaging people who have received psychosis-related diagnoses (Edwards, Macpherson, Commander, Meaden, & Kalidindi, 2016). Thus, understanding factors that impact engagement at all stages of psychosis is important.

Generally, research on the correlates of service engagement in people with psychosis has largely focused on demographic (e.g. age, gender) or clinical correlates (e.g. symptoms, insight) (Nose, Barbui, & Tansella, 2003). However, more recently, significant associations have been found between service engagement and explanatory psychological concepts. Interestingly, these studies tend to include people experiencing longer-term psychosis as well as individuals in the early stages – thus, research into psychological factors recognises the importance of these at all stages of illness. Studies have investigated associations between engagement and recovery style (Tait, Birchwood, & Trower, 2003); illness perceptions (Casey et al., 2016; Williams & Steer, 2011); stigma (Clement et al., 2015; Hack,

Muralidharan, Brown, Drapalski, & Lucksted, 2019; Tsang, Fung, & Chung, 2010); attachment (MacBeth, Gumley, Schwannauer, & Fisher, 2011); and experiences of childhood abuse (Lecomte et al., 2008; Spidel, Lecomte, Greaves, Sahlstrom, & Yuille, 2010). These are all important clinical variables, but general social psychological principles of why people generally engage or disengage from adaptive behaviours have largely been ignored.

Two potential psychological variables of interest are perceptions of autonomy and psychological reactance. Psychological reactance is a motivational state that can develop when a person perceives there is a threat to their personal freedom/autonomy (Brehm, 1966; Miron & Brehm, 2006). Reactance functions to reinstate an individual's perceptions of autonomy, often through restoring the behaviour that is being threatened (Shen & Dillard, 2005). Sense of autonomy is therefore closely linked to reactance, in that when sense of autonomy reduces, reactance is likely to increase. Client autonomy is an important concept; people who experience psychosis have identified empowerment and autonomy as key factors in their recovery (Perkins, 2001; Ramon, Healy, & Renouf, 2007). Moreover, increasing patient choice can help engagement and trust with services (De las Cuevas, Peñate, & de Rivera, 2014; Dixon, Holoshitz, & Nossel, 2016; Laugharne, Priebe, McCabe, Garland, & Clifford, 2012; Lobban, 2012). However, it is acknowledged that within the delivery of mental health services, there are often significant power differentials between clinicians and clients, with clients sometimes feeling they are being coerced into treatment (Grinter, 2012; Laugharne et al., 2012). In a qualitative study, Grinter (2012) found clients experiencing psychosis reported difficulties with constraints of medication prescribing, diagnostic labelling and stigma. In response to these difficulties, clients often rejected clinician advice or refused treatment. Grinter (2012) explained these responses as acts of reactance that aimed to challenge clinicians' power and authority, and reinstate client autonomy. Whilst there are measures available to quantitatively measure reactance, these have not been used in relation

to engagement. However, they have been used to demonstrate reactance as a significant predictor of medication non-adherence in both psychosis and depression (De las Cuevas, de Leon, Peñate, & Betancort, 2017; De las Cuevas, Peñate, Betancort, & de Rivera, 2014; Fogarty & Youngs Jr, 2000; Madsen, McQuaid, & Craighead, 2009; Moore, Sellwood, & Stirling, 2000).

Reactance was originally investigated as a state phenomenon, although it is now evident that individuals are likely to vary in their trait propensity to experience reactance; this is based on the assumption that people vary in the strength of their needs for autonomy and self-determination (Shen & Dillard, 2005). Although psychological reactance has been understood for over fifty years, this potentially useful construct has received little attention in the clinical psychology literature, and is rarely used consciously in clinical practice (De las Cuevas, Peñate, Betancort, et al., 2014). However, it makes theoretical sense that the (often intensive) support provided by mental health services may, at times, be perceived by clients as reducing their sense of autonomy, which may evoke reactance and lead clients to disengaging from (aspects of) the service. In a time where engagement is increasingly being recognised as important, as well as the impact of collaborative care on this (Dixon et al., 2016), the impacts of autonomy and reactance are worth exploring further.

Patterns of family interactions are another area of potential importance related to autonomy, psychological reactance and engagement. Crucially, the manner in which family members respond to the person's experience of psychosis has considerable influence on client wellbeing and long-term outcomes (Claxton, Onwumere, & Fornells-Ambrojo, 2017). High levels of critical comments, hostility and/or emotional over-involvement in family members (commonly known as high expressed emotion [EE]) are associated with poorer service user outcomes, including more frequent relapse and hospital admissions (Cechnicki, Bielańska, Hanuszkiewicz, & Daren, 2013). High-EE relatives of people experiencing psychosis act in

more controlling ways in comparison to low-EE relatives (e Sa, Wearden, & Barrowclough, 2013; Hooley & Campbell, 2002; Peterson & Docherty, 2004; Wuerker, Long, Haas, & Bellack, 2002). Such findings suggest that EE will be negatively associated with autonomy, and perhaps therefore positively associated with psychological reactance. Indeed, Sellwood, Tarrier, Quinn, and Barrowclough (2003) found that family EE was related to non-adherence with medication. EE may also impact client engagement.

Aims

This study aims to investigate factors potentially influencing engagement with services for people experiencing psychosis. These factors are: perception of autonomy, psychological reactance and familial expressed emotion.

First, correlational analyses will be used to understand the relationships between individual variables before employing regression analyses to determine predictors of engagement. The study also aims to investigate whether psychological reactance mediates the relationship between autonomy and engagement. Finally, if participant numbers allow, the study will aim to investigate whether EE moderates the relationship between psychological reactance and engagement.

Research questions

1. Are any demographic variables associated with any of the variables measured?
(collecting demographic information will aid in analysis and understanding of results as well as allowing a full description of the sample).
2. What is / is there a relationship between autonomy and psychological reactance?
3. What is / is there a relationship between autonomy and engagement?
4. What is / is there a relationship between psychological reactance and engagement?
5. What is / is there a relationship between EE and engagement?
6. What is / is there a relationship between EE and autonomy?

7. What is / is there a relationship between EE and psychological reactance?
8. Does autonomy, reactance or expressed emotion predict engagement?
9. Does psychological reactance mediate the relationship between autonomy and engagement?
10. Does EE moderate the relationship between psychological reactance and engagement?

Method

Participants

Sampling

For the regression analyses, an a priori power analysis using G*power using a multiple regression with five predictors at an alpha level of 0.05 ($p < .05$) and a power of 0.80 is predicted to require a sample size of $N = 92$ in order to identify a medium effect size ($f^2 = 0.15$).

Sample sizes necessary for mediation analyses were calculated using MacKinnon, Fairchild, and Fritz (2007) guidance which is based on effect sizes. A literature search indicated that there are no existing studies investigating the relationship between autonomy and reactance which could be used to estimate an effect size (it seems that, in the literature, these two variables are assumed to be very closely related as they are so theoretically intertwined – reactance occurs when autonomy decreases). Thus, for the power analysis, here it seems feasible to assume that there will be at least a medium effect size found between these two variables.

For the relationship between psychological reactance and engagement, a literature search found only one study investigating the relationship between reactance and engagement in a child welfare sample (Mirick, 2014). It was found that the correlation coefficient for the relationship between reactance and engagement was $r = -0.277$, which can be converted to a Cohen's D effect size of -0.576. For medication adherence (a phenomenon related to

engagement), Fogarty and Youngs Jr (2000) found a correlation co-efficient of $r = -0.32$, which can be converted into a Cohen's D effect size of -0.676 . These can both be assumed to be medium effect sizes (Cohen, 2013).

Based on Fritz and MacKinnon (2007) guidance, conservatively assuming both relationships would be in the region of 0.26 and with a plan to utilise a bias-corrected bootstrap method of mediation, a sample size of 148 would be required. If the relationship between autonomy and reactance had an effect size of approximately 0.26, but reactance and engagement had effect size of 0.39, a sample size of 115 would be needed. If, as seems possible, both relationships had a medium effect size, the required sample size would be 71.

With regards to moderation analyses, there are again no existing studies that can be utilised to gauge effect sizes for a power calculation. Thus, once data are collected, moderation will be investigated if data allow. As moderation often needs larger sample sizes, it is possible to conduct conditional process analyses using the Hayes PROCESS tool utilizing bootstrapping methodology to reduce sample sizes required to perform moderation analyses (Hayes, 2012). This will be considered when assessing whether data are suitable to perform moderation on.

Inclusion criteria

Inclusion criteria are participants who self-report: being 18 years of age or over; experience psychosis/have received a psychosis-related diagnosis; and are service users or have been service users of a mental health service.

In the online survey, participants are asked to confirm their eligibility to participate (Appendix D) by checking online boxes within the online survey prior to answering any questions. Participants who do not check the box confirming their eligibility will be directed to a page explaining why they do not currently meet eligibility criteria for this study, thanking

them for their time and interest, and providing appropriate resources for if they should feel upset (Appendix E).

Exclusion criteria

Participants who are not able to read, understand and complete the measures in English will not be able to participate.

Design

Data Collection

This is an online questionnaire study. This is a single group, cross-sectional design utilising quantitative outcome measures.

Measures

There are 67 items within the survey in total. Please see Appendix G for full survey and all questions included. There are an additional three items asking participants to: provide consent; confirm eligibility; and an optional item at the end to enter a prize draw / request a summary of the study's findings upon study completion.

1. Demographic Questions (11 items)

Demographic information will be collected to allow for a full description of the sample and to aid in analysis and interpretation of results. Information will be collected on: country residing in, age, gender, partnership status, occupational status, ethnicity, mental health diagnoses/condition the person identifies as experiencing, whether the person is currently involved with a mental health service, type(s) of mental health team the participant is a service user of, length of time the participant has been a service user of this service and whether they have ever been in hospital due to their mental health. Every demographic question has a “prefer not to say” option.

2. Engagement (17 items)

The Singh O’Brien Level of Engagement Scale (SOLES; O’Brien et al., 2009)

This is a 16-item self-report measure of engagement with services for people experiencing psychosis. The SOLES has good predictive validity and has been found to predict longitudinal disengagement, cross-sectional disengagement and attendance at appointments (O’Brien et al., 2009). O’Brien et al.’s (2009) analysis revealed that the scale had good internal consistency (Cronbach's alpha = 0.843). When scoring, item 13 is reverse scored. The SOLES is scored by calculating the mean of all non-missing items. The authors report that three items can be missed if person does not have a key-worker/care coordinator. In this study, participants are told to leave any questions that are not relevant blank. This is because other questions that are not only about key workers/care coordinators may also not be relevant. For example, some questions ask about psychiatric medication or hospital admissions, which may not be relevant for all participants. Higher scores indicate better engagement.

The SOLES has recently been used in one study investigating treatment beliefs and engagement in FEP (Perry et al., 2019), and in another investigating predictors of engagement with EIS (Casey et al., 2016).

An additional supplementary question is asked on whether the person feels there have been times in the past they have disengaged from mental health services.

This is to gather information on whether people who score lower on the SOLES identify as having previously disengaged from services.

3. *Autonomy (12 items)*

Mastery Scale – short version (Clench-Aas, Nes, & Aarø, 2017; Pearlin & Schooler, 1978)

The full version of the mastery scale contains seven items including two positively phrased items constituting the mastery facet of the scale and five negatively framed questions constituting the perceived constraints facet (Lachman & Weaver, 1998). The short version of the scale contains only the negatively framed questions. The short version of the scale is used here as it has been shown to have better psychometric properties in comparison to the longer version, with Cronbach's alpha generally reported at approximately 0.8 (Clench-Aas et al., 2017; Gadalla, 2009).

This is therefore a five-item scale which aims to measure an individual's control over things that happen in their life. The individuals answer on a five-point scale whether they strongly agree, agree, agree as much as disagree, disagree or strongly disagree with the statements that they have little control over things that happen to them; are unable to solve problems they have; cannot change important things in their life; feel helpless when dealing with problems in life; and sometimes feel they are being pushed around in life. The total scores are summed

with higher scores indicating higher sense of mastery. The mastery scale has been used in psychosis research (Eklund, Erlandsson, & Hagell, 2012; Hsiung et al., 2010).

Supplementary Questions

As the Mastery scale is not specifically related to a person's perceived autonomy over their mental health or relationship(s) with mental health services, seven supplementary autonomy questions are included in the survey. These will be rated on a four-point scale ranging from not at all (1) to all of the time (4). Items four and seven will be reverse scored. This raises issues relating to validity, reliability etc. These issues will be addressed as much as possible through the analysis. It will unfortunately not be possible to assess test-re-test reliability due to the surveys being anonymous.

These supplementary questions (and the concept of measuring autonomy) were taken to a service user group and to a meeting with LSCFT's EIS participation consultant. I received positive feedback on the questions and the concept, with service users feeding back they felt the questions "made sense" and were "easy to understand and answer". I changed the wording of question six in response to service user feedback from "other people allow me to develop my own treatment plan" to "my views are considered important when developing my treatment plan", as it was felt the word "allow" insinuated the other person is still in control and therefore the care being receiving isn't person centred.

4. *Reactance (14 items)*

Hong Psychological Reactance Scale (HPRS; Hong & Page, 1989)

This is a 14-item scale measuring trait psychological reactance proneness. This scale has been used in many studies measuring psychological reactance, and in

studies measuring psychological reactance in relation to medication compliance (De las Cuevas, Peñate, Betancort, et al., 2014; Moore et al., 2000). Participants rate how much they agree with each item on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Total item scores are summed to provide a total score, with higher scores indicating higher reactance proneness. The scale has been shown to have adequate psychometric properties, most recently in a thorough validity study conducted by Brown, Finney and France (2011). They reported that items of the HPRS are factorially complex, and therefore it is misleading to estimate reliability using Cronbach's alpha. Thus, they recommend that only the variance due to the factor of interest be treated as systematic variance, as done when computing wH (Zinbarg, Revelle, & Yovel, 2007). wH can be used to estimate how well the observed total score represents the latent factor score, as it is equivalent to the squared correlation between the HPRS total score and the general reactance factor score. Brown, Finney and France (2011) report wH was .78, meaning that 78% of the variance in HPRS total scores is attributable to trait reactance.

5. *Expressed Emotion (17 items)*

Brief Dyadic Scale of Expressed Emotion (BDSEE; Medina-Pradas et al., 2011).

This is a 14-item scale measuring patients' perceptions of expressed emotion. It is composed of three subscales: perceived criticism, perceived emotional overinvolvement and perceived warmth. Items are scored on a 10-point Likert scale ranging from 1 (not at all/never) – 10 (very/always). Sum scores are calculated, with higher scores indicating more perceived criticism, emotional overinvolvement, or warmth.

Medina-Pradas et al. (2011) conducted factor analysis of the BDSEE and identified three separate factors which accounted for 73.1% of the variance (the three factors related to the criticism, emotional overinvolvement and warmth subscales). The criticism factor consists of four items and accounted for 19.6% of the variance with a Cronbach's alpha of 0.90. The emotional overinvolvement factor consists of six items and accounted for 27% of the variance with a Cronbach's alpha of 0.82. The warmth factor consists of four items and accounted for 26.5% of the variance with a Cronbach's alpha of 0.92. Thus, Medina-Pradas et al. (2011) demonstrated the scale to have an adequate structure and high internal consistency.

Medina-Pradas et al. (2011) also investigated the BDSEE's construct validity. They found correlations between the BDSEE and three other family instruments were significant and in the expected directions. The BDSEE was also compared with the Camberwell Family Interview – the gold standard for investigating EE. They found participants' perceptions and the "objective" ratings derived from the CFI were significantly correlated for criticism and emotional overinvolvement, and a positive but non-significant relationship was observed between the BDSEE and CFI's measure of warmth. Thus, their findings suggest the BDSEE's construct validity is good. This validation study was conducted with a sample of people who had received eating disorder diagnoses. The scale was originally validated by Keefe et al. (2006 – as cited in Medina-Pradas et al., 2011) on a sample of people who had received schizophrenia diagnoses. Whilst this study was never published, Medina-Pradas et al. (2011) do report on some of the findings from the original study. Cronbach's alpha from the sample of patients with schizophrenia was 0.67 to 0.79.

Before participants complete the BDSEE, three supplementary questions are asked about who the participant lives with, whom the closest person in their life is, and how much time per week the participant spends with this person. This information is necessary to fully understand the impacts of expressed emotion on engagement. Expressed emotion is impacted upon depending on who the person lives with and the amount of face-to-face contact time the person has with the person closest to them in their life.

Analysis plan

Initially, demographic statistics will be analysed (frequencies, descriptives, explore and crosstabs) to understand characteristics of the sample. The nature of the relationships between variables will then be explored using correlational analysis to answer research questions 1-7.

Following this, assumptions of parametric data and collinearity will be explored. A hierarchical multiple linear regression analysis will be used to determine the predictors of engagement. Any demographic variables that significantly correlate with engagement will be entered first (e.g. age, gender). It is likely that some of the independent variables will be significantly correlated (potentially violating assumption of no multicollinearity), e.g. reactance and autonomy. Thus, when calculating power/sample size necessary, it was calculated with five predictors entered into the model –e.g. potential demographic variable, reactance, criticism, emotional overinvolvement, warmth. Final regression models will be tested to confirm that the assumptions of a multiple regression are met by assessing multicollinearity, linearity, homoscedasticity and independence of residuals.

I will then explore the viability of a mediation analysis, and if underlying assumptions are met I will conduct mediation analysis to investigate whether psychological reactance mediates the relationship between autonomy and engagement.

Finally, viability of moderation analysis will be explored. If underlying assumptions are met, a moderation analysis will be conducted to investigate whether EE moderates the relationship between psychological reactance and engagement.

If in any case the data are non-parametric / assumptions are not met, transformations may be applied if appropriate. If not appropriate, alternative non-parametric methods of analysis will be explored.

Procedure

Recruitment

Participants will be recruited online using principally, but not exclusively, the Twitter, Facebook and Instagram social media platforms. The study poster (Appendix A) will be used as a picture in social media posts to advertise the study. Hashtags will be used to accompany the post; at time of recruitment, the researcher will conduct an optimisation analysis to determine trending hashtags / which hashtags are most used relating to mental health / psychosis and utilise these. All online posts will be posted from a Twitter/social media account set up specifically for the purposes of disseminating recruitment materials for this study. No pre-existing personal social media accounts belonging to the researcher will be used for the initial posting of any materials relating to this study.

Advocacy groups and charities for people experiencing psychosis will be approached directly to seek assistance in recruitment, in the form of asking them to reshare the link to the online survey on their social media platforms or advertise the poster in appropriate online places e.g. websites. These approaches will principally, but not exclusively, be done via email to a publicly available email address. These contacts will be focussed on resharing recruitment materials (posters, Tweets) and will not take the form of direct recruitment.

Online survey

Once the participants click the link embedded in the recruitment posts / type in the link copied from the poster, they will be directed to the online survey, designed and powered using the Qualtrics software. The full online survey can be viewed online at bit.ly/psychosisresearch; the survey is currently password protected and will remain this way until ethical approval is gained. The password for the survey is Lancaster2

Here, participants are provided with all relevant information (information sheet, Appendix B) and asked to consent to participate (Appendix C) and confirm their eligibility to participate (Appendix D) by checking online boxes within the online survey prior to answering any questions. Participants who do not check the box confirming their eligibility will be directed to a page explaining why they do not currently meet eligibility criteria for this study, **thanking them for their time and interest, and providing appropriate resources for if they should feel upset (Appendix E)**. Eligible participants will then be shown a pre-survey message (Appendix F) before being guided through the outcome measures described above (Appendix G). Participants will then be directed to the debrief information (Appendix H). Here, participants are thanked for their time, provided with appropriate resources if they feel upset and given contact details for if they have any queries. Here, participants are also given the link to follow should they wish to opt into the prize draw or receive a summary of the study's findings upon research completion. If participants do not wish to opt in, they can click "next" to end the survey. If participants click the link, they will be directed to the secondary survey where they can indicate whether they would like to enter the prize draw and/or receive a summary of the study's results, and can provide the email address they wish to receive these to (Appendix I). More information about this can be found under the "Prize draw" heading. When participants have indicated their option preferences and typed an email address, they can click the "next" button which will re-direct them back to the debrief section in the

primary survey. Respondents can click the “next” button again which will end the survey and show them a short end of survey message (Appendix J).

Prize Draw

In order to aid recruitment, participants will be given the option to enter a prize draw to win one of five £30 Amazon vouchers. Participants who choose to opt into the prize draw will be redirected at the end of the primary survey to a secondary survey (Appendix I). The secondary survey will ask participants to indicate they are choosing to opt-in to the prize draw, and will ask participants to provide the email address they would like an Amazon voucher to be forwarded to should they win the prize draw. Participants will also be asked if they would like to receive a summary of the study’s findings to this email address upon study completion. Following completion of this, participants are re-directed back to the primary survey. The data collected in the secondary survey will not be linked to the primary anonymised survey, and this is made clear to participants within both surveys and within the information sheet (Appendix B). Participants are asked to email or telephone the student if they have any difficulties with or questions regarding the secondary survey.

In order to choose winners, each entrant will be allocated a unique identifier ranging from ‘1’ up to the total number of entrants. A random number generator drawing from the same range of numbers will be used to determine winners. The Student (A. Nickson) will forward winning participants an electronic £30 Amazon voucher via email.

Data storage

During the project

All anonymised survey data will be analysed and stored electronically under password protection on the student’s secure storage space on Lancaster University secure servers or Lancaster OneDrive. Only the student and research supervisors will have access to the data. The student will have guardianship of the data whilst completing the current research.

The prize draw/study summary preferences and email addresses provided by participants will be downloaded from Qualtrics in the form of a Microsoft Excel file upon completion of data collection. This file will be password protected and stored on Lancaster University's secure server. Only the Student (A. Nickson) and Research Supervisor (B. Sellwood) will have access to this. As soon as data collection is finished, the prize draw will be drawn and vouchers sent out. Following this, only data pertaining to people who have opted to receive a summary of the study's results will be kept, with everything else being deleted from the Excel file. Once the study is completed, the summary of study results will be sent out. Following this, the whole Excel file will be permanently deleted.

Upon completion of final examination of the project

Raw survey data will be saved as an SPSS file and stored by the DClinPsy Research Coordinator who will store the files in password-protected file space on the university server for 10 years. Once this time has elapsed all data will be destroyed. This will be overseen by the project supervisor/data custodian (Professor Bill Sellwood).

There is potential for this study to be published in a peer reviewed journal. This may require data being made available to other researchers upon request. Although all data are anonymous, access to data will only be granted on a case-by-case basis by Professor Bill Sellwood (research supervisor).

Ethical concerns

Anonymity

In the survey data, no identifiable information will be collected from participants. Participants will not be required to provide their name or any contact information in order to take part. Age data will only be collected in the form of "years", i.e. no date of birth. Participants will provide their responses to the survey questions in a wholly anonymous way. This is outlined to participants in the information sheet (Appendices B).

Participants who wish to enter the prize draw or wish to receive information on the study's findings will be asked to provide an email address they would like to receive the findings / voucher to (should they win). Participants will be made aware in the information sheet that this is provided in a separate survey and is not stored in connection to their survey responses. This maintains the anonymity of the data they provide. Once transferring this information from Qualtrics to Excel, data will be stored securely on the University's secure server and will be password protected. These data will be permanently deleted from the University's secure server following the prize draw and dissemination of study summaries (as mentioned above).

There is the small potential for de-anonymisation of responses as, although survey responses and email addresses are stored separately, the researcher will have access to both prior to formal analysis. If there is a low or slow response rate, it may be possible that the researcher will be able to identify which email addresses are associated with which survey responses. To address this, the researcher will not access content until data collection is complete.

Participants are encouraged to contact the student if they have any queries or questions about the study. The information sheets make it clear that any emails/email addresses/telephone numbers are not stored anywhere and are deleted as soon as the query is resolved / phone call has ended.

Informed consent

Consent will be obtained via a consent form (Appendix C) and a forced choice question at the beginning of the online survey. Participants will be required to check a box to confirm: that they have read and understood the "participant information sheets"; that they understand they can stop completing the survey at any time and for any reason; that they

understand once they have submitted/returned their anonymous survey responses it will not be possible to remove/withdraw them; that they understand their responses may be published as part of an anonymous dataset; and that they consent to Lancaster University keeping the anonymous data from the study for 10 years post-study completion. Participants will not be able to undertake the outcome measures section of the survey, or submit their responses, if they do not first indicate informed consent to participate.

As it will not be possible to identify participants from the data they submit, participants will be informed that they will not be able to withdraw their data once they have started the survey (information sheets, Appendix B). However, participants are informed they can stop the survey at any point.

Participant well-being

The student is a trainee clinical psychologist and is supervised by two qualified clinical psychologists who are experienced in conducting psychological research. Thus, the study has been designed with an aim to minimise the potential psychological distress for participants and any time burden due to the questionnaires chosen.

Whilst it is not anticipated that completing the survey will cause distress, it is outlined in the consent form (Appendix C) that participants may be answering questions about topics they find emotional and that they may find these upsetting at times. This is because it cannot be anticipated that, for some participants, answering questions about their mental health may sometimes be upsetting. Moreover, information relating to appropriate sources of support if a person is experiencing distress are provided in both the participant information (Appendix B) and debrief materials presented at the end of the survey (Appendix H).

Service User Involvement

Anonymous focus group feedback was collected from experts by experience who are members of a service user involvement group that is linked with Lancaster University's

Public Involvement Network. This group was contacted via Lancaster DClInPsy's staff representative of the group. An NHS EIS participation consultant also provided expert by experience feedback. None of the experts by experience are currently under the care of any individual involved in this study. Their feedback was used to refine the accessibility of the information provided to participants, to understand the potential time burden of completing the survey, and to re-word some of the demographic and supplementary autonomy questions.

Dissemination Strategy

The results of this study will be published in the thesis of the student. Attempts to publish the research in a relevant academic journal and relevant professional/scientific conferences will also be undertaken. The student will also provide an oral presentation of the results at the Lancaster DClInPsy thesis presentation day. Once the study is completed, the findings will be shared, using lay language, on the social media accounts used for recruitment, so that participants have the opportunity to see the results. Participants who request a summary of the study's findings will also receive this once the research is complete.

Timescale (2020)

Ethical review	April ethical review
Data collection	Estimated start date May 2020 – Estimated end date July 2020.
Begin write up	February 2020
Analysis	August 2020
Complete write up	September-October 2020

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Appendix

Appendix A: Recruitment poster version 0.1

Would you like to take part in some research?



Can you help?

- Are you 18 years of age or older?
- Do you experience psychosis? Psychosis might be seeing or hearing things (voices) that other people cannot, or having strong beliefs that others think are very unusual. Experiencing psychosis is sometimes linked with diagnoses like "schizophrenia", "schizoaffective disorder" or "delusional disorder", but not necessarily.
- Are you or have you been involved with a mental health team?

If so, we'd like to hear from you!

My name is Amy, and this research is being conducted as part of my training as a clinical psychologist. The study is investigating factors that influence whether people with experiences of psychosis choose to engage with mental health services.

If you'd like more information, please contact me at:

a.nickson@lancaster.ac.uk / 07508406276

What would be involved?

- Completing a short online survey.
- Participation is voluntary and completely anonymous.
- No personally identifiable information is taken in the survey.

**There is an optional prize draw.
There are five £30 Amazon vouchers
to be won.**

If you would like to take part in this study online, please go to:

bit.ly/psychosisresearch

Appendix B: Participant Information Sheet version 0.2**Participant Information Sheet****Investigating factors that may influence whether people with experiences of psychosis engage with mental health services.**

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection

My name is Amy Nickson and I am conducting this research as part of my training as a clinical psychologist at Lancaster University. You are being invited to take part in my research study. It involves completing a survey that should take no longer than 25 minutes. Please read the information below about the study before deciding to take part. It is important for you to understand why this research is being undertaken and what taking part will involve. Feel free to talk to others about the study or contact me by email at a.nickson@lancaster.ac.uk or by telephone on 07508406276 if you would like to ask any questions.

What is the study about?

We are trying to find out what influences whether people experiencing psychosis decide to use mental health services or not.

Psychosis might be seeing or hearing things (voices) that other people cannot, or having strong beliefs that others think are very unusual. Experiencing psychosis is sometimes linked with diagnoses like "schizophrenia", "schizoaffective disorder" or "delusional disorder" but not necessarily.

Examples of mental health services include:

- Early Intervention for Psychosis Teams
- Community Mental Health Teams
- Home Based Treatment Teams / Crisis Teams
- Assertive Outreach Teams
- Increasing Access to Psychological Therapies services (IAPT - these are sometimes called things like Mindsmatter or First Step)

I am interested in whether the way these services provide support and care for people experiencing psychosis can impact upon whether people engage with them. One factor I am investigating is people experiencing psychosis' sense of control and decision making in their treatment. I'm also interested in the way that families provide support might be involved.

Who can take part?

The study requires information from people aged 18 years and older, who experience psychosis, and are involved or have been involved with a mental health service (e.g. Early Intervention Team; Community Mental Health Team; Home Based Treatment Team; Crisis Team; Assertive Outreach Team; Rehab Team; IAPT).

Do I have to take part?

No. It's completely up to you to decide whether or not you decide to take part after reading this information. If you would like to ask any questions, please email me at a.nickson@lancaster.ac.uk or telephone me on 07508406276.

Deciding not to take part in the study is completely fine and it will not affect your rights or access to services in any way. If you decide you do want to take part, but then later change your mind, you can

do that simply by closing the survey window. However, any data collected up until the point you exit the survey may be included in the overall study results as the data collected will be anonymous and so it will not be possible for me to identify and remove your data after you exit the survey.

What will I be asked to do if I take part?

If you decide you would like to take part, you will be asked to give your consent electronically on the next page, after which the online survey will begin. This will ask some questions about you (e.g. age, gender), your decision making, and how you feel the person closest to you acts towards you. The survey will NOT ask for any personal identifiable information such as name, address or date of birth.

It will take approximately 20-25 minutes to complete the survey.

Will my data be identifiable?

No one will know the information you provide is yours, as the information you provide will be anonymous.

There is an option to be entered into a prize draw for a chance to win one of five £30 Amazon vouchers. In order to enter the prize draw, you will be required to provide your email address at the end of the survey. Email addresses are collected and stored securely and separately to your survey responses, and so cannot be linked to the answers you give within the survey.

If you email me at a.nickson@lancaster.ac.uk or telephone me on 07508406276 to ask questions about the study, it will NOT be possible for me to link your details (such as name, telephone number and/or email address) to any survey responses you may provide. This is a university email address and telephone number. Any email correspondence will be confidential, and emails will be securely stored until no longer needed (i.e. once you receive a satisfactory response to your questions), after which they will be permanently deleted. Telephone numbers will be deleted as soon as a phone call is over.

At the end of the study, data will be kept securely on the university's secure server for ten years. At the end of this period, data will be destroyed.

A synthesis of the data may be published. The full data set will not be publicly available; however, it may be provided to other researchers upon request on a case by case basis. At all times all data will be anonymous, and no identifiable elements will be included.

What will happen to the results?

The results will be submitted for publication as a thesis as part of the Lancaster University Doctorate in Clinical Psychology programme. Following this, the report may be submitted for publication in an academic journal. I will also be sharing a summary of the results in oral presentations to other healthcare professionals and at conferences. There is also an option at the end of the survey to indicate whether you would like to receive a summary of the study's findings via email. The summary will never have specific information about you or any other individual participant.

Are there any risks?

There are no risks anticipated with participating in this study. However, if you experience any distress whilst completing the questionnaire please stop immediately. You can also contact the organisations included in the resources provided at the end of this sheet. In addition, please contact these organisations if you experience distress following participating in this study.

Are there any benefits to taking part?

If you choose to enter the optional prize draw, you may win one of five £30 Amazon vouchers

Moreover, some people like taking part in research due to its potential to help others in future. However, there are no other direct benefits to taking part in this research.

Who has reviewed the project?

This study has been reviewed and approved by Lancaster University's Ethics Committee.

Where can I obtain further information about the study if I need it?

Researcher & Trainee Clinical Psychologist

Name: Amy Nickson

Lancaster Doctorate in Clinical Psychology,

Lancaster University, Lancaster,

LA1 4YG

Email: a.nickson@lancaster.ac.uk

Telephone: 07508406276

Alternatively, you can speak to my Research Supervisor from the Lancaster Clinical Psychology training programme on:

Name: Professor Bill Sellwood

Email: b.sellwood@lancaster.ac.uk

Contact Number: 01524 593998

Postal Address: C34 Furness College, Lancaster University, Lancaster, LA1 4YG

Complaints

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher, you can contact:

Dr Ian Smith

Email: i.smith@lancaster.ac.uk

Research Director

Doctorate in Clinical Psychology,

Lancaster University, Lancaster

LA1 4YG

If you wish to speak to someone outside of the DClinPsy Doctorate Programme, you may also contact the Associate Dean for Research:

Professor Roger Pickup Tel: +44 (0)1524 593746

Email: r.pickup@lancaster.ac.uk

Faculty of Health and Medicine

Lancaster University, Lancaster

LA1 4YG

If you are feeling upset

Should you feel distressed either as a result of taking part, or in the future, please contact your GP for support. In addition, the following resources may be of assistance:

Mind for better mental health	Website: mind.org.uk
Hearing Voices Network	Website: hearing-voices.org
Rethink mental illness	Website: rethink.org

Appendix C: Consent Form version 0.1

Consent Form

We are asking if you would like to take part in a research project that explores psychological factors impacting whether people experiencing psychosis choose to engage with mental health services. Before you consent to participating in the study please read the information provided. If you have any questions or queries before taking part, please contact the student, Amy Nickson, by email at a.nickson@lancaster.ac.uk, or by telephone on 07508406276.

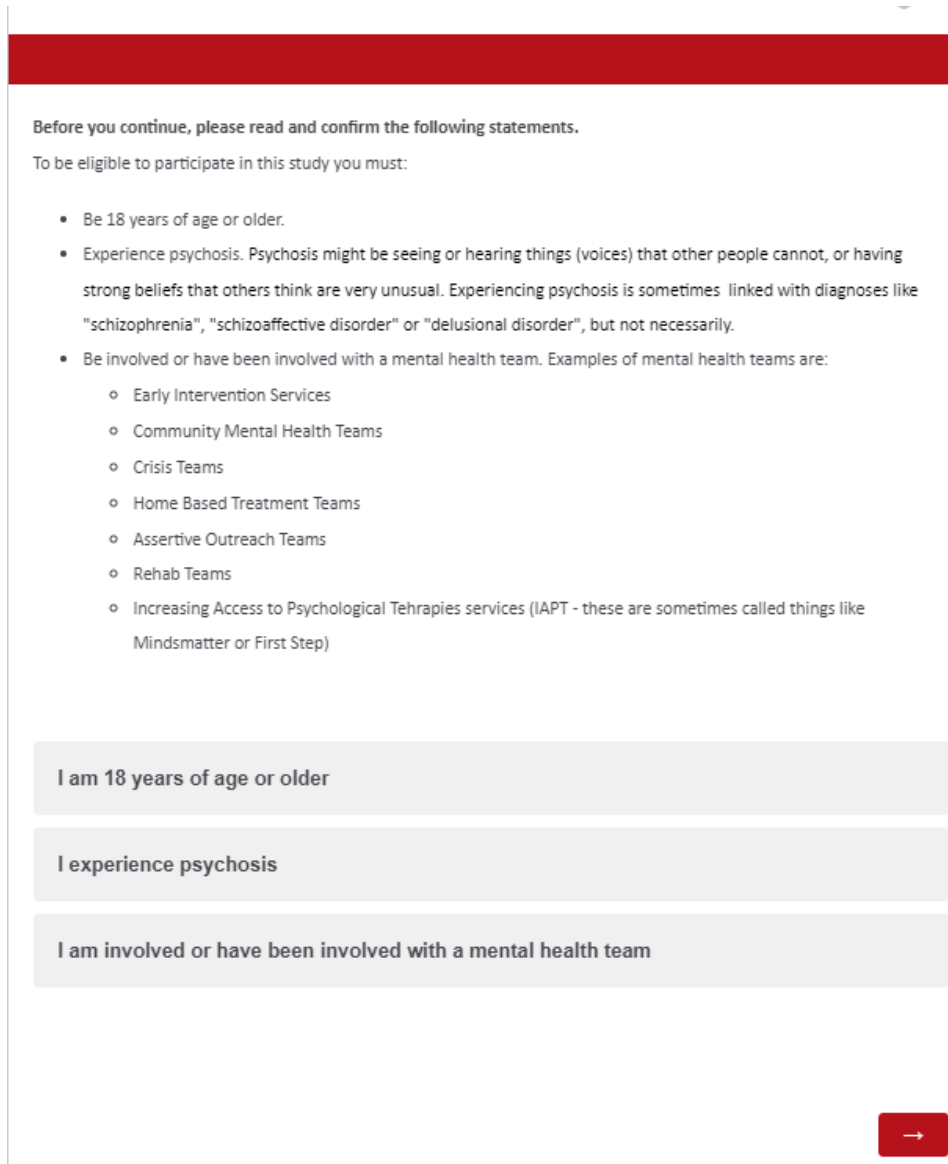
Please read the following statements and click on the option below to indicate that you

are happy to take part in the study.

1. I confirm that I have read the participant information sheet and fully understand what is expected of me.
 2. I understand that the questionnaire will include questions about emotional topics and that although every care has been taken for these questions to be asked in a sensitive manner, they may be upsetting at times. I understand that I do not have to complete the questionnaire and that I am free to stop at any time, for any reason.
 3. I understand that once I have submitted my anonymous responses it will not be possible to remove them.
 4. I understand that my anonymous responses will be added to other participants' responses and may be published as part of an anonymous data set and written up as a research report, which may be published.
 5. I consent to Lancaster University keeping the anonymous data from the study for 10 years after the study has finished.
- I consent to all five statements above and wish to take part in the current study
- I do not consent to all five statements above and do not wish to take part in the current study (selecting this option will end the survey now).

Appendix D: Eligibility version 0.1

(NB : selecting all statements here then clicking the red arrow “next page” button takes the participant to the pre-survey message - Appendix F -, whereas selecting none or only one or two of the statements and clicking the “next page” button takes the participant to the “not eligible” message – Appendix E)



Before you continue, please read and confirm the following statements.


To be eligible to participate in this study you must:

- Be 18 years of age or older.
- Experience psychosis. Psychosis might be seeing or hearing things (voices) that other people cannot, or having strong beliefs that others think are very unusual. Experiencing psychosis is sometimes linked with diagnoses like "schizophrenia", "schizoaffective disorder" or "delusional disorder", but not necessarily.
- Be involved or have been involved with a mental health team. Examples of mental health teams are:
 - Early Intervention Services
 - Community Mental Health Teams
 - Crisis Teams
 - Home Based Treatment Teams
 - Assertive Outreach Teams
 - Rehab Teams
 - Increasing Access to Psychological Tehrapies services (IAPT - these are sometimes called things like Mindsmatter or First Step)

I am 18 years of age or older

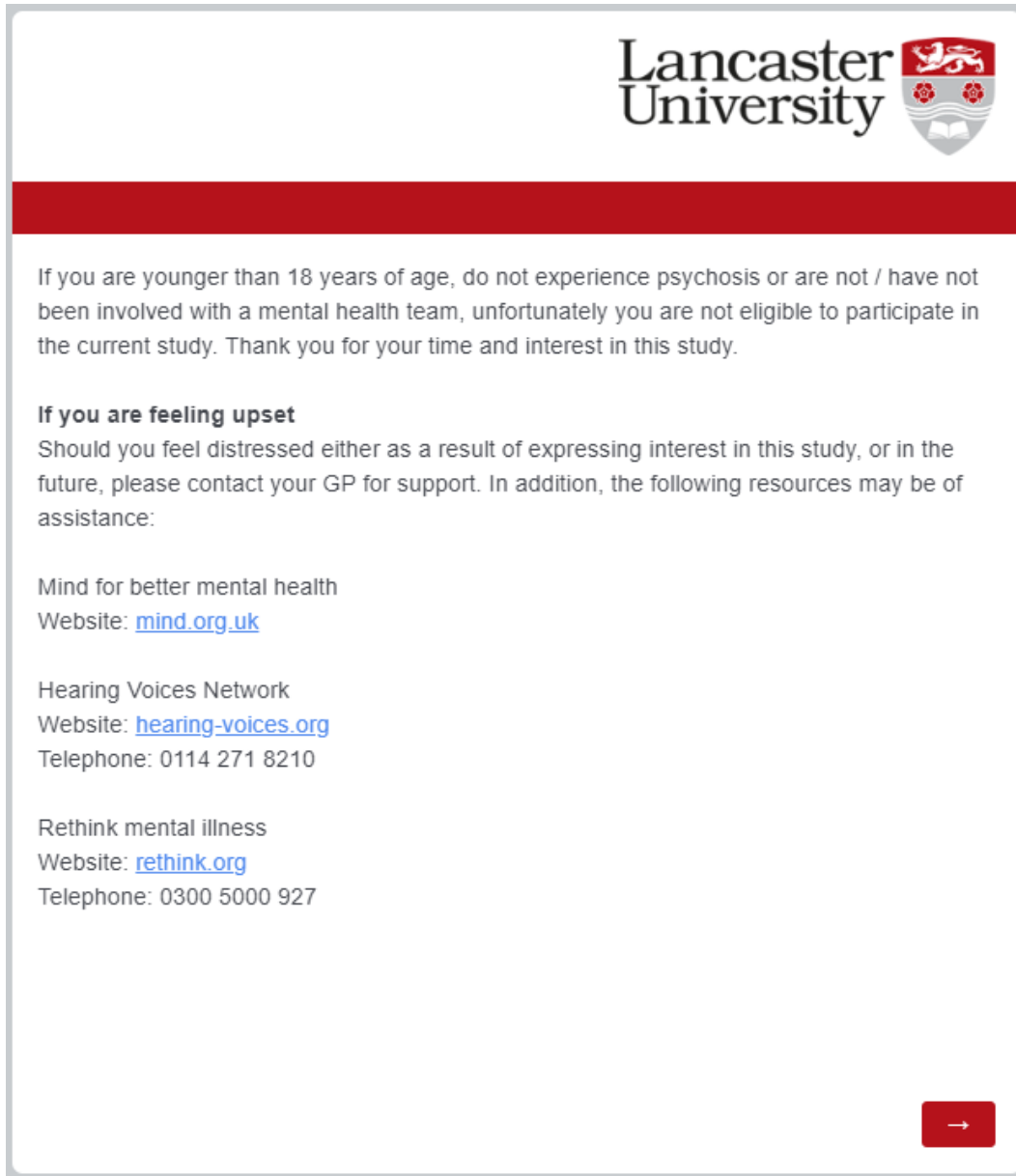
I experience psychosis


I am involved or have been involved with a mental health team



Appendix E: Not Eligible message version 0.2

(NB : clicking the red arrow “next page” button here takes the participant to the “end of survey” message – Appendix N)



Lancaster University 


If you are younger than 18 years of age, do not experience psychosis or are not / have not been involved with a mental health team, unfortunately you are not eligible to participate in the current study. Thank you for your time and interest in this study.

If you are feeling upset
Should you feel distressed either as a result of expressing interest in this study, or in the future, please contact your GP for support. In addition, the following resources may be of assistance:

Mind for better mental health
Website: mind.org.uk

Hearing Voices Network
Website: hearing-voices.org
Telephone: 0114 271 8210

Rethink mental illness
Website: rethink.org
Telephone: 0300 5000 927



Appendix F: Pre-Survey message version 0.1

Thank you for agreeing to take part in this study. The survey will begin on the next page and should take no more than 20 minutes. It will begin by asking some basic questions about you. You will then be asked to complete five brief questionnaires. Please click the "next page" button below to start the survey.

**Appendix G: Outcome measures**

Please note: each of the questions in this section has a 'prefer not to say' option. Please use this option if for any reason you do not wish to answer a question.

What country do you live in? (please leave blank if you prefer not to say)

What is your age? (please enter "0" if you prefer not to say)

What gender do you most identify with?

- Male
- Female
- Other
- Prefer not to say

How would you describe your partnership status?

- Married
- Civil partnership
- Divorced
- Widowed
- Living together but not married
- Single
- Other
- Prefer not to say

How would you describe your occupational status?

- | | |
|---|---|
| <input type="checkbox"/> Employed full-time | <input type="checkbox"/> Retired |
| <input type="checkbox"/> Employed part-time | <input type="checkbox"/> Caring for children/others |
| <input type="checkbox"/> Not working | <input type="checkbox"/> Volunteering |
| <input type="checkbox"/> Student | <input type="checkbox"/> Other |
| <input type="checkbox"/> Self-employed | <input type="checkbox"/> Prefer not to say |

What is your ethnicity? (categories from Office of National Statistics)

- WHITE – English / Welsh / Northern Irish / Scottish / British
- WHITE – Irish
- WHITE – Gypsy or Irish Traveller
- WHITE – Any other white background
- MIXED / MULTIPLE – White and Black Caribbean
- MIXED / MULTIPLE – White and Black African
- MIXED / MULTIPLE – White and Asian
- MIXED / MULTIPLE – Any other mixed / multiple ethnic background
- ASIAN / ASIAN BRITISH – Indian
- ASIAN / ASIAN BRITISH – Pakistani
- ASIAN / ASIAN BRITISH – Bangladeshi
- ASIAN / ASIAN BRITISH – Chinese
- ASIAN / ASIAN BRITISH – Any other Asian background
- BLACK / AFRICAN / CARIBBEAN / BLACK BRITISH – African
- BLACK / AFRICAN / CARIBBEAN / BLACK BRITISH – Caribbean
- BLACK / AFRICAN / CARIBBEAN / BLACK BRITISH – Any other Black/African/Caribbean background
- OTHER ETHNIC GROUP – Arab
- OTHER ETHNIC GROUP – Any other ethnic group
- Prefer not to say

Which of the following conditions do you identify as experiencing / Have you been given any of the following diagnoses? Please select all you feel apply to you.

- | | |
|--|---|
| <input type="checkbox"/> Psychosis | <input type="checkbox"/> Bipolar Disorder |
| <input type="checkbox"/> At risk of developing psychosis | <input type="checkbox"/> Depression |
| <input type="checkbox"/> First episode psychosis | <input type="checkbox"/> Anxiety |
| <input type="checkbox"/> Schizophrenia | <input type="checkbox"/> Post-Traumatic Stress Disorder |
| <input type="checkbox"/> Schizoaffective disorder | <input type="checkbox"/> Personality Disorder (any) |
| <input type="checkbox"/> Schizophreniform Disorder | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> Delusional Disorder | |

Prefer not to say

Are you currently involved with a mental health service?

- Yes
 No
 Prefer not to say

Which type(s) of mental health service are you or have you been involved with?

- Early Intervention for Psychosis Service
 Community Mental Health Team
 Assertive Outreach Team
 Rehab Team
 Crisis Team
 Home Based Treatment Team
 Increasing Access to Psychological Therapies (IAPT) service
 Other (please specify)

Prefer not to say

How long have you been / were you involved with this service? Please describe in months or years. Please enter "0" if you prefer not to say.

Have you ever been in hospital due to your mental health?

- Yes, once
- Yes, more than once
- No
- Prefer not to say

Please rate from 0 (not at all) to 10 (entirely) your agreement with the following statements. Please circle or tick your answer.

Questions can be left blank if they aren't relevant to you, i.e. if the question asks about medication but you aren't prescribed any.

If you are no longer involved with a mental health team, please answer based on how you felt when you were previously involved with a mental health team.

	0 - not at all	1	2	3	4	5 - somewhat	6	7	8	9	10 - entirely
I attend appointments with my key worker / care coordinator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to see my key worker / care coordinator regularly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find seeing my key worker / care coordinator helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to be involved with mental health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have benefited from mental health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a mental health problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find my psychiatrist helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to take psychiatric medication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find psychiatric medication helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue on the following page.

	0 - not at all	1	2	3	4	5 - somewhat	6	7	8	9	10 - entirely
I always take my medication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I get enough practical support from mental health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I get enough emotional support from mental health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can cope by myself without contact from mental health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Admissions to hospital have been helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel listened to by health professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can get help from mental health services when I need it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Have there been any times in the past when you have disengaged from mental health services (e.g. stopped attending appointments or not wanting mental health services' help anymore)?

Yes (if so, please specify how many times)

No

Prefer not to say

To what extent do you agree with the following statements about yourself? Please circle or tick your answer.

	Strongly agree	Agree	Agree as much as disagree	Disagree	Strongly disagree
I have little control over things that happen to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is really no way I can solve some of the problems I have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is little I can do to change many of the important things in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel helpless in dealing with the problems of life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes I feel that I am being pushed around in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what extent do you agree with the following statements about yourself? Please circle or tick your answer.

If you are no longer involved with a mental health team, please answer based on how you

felt when you were previously involved with a mental health team.

	Not at all	Some of the time	Most of the time	All of the time
I feel in control of what the mental health service provides for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I decide what treatments to take, not other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people tell me what to do about my mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people make decisions about my mental health without my input	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People ignore what I want to do about my mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My views are considered important when developing my treatment plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel supported to make my own informed treatment decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate how much you agree with the following statements. Please circle or tick your answer.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Regulations trigger a sense of resistance in me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find contradicting others stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something is prohibited, I usually think "that is exactly what I am going to do"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The thought of being dependent on others aggravates me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider advice from others to be an intrusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I become frustrated when I am unable to make free and independent decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It irritates me when someone points out things which are obvious to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I become angry when my freedom of choice is restricted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advice and recommendations usually induce me to do just the opposite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue on the following page.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am contented only when I am acting of my own free will	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I resist the attempts of others to influence me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It makes me angry when another person is held up as a role model for me to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When someone forces me to do something, I feel like doing the opposite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It disappoints me to see others submitting to society's standards and rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Who do you live with?

Who is the closest person in your life whom helps support you with your mental health? This might be a parent, sibling, relative, partner or friend, for example.

Approximately how much time do you spend per week with the closest person in your life whom helps support you with your mental health?

Please answer in hours, not including time you are asleep.

Please answer the following questions about the person you are closest to, whom you spend the most time with through the week and whom helps support you with your mental health.

	Not at all critical - 1	2	3	4	Somewhat critical - 5	6	7	8	9	Very critical -10
How critical is this person of you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all warm - 1	2	3	4	Somewhat warm - 5	6	7	8	9	Very warm - 10
How warm is this person towards you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all disapproving - 1	2	3	4	Somewhat disapproving - 5	6	7	8	9	Very disapproving - 10
How disapproving is this person of what you do?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all caring - 1	2	3	4	Somewhat caring - 5	6	7	8	9	Very caring - 10
How caring is this person of you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue on the following page.

	Not at all - 1	2	3	4	Somewhat - 5	6	7	8	9	Very much indeed - 10
How much do the things you do annoy this person?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Does not like it at all - 1	2	3	4	Somewhat likes it - 5	6	7	8	9	Likes it very much indeed - 10
How much does this person like to spend time and do things with you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all criticised - 1	2	3	4	Somewhat criticised - 5	6	7	8	9	Very criticised - 10
Do you feel criticised by this person?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not loved at all - 1	2	3	4	Somewhat loved - 5	6	7	8	9	Very loved indeed - 10
Do you feel loved by this person?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue on the following page.

	Never - 1	2	3	4	Sometimes - 5	6	7	8	9	Always - 10
This person does not let me do things on my own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Never - 1	2	3	4	Sometimes- 5	6	7	8	9	Always - 10
This person meddles in my activities (my life and my affairs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Never - 1	2	3	4	Sometimes - 5	6	7	8	9	Always - 10
This person makes me feel like I am not capable of taking care of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue on the following page.

Appendix H: Debrief section version 0.2

*Investigating factors that may influence whether **people with experiences of psychosis** engage with mental health services.*

Thank you for your time!

Thank you for participating in this study.

[Please click here for details about how to enter the prize draw for the chance to win one of five £30 Amazon vouchers and/or how to obtain a summary of study results.](#)

If you opt-in to either of these, please note that your email address cannot be linked to your survey responses; it will remain confidential and it will be permanently deleted following the prize draw / dissemination of study results summary.

If you have any questions or difficulties regarding entering the prize draw / requesting a summary of study results, please email Amy Nickson on a.nickson@lancaster.ac.uk, or by telephone on 07508406276.

If you do NOT wish to enter either of these, just click the "Next" button at the bottom and the survey will end.

If you are feeling upset

Should you feel distressed either as a result of taking part, or in the future, please contact your GP for support. In addition, the following resources may be of assistance:

Mind for better mental health

Website: mind.org.uk

Hearing Voices Network

Website: hearing-voices.org

Rethink mental illness

Website: rethink.org

If you wish to discuss an aspect of the study

Please contact:

Amy Nickson

Lancaster Doctorate in Clinical Psychology,

Lancaster University, Lancaster,

LA1 4YG

Email: a.nickson@lancaster.ac.uk

Phone: 07508406276

If you have a complaint

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher, you can contact:

Dr Ian Smith

Email: I.smith@lancaster.ac.uk

Research Director

Doctorate in Clinical Psychology,

Lancaster University, Lancaster

LA1 4YG

If you wish to speak to someone outside of the dclinpsy Doctorate Programme, you may also contact the Associate Dean for Research:

Professor Roger Pickup Tel: +44 (0)1524 593746

Email: r.pickup@lancaster.ac.uk


Faculty of Health and Medicine

Lancaster University, Lancaster

LA1 4YG

Thank you!

Appendix I: Prize Draw / Study Summary Survey version 0.1




Please select this option if you would like to enter the prize draw for one of five £30 Amazon vouchers


Please select this option if you would like to receive a summary of the study's findings upon completion of the research

Please provide an email address. This email address will be used to send you a prize voucher if you are selected in the prize draw, and/or to send you a summary of study findings. This will be stored separately to your anonymous survey responses.

Clicking the red arrow in the bottom right hand corner will submit your response and return you to the survey.



Appendix J: End of Survey message version 0.1



We thank you for your time spent taking this survey.
Your response has been recorded.