Submitted in partial fulfilment of the Lancaster University Doctorate in Clinical Psychology

Doctoral Thesis

May 2016

Psychosocial Pathways Between Adversity and Psychosis

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Table of Word Count

Section	Text	Abstracts, References, Tables and Appendices	Total
Abstract	258	-	258
Literature Review	7998	7537	15,535
Research Paper	7051	14,334	21,385
Critical Appraisal	3456	649	4105
Ethics	4741	6100	10,841
Totals	23,504	28,620	52,134

Thesis Abstract

Meta-analytic evidence suggests that adverse experiences contribute to the development of psychosis, including paranoia and hearing voices. These adverse experiences include childhood trauma (such as physical, emotional and sexual abuse) as well as experiences such as neglect, social inequality and poverty. One adverse experience that has received less attention is discrimination. Firstly, this thesis examines and synthesises the empirical literature that has linked psychosis to discrimination related to minority group status (for example, being victimised as a result of one's gender, ethnicity or sexual orientation). The review highlights the importance of future research utilising stronger methodological designs to help clarify the findings, however results indicate that discrimination appears to be associated with an increase in severity and incidence of psychosis, particularly in non-help seeking participants.

The second aim of this thesis was to examine psychological mechanisms that may mediate the associations between adversity and specific experiences of psychosis. For example, dissociation has been found to mediate the relationship between adversity and voices, whereas insecure attachment to mediate the relationship between adversity and paranoia. Other researchers have challenged this specificity and proposed that certain attachment styles, for example *fearful* attachment, might be implicated in both paranoia and voices. Therefore, using an online survey with 112 participants self-reporting psychosis, correlation and mediation analyses were conducted to examine the role of dissociation and attachment in the relationships between trauma in childhood, paranoia and voices. Findings indicate that dissociation, but not insecure attachment, mediates the relationship between trauma and voices, whereas both attachment and dissociation mediate the link between trauma and paranoia.

Declaration

This thesis reports research undertaken between January 2015 and May 2016 as a requirement of the Doctorate in Clinical Psychology at Lancaster University. The work presented here is my own except where reference is made. The work has not been submitted for the award of any higher degree elsewhere.

Josie Davies

2016

Acknowledgements

I would firstly like to thank my research supervisor, Dr Filippo Varese, for giving me the opportunity to conduct this research in an area of clinical psychology in which I am so interested and for his continuous guidance, tutoring, encouragement and unwavering support throughout the project, for which I am extremely grateful. I would also like to thank my academic supervisor, Dr Jane Simpson, for her support, guidance and tutoring throughout the process. I would like to thank all those who helped me to advertise my survey through social media, and to all who took the time to participate; without your help this research would not have been possible.

I would like to thank Dr Sophie Wickham for offering me help and guidance especially over the last few months of my thesis. I would also like to thank my fellow trainees and friends outside of the course for being supportive and understanding, and a special thanks to Sam, Graham and Claire.

Finally, I would like to say a huge thank you to my family, especially my husband, Owen, and to my mum and dad, Brenda and Stuart, for supporting me through this course and throughout my career. Thank you for being unconditionally supportive, and Owen, for taking care of me when I was too busy to take care of myself! I could not have achieved this without you.

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Perceived discrimination and psychosis: A systematic review of the literature

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Abstract

High rates of psychosis are consistently reported in minority groups including ethnic and sexual minorities. Since individuals belonging to such groups are vulnerable to the experience of discrimination, it has been proposed that discrimination may be an underlying mechanism. Cognitive models of psychosis can provide theoretical explanations for this pathway, suggesting that discrimination might lead to the development of negative schemata (beliefs) about the self and others, which are found to be elevated in people who experience psychosis. To examine the link between psychosis and discrimination, a systematic search of quantitative studies was conducted using PsycINFO, Embase and PubMED, including cross-sectional studies that examined the association between discrimination and psychosis, as well prospective designs that investigated discrimination as a risk factor for psychosis. Sixteen eligible studies met the inclusion criteria, two of which used prospective designs, while the remaining 14 used cross-sectional designs. Eight of the studies included in the review used six different large, epidemiological datasets. The findings were mixed due to variability in the research methods, however the main findings indicated that discrimination is associated with increased severity and incidence of psychosis, and that it might be more strongly associated with psychotic experiences that do not reach a threshold of 'clinical' levels, for example, with 'suspiciousness' rather than 'paranoia'. Avenues for further research and clinical implications are discussed.

Key words: Discrimination, trauma, minority, psychosis.

Introduction

High rates of psychosis are consistently found among minority groups including sexual, immigrant and ethnic minority groups. For example, studies have demonstrated that the incidence of psychosis in black ethnic minority groups in the UK is four to six times higher than in the white population [1], with similar rates in other parts of Europe [2] and the USA [3]. Moreover, estimates have suggested that identifying as a sexual minority, or being attracted to same-sex partners, may increase the risk of experiencing psychosis by up to four times [4] and that belonging to an immigrant minority group can increase the risk to between three and more than five times [2,3,5-7]. Although a variety of possible explanatory mechanisms have been proposed to explain the excess risk of psychosis in specific minority groups, these explanations have been largely specific to ethnic minorities and therefore cannot be generalised to other minority groups.

In the specific case of studies focusing on immigration status, it has been argued that pre-migration factors or the experience of migration itself cannot explain increased risk of psychosis. Research findings have demonstrated that second generation immigrants are at a greater risk of psychosis than first generation immigrants [2] and that ethnic minorities who have not experienced migration are also at greater risk [3]. Furthermore, more visible minorities, such as Black ethnic minorities living in predominantly White countries, have a higher risk of psychosis than those who are less visible due to lighter skin colour [5,6]. Moreover, studies have found that the effect of ethnic minority status on the risk of psychosis is dependent on ethnic density, that is, the greater the proportion of an ethnic minority in the population, the lower the risk of psychosis [8,9]. In light of this evidence, as van Os, Kenis and Rutten [10] discuss, it seems that an important factor is the degree to which a person is a minority, or stands out as a minority, in relation to the wider social environment. These authors proposed a social-developmental model of the pathways to the development of

psychosis, in which context-specific stressors, such as discrimination (unfair treatment or negative attitudes toward a minority group by a dominant group), are assumed to contribute to the elevated risk for psychosis observed in minority groups.

Discrimination as a mechanism involved in the pathway between minority status and increased incidence of psychosis would also account for increases in other minority groups, such as sexual minorities, since discrimination is one common experience that most minority groups share. Given the negative impact of discrimination on a wide range of social, physical and mental health outcomes (e.g. [2]), it has been proposed that discrimination may play a role in the development of psychosis, particularly in light of the robust and increasingly large evidence base linking other adverse experiences to an increased risk for psychosis [11]. Such adverse experiences include bullying, social inequality and neglect [11,12], all of which share common experiences of discrimination including social threat, deprivation of resources and unfair treatment. Discrimination is consistently reported in research to be related to poor psychological outcomes with three meta analyses demonstrating that perceived discrimination is associated with overall poorer mental health and psychological well-being (e.g. self-esteem, life satisfaction, stress, quality of life) [13-15]. Since there has been no review to date specifically examining discrimination in relation to psychosis, the present study intended to synthesise the available research to provide more clarity regarding this specific relationship.

The potential role of discrimination in increasing risk for psychosis is plausible in the light of several theoretical proposals, including the social defeat model, which provides a theoretical conceptualisation for the impact of discrimination, and cognitive models of psychosis. For example, social defeat models particularly highlight the potential impact of being in a subordinate, 'outsider' position within one's social environment [16]. This model assumes this experience of subordination in which a person experiences prolonged threat and

chronic stress, and leads to neurobiological changes that are thought to be associated with a range of psychological difficulties, including an increased risk of psychosis such as dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis [18-20]. In addition to the neurobiological impact of subordination, discrimination also shares similar experiences with social inequality, of which the negative impact on physical and mental health outcomes is now well documented [19-24], including for risk of psychosis [6,25]. Research suggests that the impact of social inequality cannot be explained by deprivation alone [26,27] and Wickham, Shryane, Lyons, Dickens and Bentall [28] argue that it is the *relativity* of deprivation that increases risk, in which inequality is present, that promotes feelings of low self-worth and injustice. Moreover, Wickham, Taylor, Shevlin and Bentall [12] revealed that discrimination significantly mediated the link between deprivation and paranoia. This evidence supports the hypothesis that discrimination is likely to be a mechanism that contributes to the heightened risk for psychosis within minority groups.

The impact of prolonged discrimination in terms of subordination, inequality and low self-worth is also consistent with cognitive models of psychosis suggesting that chronic experiences of power imbalance, threat and social humiliation can lead to the development of negative schemas (beliefs) about the self and others, which are often elevated in people who experience psychosis and are believed to fuel the development of psychosis [28]. Since discrimination involves social threat and humiliation, it is plausible that this may influence the development of negative schematic beliefs, and cognitive models suggest that chronic experiences of discrimination and negative schema may increase paranoid attributional styles, a theory that is supported by empirical evidence [30]. These cognitive models would suggest that discrimination might be more strongly associated with paranoia (which involves mistrust or fear of others, perceptions of persecution and anticipation of threat) than with other psychotic experiences such as hearing voices ('auditory verbal hallucinations'). This parallels

research findings involving similar experiences to discrimination. For example, with studies showing that deprivation predicts paranoia but not hallucinations [12], and that living in urban areas in which powerlessness and victimisation are experienced, increases the risk of paranoia [31]. However, there could also be an argument to the contrary. Research has begun to identify the role of dissociation (difficulties in the integration of psychological information from memory, perception and consciousness leading to detachment from the self or the environment) resulting from trauma in the development of voices [32]. It is thought that some types of early trauma may lead to cognitive mechanisms that serve to protect the child's psyche by dissociating the event from consciousness. In adulthood, fragmented memories and dissociated parts of the self intrude into consciousness through voices [26-38]. It could be argued that experiences of discrimination, particularly threatenening and abusive experiences in early life, might also lead to intrusive, critical voices.

Given plausible theoretical proposals suggesting that discrimination may contribute to the development of psychosis, the present review intended to synthesise and evaluate available research and empirical evidence regarding this relationship. In the context of the present review (and in line with previous meta-analyses in other areas of mental health [2,15]) *perceived* discrimination rather than *actual* discrimination was examined, since experiencing discrimination without perceiving the self as a target is likely to have less impact on psychological processes [39]. Similarly, studies examining discrimination that may *result* from the experience of psychosis or from the receipt of mental health diagnoses were not reviewed as these overlap with other related, but qualitatively distinct, constructs (such as mental health stigma) that have been already extensively examined in other reviews [40,41]. Additionally, the relationship between discrimination and psychosis was considered in studies of people from both clinical populations (those seeking help for distressing experiences related to psychosis), and non-clinical populations (those who have a proneness

to experiences related to psychosis or have minimal distress and so have not sought help).

Therefore, the present review focused specifically on the impact of perceived discrimination

in relation to minority group status, as well as other factors not related to mental health such

as age and gender, across the continuum of psychosis.

In light of the theoretical and empirical evidence cited above, the aims of the review

were threefold. Firstly, findings were reviewed from studies that examined discrimination as

a potential risk factor for psychosis (e.g. case-control studies that tested whether

discrimination is more common among people experiencing psychosis relative to comparison

groups, and large community-based or epidemiological studies testing whether discrimination

is associated with an increased risk of reporting psychotic experiences). Secondly, the review

examined whether discrimination was associated with more severe clinical presentations (e.g.

studies that examined whether, in people experiencing psychosis, discrimination was

associated with more severe experiences of psychosis). Finally, in light of tentative proposals

suggesting that exposure to discrimination may increase proneness to paranoid experiences

specifically, the review intended to investigate the associations between minority

discrimination and specific psychotic experiences.

Method

This systematic review was carried out in accordance with the Preferred Reporting

Items for Systematic Reviews and Meta-Analyses (PRISMA) standards [42].

Inclusion and Exclusion Criteria

Studies that met the following criteria were included in the review: 1) quantitative

methodologies that examined the cross-sectional or longitudinal relationship between

perceived discrimination and psychosis; 2) validated diagnostic or dimensional measures of

clinical or non-clinical experiences of psychosis; 3) articles written in the English language.

Studies were excluded if: 1) the type of discrimination measured was related to mental health

(e.g. stigma related to diagnosis, unfair treatment due to observable experiences related to mental health difficulties); 2) they were presented in a conference extract or single case study format; 3) participants had a primary diagnosis of substance-induced psychosis or psychosis secondary to organic pathology. No restrictions were placed on the measurement of perceived discrimination used in terms of validity or reliability.

Search Procedure

Studies were reviewed up to and including October 2015. The selection of search terms was informed by a review of search strategies from previous systematic reviews and meta-analyses on perceived discrimination [13,14,15,43,44]. These reviews identified studies researching discrimination in four main minority groups: ethnic, sexual, sex/gender and physical. Exploration of additional discriminatory words associated with each group was conducted using an academic thesaurus. Specifically, PsycINFO, Embase and PubMed were systematically searched using the following search string (discrimination OR discriminated OR victimi* OR prejudic* OR inequality OR homophob* OR sexualism OR racism OR racist OR racial OR sexis* OR ageis* OR disablism OR unfair treatment) AND (hearing voices OR voice hearing OR hallucinat* OR delusion* OR paranoid OR paranoia OR psychotic OR psychosis OR schizophren* OR 'severe mental' OR 'serious mental').

Eligibility was established in three stages based on title screening, abstract screening, and full-article screening. Backward and forward citation searches of the eligible papers were performed to identify further eligible reports. Figure 1 displays the PRISMA flowchart that details the systematic search and eligibility screening process.

[INSERT FIGURE 1]

Quality Assessment

Eligible studies were quality assessed using the Effective Public Health Practice Project tool (EPHPP; [45]). This tool assesses quality in observational, cross-sectional, longitudinal studies, and presents good validity and inter-rater reliability [45,46]. Each study was assessed on selection bias, study design, blinding, data collection and attrition rates, and was rated as 'weak', 'moderate' or 'strong' based on EPHPP guidelines (see Appendix A for full quality assessment tool). Second, each study was then given an overall quality rating: studies achieved a rating of 'strong' if four to six of the assessment criteria were rated as strong and there were no weak ratings; studies were rated as 'moderate' if less than four of the criteria were rated strong and no more than one rated weak; studies were rated 'weak' if they had two or more weak ratings on the specific criteria. No studies were excluded from the review based on their quality rating.

Data Extraction

A purposely-designed data extraction protocol was used to ensure that data were extracted systematically. The data extracted from each study included sample characteristics (i.e. country, population, sampling methods, sex of participants and sample size), details of the research measures used to assess discrimination and psychosis, the statistical analytic methods used to examine the associations between discrimination and psychosis and a narrative description of the main, relevant findings. Any difficulties or ambiguity in coding were discussed with the research supervisors until agreement was met.

Data Synthesis

Study characteristics, key findings and quality assessment information extracted from the primary studies were tabulated. The studies were then grouped according to the specific research questions they examined, details of which are discussed in the following

section. Meta analytic methods were considered not to be appropriate due to the small number of studies identified as well as considerable heterogeneity in the measures used.

Results

As shown in Figure 1, 16 eligible studies were identified. Table 1 provides a summary of the study characteristics and research findings of each study, grouped according to discrimination type: clinical (participants seeking help for distressing experiences) and non-clinical (participants within the general population) samples. Table 2 provides a summary of the quality assessment conducted for each individual study.

[Insert Table 1 here]

[Insert Table 2 here]

Sample and Design Characteristics of Eligible Studies

Of the 16 eligible studies, seven were carried out in the UK, four in the Netherlands, four in the USA, and one in Norway. A total of 43,803 participants took part in the studies included in the review. Five of the studies involved clinical samples ($n = 1600$) and the remaining 11 recruited participants from non-clinical populations [i.e. two studies with college/university student samples ($n = 772$): one considering members from a minority religious community ($n = 152$) and eight used six different large nationally representative epidemiological samples ($n = 40,739$)]. Within the 11 studies that reported the sex of the participants ($n = 27,592$), 32% were female ($n = 8716$).

The studies included in this review examined the relationship between discrimination and psychosis within different minority groups. Eleven studies examined the relationship within ethnic or immigrant minority groups [47-52]; two studies within sexual

minority groups [4,53]; one study within a religious minority group [54]; and two studies recruited participants not belonging to any specific minority group, and measured a range of discriminatory experiences requesting participants to attribute them to factors including age, sex, sexual orientation, ethnicity, disability, skin colour, religion and appearance [55,56].

In terms of research design, only one study employed a prospective design testing whether discrimination longitudinally predicted the onset of psychotic experiences over a three-year period while controlling for baseline levels of psychosis/psychotic experiences [56]. An additional study [49] tested the longitudinal association between discrimination and psychosis but without controlling for the presence of psychosis at baseline. The remaining studies employed cross sectional ($n = 14$) designs, four of which used comparison groups. Of those clinical studies included in the review, six examined the impact of discrimination across the continuum of psychosis [9,48,49,55,57,58], including individuals at clinical high risk of developing psychosis, first episode psychosis and people experiencing long-term psychosis.

With regard to the measurement of discrimination, six reported validated, self-report measures of discrimination: The Experiences of Discrimination scale (EOD: [59]); The Perceived Racism Scale (PRS: [60]); an adapted version of The Cultural and Identity Schedule 2 (CANDID-2: [61]); The Everyday Discrimination Scale (EDS: [62]); a self-report measure developed for the Immigrant Youth in Cultural Transition Study [63]; and The Racial Life Events Schedule (RALES: [64]). These measured discrimination being as a result of a range of minority-factors including ethnicity, skin colour, cultural and religious background, and assessed type and frequency of discriminatory events. In terms of specific measurement, four studies asked participants to rate discriminatory experiences in a range of different situations including at school/work, gaining employment, gaining access to services, and discrimination from the public and from police/courts. Four studies asked participants to

rate according to specific types of discriminatory experiences including verbal abuse, threats, physical attack on self or property, unfair treatment at work or when applying for work. Of these, five asked these questions in relation to race/ethnicity, one in relation to sexual orientation, and one asked participants to attribute discrimination, for example, to sex, ethnicity, skin colour, disability, appearance or sexual orientation.

Study Quality and Limitations

The quality assessment using the EPHPP tool identified that the majority of studies obtained an overall weak rating ($n = 12$) with a small minority scoring moderate ($n=4$), and no studies scoring strong (see Table 2). The most notable strengths were the large epidemiological studies that reduced the likelihood of sample bias. Despite these strengths, there were several methodological limitations within the included studies. The most notable limitation was that studies did not take into consideration important confounding variables. There is considerable evidence that a range of adverse experiences predict the onset and the severity of psychotic experiences in a dose-response fashion [11]. Moreover, evidence shows that people are likely to report more than one type of trauma. For example, one study demonstrated that 63% of 273 university students reported more than one traumatic experience, with over a quarter being exposed to four or more types of trauma [65]. Therefore, it may be that many participants included had experienced childhood adverse experiences such as abuse, neglect or bullying, as well as discrimination. Failing to control for such experiences hinders confidence that the relationship between discrimination and psychosis is not confounded by previous trauma. Furthermore, the majority of studies were cross-sectional in design, inhibiting the ability to draw conclusions regarding causality.

Many of the studies included in the current review employed limited, single or double item measures of discrimination. Such measures are not able to detect specific features of discriminatory experiences (e.g. frequency, severity, type of discrimination such

as exclusion, verbal or physical abuse, or work-related discrimination). Multidimensional measures of discrimination allow for dose-response analysis, which is important to help us to understand the risk associated with discrimination. It is also important to consider specific types of discrimination as this will guide our understanding of the underlying mechanisms involved.

Finally, there was discrepancy between clinical and non-clinical in terms of methodological strengths. For example, many of the non-clinical studies employed stronger methodological designs with large, epidemiological datasets, ensuring protection from type II errors (whereby an effect that exists is not identified: [66]). Additionally, of the six clinical studies, only two measured the severity of experiences while the remaining four simply categorised participants as those experiencing psychosis and those not (i.e. help-seeking versus non-help-seeking). The failure to assess more subtle variations in psychotic experiences may have hindered the detection of important factors within the relationship between discrimination and psychosis, such as specificity of different psychotic experiences, and did not allow for the relationship between discrimination and the severity of experiences to be examined.

Do people experiencing psychosis report more discrimination?

Six studies included in this review adopted methodological designs that allowed for exploration as to whether people who experienced psychosis were more likely to report discrimination (i.e. comparing perceptions of discrimination in people who experience psychosis to those who do not) [48,50,51,55,67,68]. Five of these studies (two of which used the same dataset but explored discrimination in different minority groups) found that non-clinical participants with experiences related to psychosis reported significantly more discrimination than those who did not: four within non-clinical samples [50,51,68,67] and one within a sample of people at clinical high risk of psychosis [55]. Four of these studies

found this association in people who reported racial discrimination [50,51,67, 68], with one

finding the association in people who reported overall discrimination (related to appearance,

age, skin colour, ethnicity, sex, religion, disability, sexual orientation) [55]. The odds ratios

(OR) reported in these studies demonstrated that people reporting verbal racial abuse had two

to three times increased odds of experiencing psychosis (ORs = 2.18-3.35). The association

was greater for *physical* racial abuse, with odds ratios showing that this experience increased

the odds of reporting psychosis between nearly three and five times (ORs = 2.94-4.77). One

epidemiological study reported less clear results, showing that although individuals

experiencing psychosis were more likely to report 'perceptions of disadvantage', this

disadvantage was not particularly attributed to the specific minority factors measured in the

study such as skin colour, culture, religion or social class [50]. Rather, participants may have

attributed disadvantage to some other unmeasured factor (e.g. their experiences of psychosis).

Is there a relationship between discrimination and severity of psychotic experiences?

Six studies examined associations between discrimination and severity of psychotic

experiences. Four of these studies (one considering help-seeking participants) found evidence

that the experience of discrimination was associated with a significant increase in the severity

of a range of psychotic experiences, including 'positive symptoms', paranoia, suspiciousness

and perceptual 'abnormalities' [47,54,57,67]. These associations were observed in both

people experiencing clinical levels of psychosis [57], non-clinical student samples [47,54,67]

and a community sample [54]. Four of these studies examined this relationship in people who

reported racial discrimination [47, 57, 67] and one study in people who reported religious

discrimination [54]. Interestingly, one of the student samples used two different measures of

paranoia and differentiated between what they considered to be clinically relevant and non-

clinical levels of paranoia and found that discrimination was only associated with the severity

of *non*-clinical paranoia [47]. In addition, some tentative evidence suggested that

discrimination might also impact on subjective levels of distress associated with certain psychotic experiences. Anglin and colleagues reported that people perceiving discrimination were 1.4 times more likely to experience distress as a result of non-clinical psychotic experiences [67]. This association, however, was not universally replicated, for example, two clinical studies found no significant association between discrimination and the severity of psychotic experiences [49,55].

Is there a relationship between discrimination and specific experiences within psychosis?

Six studies identified in the review (three non-clinical and three clinical) examined whether discrimination was associated with specific psychotic experiences [48,52,55-57,67]. Non-clinical studies included one report considering an ethnic minority student sample [67] and two reports considering large epidemiological datasets [52,56]. In ethnic minority students, discrimination was significantly associated with an increase in all non-clinical psychotic experiences under scrutiny (i.e. cognitive disorganisation, unusual thinking, altered perceptions and paranoia), however, the authors did not control for covariance between them [67]. In both epidemiological studies, discrimination was associated with an increased risk of 'delusional ideation'. Conversely, associations with hallucinatory experiences were less robust, with one study finding no association between discrimination and hallucinations [52], and the other a weaker association than those observed with 'delusional beliefs' in the same sample [56].

Of the three studies that examined the relationship between discrimination and specific psychotic experiences in clinical samples, one study found that discrimination was positively associated with 'positive symptoms' (overall score of psychotic experiences including delusions, conceptual disorganisation, hallucinations, hyperactivity, grandiosity, persecution and hostility), but not with 'negative symptoms' or cognitive disorganisation

[57]. Rather than examining association with broad clusters of experiences or dimensions (i.e. 'positive and negative symptoms'), the remaining two studies tested whether discrimination was associated with specific experiences of psychosis. However, no significant relationship was found between discrimination and the specific experiences measured (unusual perceptual experiences, unusual beliefs, paranoid thoughts or disorganised communication) [48,55].

Can we regard discrimination as a risk factor for psychosis?

The majority of the research studies included in this review regarded discrimination as a potential risk factor for psychosis. However, the vast majority of these studies exclusively employed correlational designs and (with a few exceptions) did not include more sophisticated analyses to clarify the nature of the contribution of discrimination to the vulnerability of experiencing psychosis. One methodological design that can provide some evidence toward discrimination as a risk factor for the development of psychosis is within 'dose-response' relationships (i.e. if increased exposure to adversity increases the incidence of psychosis in a graded fashion). Three studies (one student sample and two epidemiological samples) that examined for these relationships [52,56,67] found that an increase in exposure to discriminatory experiences (based on sexual orientation, age, gender, disability, skin colour, ethnicity) increased the risk of psychosis in a dose response fashion. Furthermore, three studies (two clinical and one non-clinical) carried out mediation analyses to test whether the observed association between minority status and psychosis was mediated by discrimination. All three studies provided evidence that discrimination mediated the relationship between minority group status and psychosis, two studies in a sample of people from ethnic minorities and one study in a sample of people from sexual minority groups [48,53,57].

In addition to the above studies testing for dose-response and mediation effects, the strongest evidence for perceived discrimination as a putative risk factor of psychosis is

1-16

currently provided from the only prospective study in this review that recruited people with no experience of psychosis at baseline [56]. The authors found that discrimination predicted the onset of 'delusional ideation' (but not hallucinations) in a dose response fashion for those who reported no discrimination, discrimination in one domain, and discrimination in more than one domain (domains were age, sexual orientation, gender, disability, appearance, skin colour and ethnicity) over a three year time period with baseline and two follow-up assessments. The authors found that this relationship remained significant after controlling for confounders including demographic factors and non-psychotic diagnoses.

Other Findings

Large variability existed between the studies included in the review. Two studies used methodological designs that were not comparable with other studies in the review and, therefore, were considered individually. The first study aimed to explore if people from ethnic minorities experiencing psychosis had more frequent negative life events and were more likely to attribute these to discrimination non-ethnic minorities [49]. Within their analysis the authors also compared affective and non-affective psychosis-related diagnoses, as well as 'continuous and episodic course of illness'. The authors found no association between diagnosis or 'course of illness' and perceptions of discrimination. The second study investigated if an increased risk of psychosis was associated with discrimination across different ethnic minority groups within one European city [58]. The authors categorised each ethnic group within the city according to the overall level of perceived discrimination (high, medium, low and very low levels of discrimination) based on a sample of people self-reporting discrimination combined with police reports. The results demonstrated that incidence of psychosis increased in ethnic groups as levels of discrimination increased. One major methodological limitation of this study, however, is that ethnicities were categorised based on reports of discrimination to the police. This method of categorisation may allow for

significant bias in that there may be ethnic/cultural differences in reporting discrimination to services. Despite this, the study provides some evidence that exposure to discrimination may be associated with an increase in incidence of psychosis. There was also an important additional finding from within one of the studies used in the main synthesis. This finding was reported within a clinical study which was that discrimination was significantly associated with negative schema (beliefs) about the self and others [55].

Summary

Large variability existed between the studies included in the present review in terms of methodological designs and sample characteristics. The main findings of clinical and non-clinical investigations suggest that discrimination may play an important role in psychosis. Firstly, research suggests that discrimination is more common in people experiencing clinical psychosis, individuals at high risk of developing psychosis and in individuals reporting non-clinical psychotic experiences, compared to individuals who do not report psychotic experiences. Secondly, despite some notable non-replications, there is evidence suggesting that discrimination may be positively associated with the severity of clinical and non-clinical psychotic experiences (as well as subjective distress associated with experiences). Thirdly, the review suggests that discrimination may be non-specifically associated with different psychotic experiences, but it is unclear whether it may convey an increased risk for specific experiences of psychosis, with a notable discrepancy between findings obtained in clinical (where associations with specific experiences have not been uncovered) and non-clinical studies (where emerging evidence point towards more robust associations with paranoia and unusual beliefs rather than other experiences such as hallucinatory experiences). Finally, studies have documented dose response relationships between discrimination and psychosis [52,56,67], as well as evidence suggesting that discrimination might mediate the link between

minority group status and psychotic experiences [57,48,53] and precede/predict the onset of psychosis in longitudinal designs [56].

Discussion

People Who Experience Non-Clinical Psychosis Report Higher Rates of Discrimination

The present review found that people who experience non-clinical levels of psychosis report higher levels of discrimination than those who do not [50,51,67,68]. The evidence was much more limited in clinical samples, with only one study examining this relationship in participants who were at a clinical high risk of experiencing psychosis; however, the authors found these participants also reported higher rates of discrimination [55]. Overall, the results suggested that people experiencing psychosis are up to five times more likely to report discrimination than people who do not experience psychosis. Interestingly, this association was stronger for physical discriminatory abuse than verbal discrimination. One possible explanation for this could be that the more severe the experience of discrimination the more likely it is to contribute to psychotic experiences. This explanation, however, assumes causality and we cannot make conclusions of this nature due to the cross-sectional design of the research.

Other possible explanations could include that people who are experiencing more psychosis are more vulnerable to more severe forms of discrimination, or that they are more likely to perceive an experience as discriminatory. Both of these alternative explanations are plausible. For example, people who have psychological difficulties are consistently found to report experiences of stigma [40,41] that might attract negative attention related to minority status, as well as psychological factors. With regard to the latter, cognitive researchers have demonstrated that people experiencing psychosis often have higher negative schema about others, which can lead to biased threat-based attributional styles [29,69]. These biases are developed from early experiences of adversity that lead to core beliefs about self and others,

and so, if a person has been a minority since childhood, it is likely that these core beliefs and attributional styles have developed. This explanation is supported by one study in the present review that showed discrimination was significantly associated with negative schemata regarding the self and others [55]. However, future research, particularly in clinical samples testing causality through longitudinal methods, is required to clarify these findings.

In terms of type of discrimination, it is not possible to determine from the current review if some discriminatory type is more strongly associated than another with an increased risk of reporting psychosis since five out of the six studies that tested this relationship reported on racial discrimination [48,50,51,67,68], while one measured over all discrimination related to a arrange of non-mental health discriminatory factors [55]. Future research is required to examine this relationship with a range of non-mental health related discriminatory types to explore whether certain minority groups (e.g. ethnic, sexual, religious) are impacted more by this relationship than others.

Discrimination as a Risk Factor for Psychosis

With regard to the question of whether discrimination is a risk factor for psychosis, the results were limited due to the cross-sectional design of the majority of studies included in the review. However, one prospective study recruited people who did not experience psychosis at baseline and demonstrated that discrimination increased the risk of psychosis in a dose response fashion [56]. Despite this longitudinal study providing the strongest evidence for discrimination as a risk factor, it is important to note that prospective research cannot be conclusive regarding causality due to the many other potential variables that might be impacting on the findings: prospective research is simply additional evidence. In addition to this prospective study, evidence for the risk of psychosis was found in mediation studies demonstrating that discrimination mediated the relationship between minority status and psychosis, as well as in dose response relationships in cross-sectional studies. However, the

direction of causality cannot be inferred from these studies and therefore must be interpreted with caution.

If we assumed causality, these mediational findings could suggest that an important factor of discrimination increasing the risk of psychosis - similarly with social deprivation [12] – is with regard to a person's experience of social threat and subordination. There is growing evidence that supports this hypothesis in studies that have demonstrated that social and income *inequality* are more strongly associated with an increased risk of psychosis than overall deprivation *per se* [25,27,70]. Therefore, perhaps an important factor in the experience of discrimination is with regard to the *inequality* that discrimination can cause. This may further help to explain findings discussed previously in which second generation immigrants are at a greater risk of psychosis than first generation immigrants [2] and that lower ethnic density increases the risk of psychosis.

Theories discussed previously that offer explanations for the relationship between discrimination and risk of psychosis include the cognitive model of psychosis and social defeat theory. These models hypothesise that social defeat and subordination increase the risk of psychosis through the development of negative self-other schema; a theory that has been supported through empirical evidence [55,71]. The present review also provided evidence to support these models through links between discrimination and psychosis as well as discrimination and negative schemata. From an evolutionary perspective, social rank theory (SRT: [72]) adds to these theories suggesting that subordination in social groups results in competition for resources, and as a result of threat to survival, emotions are significantly influenced by perceptions of inferiority [73]. SRT has been applied to people experiencing psychosis and studies have found that increased perceptions of inferiority are associated with greater feelings of entrapment by psychosis, with greater feelings of subordination in relation to voices as well as external relationships, and to greater shame associated with psychotic

experiences [74,75]. Combined, these theories provide some theoretical explanations regarding the link between discrimination and psychosis, including the role of inequality, inferiority and the development and negative self-other schemata.

It can be suggested from the findings in this review that discrimination might be an important risk factor for the development of psychosis. However, the quality appraisal highlighted some important limitations. Most notably of these were that none of the studies exploring discrimination as a risk factor considered the impact of other adverse experiences on psychosis outcome. In order accurately identify the specific impact of discrimination on psychosis, quantitative analyses should control for the impact of other experiences, and therefore, the evidence cited here should be interpreted with caution.

Discrimination and Specific, Non-Clinical Experiences of Psychosis

The present review demonstrated that discrimination might not be related to specific experiences of psychosis, and instead might contribute to a range of non-clinical experiences including hallucination-proneness and paranoid thoughts. This finding contrasts with cognitive models of psychosis, which suggest that discrimination may elicit cognitive responses such as paranoid attributional styles and negative self and other schemas (psychological processes assumed to be more conducive to paranoia and unusual beliefs than with hallucinations) [29,69]. One potential explanation may be that, as Raune, Bebbinging, Dunn and Kuipers [76] point out, specific adversities that shape psychotic experiences are likely to take time to do so, and so measuring discrimination only in the weeks or months prior to the study as many did, may not be able to detect such effects. A second potential explanation may be that higher levels of severity and frequency of discrimination may be experienced as a traumatic event [77], which may elicit cognitive responses such as dissociation that may be involved in the development of hallucinatory experiences [34,35]. This could be supported by findings from the present review that suggests that physical

discriminatory abuse was more strongly associated with psychosis than verbal discrimination, being potentially due to the increased severity of physical abuse.

Despite this finding that discrimination might not be associated with specific psychotic experiences, there was evidence for a slight trend toward more evidence for paranoia than hallucinations. If future research also supports this specific relationship it could provide more evidence toward the cognitive model of psychosis with regard to discrimination increasing the risk of cognitive biases and thus a vulnerability to paranoia. However, this finding could have alternate explanations, for example that people who experience paranoia might be more prone to perceiving a situation as discriminatory. These different explanations are not testable with the evidence cited in this review, particularly because many of the studies only measured discrimination that had been *recently* perceived. Future research should examine discrimination experienced earlier in a person's life to distinguish between these two potential explanations. The review found no evidence for a relationship between discrimination and specific experiences in clinical studies and the discrepancy between clinical and non-clinical findings will be discussed in a later section.

Discrimination Increases the Severity of Non-Clinical Psychotic Experiences

In terms of whether discrimination was associated with an increase in the severity of psychotic experiences, the majority of studies in the review that investigated this relationship found this was the case [47,54,57,67]. Three of these study found this association in ethnic minority groups [47,57,67], with one in a sample of people who reported religious discrimination [54]. These results were again primarily found in non-clinical studies [47,54,67], with only one clinical study replicating these findings [57] and two did not [49,55]. The quality appraisal highlighted these latter two studies measured discrimination only in the last three and twelve months prior to the study, compared with the measurement of lifetime discrimination in those that found significant results. Measuring lifetime

discrimination not only allows for all discriminatory experiences to be considered in the analysis, but also includes potentially more important experiences in the role of psychosis that were present earlier in life. Therefore, we cannot discount that discrimination might also be important for the severity of clinical levels of psychosis, and future research is required to clarify this.

If we consider the finding that discrimination increases the severity of non-clinical psychosis, again within a cognitive model and the development of negative self-other schema, it makes theoretical sense that this experience would exacerbate experiences such as paranoia (a fear and mistrust of others) and critical voices. A possible explanation could be that discrimination has a moderating effect on the relationship between negative schema and severity of psychotic experiences. Saleem et al.[55] demonstrated that discrimination was associated with negative schema and *not* psychosis, which would provide support for this explanation. Similarly, other research has demonstrated that discrimination has a moderating effect on the impact of interpersonal factors (including perceived burdensomeness and a lack of belongingness) on suicidal ideation in ethnic minority students [78]. It would seem plausible, therefore, that discrimination could play a similar role between negative schemata and psychosis.

The Discrepancy Between Clinical and Non-Clinical Findings

The present review found that the evidence for the relationship between discrimination and psychosis were more strongly evident in non-clinical studies. As discussed in the quality appraisal, there were significant differences in the methodological designs between clinical and non-clinical studies including the large epidemiological datasets in non-clinical studies. Indeed, none of the clinical studies reported prospective power calculations based on the number of predictors used in order to justify sample size, and it is

possible they were underpowered [79]. However, it is also important to consider theoretical

explanations since methodological explanations are not conclusive.

One theoretical explanation could be that discrimination simply causes a justified

reaction of concern about the intentions of others. This explanation is based on more specific

findings in the present review including that discrimination might be more strongly

associated with non-clinical paranoia [52,56] than other experiences of psychosis and that it

is associated with negative self-other schema [55]. It could be that this justified reaction is

identified with measures of 'paranoia' because paranoia is associated with appraisals of

social scrutiny and threat to social status which heightens self-consciousness and

hypervigilance [80]. These are, however, understandable reactions to discrimination. In line

with this, research consistently reports discrimination to be associated with a range of other

non-clinical experiences such as anxiety [81-85], and so it may be that discrimination is not

necessarily a risk factor for the development of *clinical* levels of paranoia (in which a person

may have thoughts or beliefs that are not reflective of reality) but rather that it increases

mistrust and suspiciousness. This hypothesis is supported by previous findings that have

reported that ethnic minority groups - although scoring higher on non-clinical measures of

paranoia - do not report higher levels of *clinical* paranoia than non-ethnic minority groups

[86].

This explanation would help explain why studies find higher rates of non-clinical

psychosis in general population studies of discrimination [87]. However, it does not explain

why minority groups also demonstrate higher rates of clinically relevant experiences of

psychosis in some studies [6]. Possible explanations have been proposed, such as

'institutional racism' in which ethnic minorities are more likely to receive mental health

diagnoses; however, this theory lacks empirical evidence [6] and does not explain the

increased rates of diagnosis in other minority groups. Another possible explanation may be

explored in relation to Saleem and colleagues' [55] finding that people who were at a clinical high risk of developing psychosis were more likely to perceive discrimination, but that discrimination was not associated with an increase in the severity of their experiences. As discussed previously, it could be that people who experience clinical levels of psychosis may be more vulnerable to the experience of discrimination based on factors such as ethnicity, sexual orientation and religion, rather than discrimination predicting the onset of psychotic experiences.

Limitations of the Review

It is acknowledged that the quality assessment tool used, as with many others, was primarily designed to assess the quality of quantitative studies using randomised controlled trial designs as the 'gold standard' against which other research evidence is evaluated and therefore include factors such as 'blinding' and 'drop-out rates'. Although similar quality tools may be regarded as valuable when grading the studies according to a hypothetical 'hierarchy of evidence', applying these tools to cross-sectional studies is limited since certain criteria are not applicable for these study designs, thereby leading to skewed quality ratings. Therefore, it is acknowledged that the quality assessment tool used in the current review may have underestimated the quality of the articles included, or may have masked more subtle methodological variances that are more relevant to this research area. An appraisal tool that might have been more helpful in assessing the quality of the cross-sectional studies included in the review is the STROBE checklist [88,89], which allows for the specific assessment of cross-sectional studies. Despite these issues, the quality assessment provided some important information including the use of confounding variables and data collection methods, and the results were useful during interpretation.

Future Research

The results of this review show that there is a relationship between discrimination and non-clinical experiences of psychosis, with some more limited evidence with clinically relevant psychosis. However, several important features within this relationship are less clear. An important finding suggests that discrimination may be more associated with paranoid thoughts and unusual beliefs than with unusual sensory experiences such as hallucinations. However, the evidence is limited particularly within clinical populations and further research is required to clarify this relationship. Robust methodological designs should be employed using multidimensional, validated measures of both psychosis and discrimination (including specific experiences, frequency and severity). It is also important for future studies to employ prospective designs to allow for the inference of causality, and studies should employ more sophisticated statistical methods in which a range of confounding variables can be controlled for, including previous trauma/adversity, and the covariance of specific psychotic experiences such as hallucinations and paranoid thoughts.

The findings also highlight the need for further research to investigate the potential cognitive mechanisms that underlie the relationship between discrimination and psychosis. Previous research has uncovered a number of potential cognitive mechanisms that may contribute to the development of psychosis (e.g. paranoid attributional style, negative self and other schemas), and further research is required to examine these as potential mediators between discrimination and psychosis, particularly paranoid thoughts and unusual beliefs. Moderation analyses might also be useful to examine whether discrimination increases the impact of negative schema on experiences of psychosis.

Additionally, as discussed previously, theoretical explanations for the relationship between discrimination and psychosis suggest that increased perceptions of inferiority may exacerbate distress associated with, and severity of, psychotic experiences. Therefore, measures of social anxiety will be helpful in future research to clarify this. Moreover, in an

attempt to explain why some findings have reported that discrimination is associated with hallucinations as well as paranoia, researchers have suggested that perhaps more severe forms of discrimination may be experienced as immediate, threatening traumatic events that may cause dissociative processes allowing for an increased risk of hallucinations. This is an important avenue for further research in order to explore whether dissociation is involved in more severe forms of discrimination and whether dissociation mediates the effect on hallucinations. Moreover, further research could explore the role of inequality in relation to minority status across a range of minority groups. As discussed previously, it could be relative inequality that predicts higher levels of perceived and actual discrimination, and, as ethnic density research provides some evidence for this in ethnic groups, similar exploration across a range of minority groups would help to clarify this.

Finally, the majority of studies included in the present review examined the relationship between discrimination and psychosis in samples of people from ethnic minorities and therefore specifically focussed on racial discrimination. Due to this, it is not possible to examine whether the link between discrimination and psychosis is stronger or more prevalent in different minority groups or discrimination types. Such information might help to shed further light on the potential mechanisms that underlie this relationship, and therefore, future research should explore the relationship in a range of minority groups (e.g. people with physical disabilities, sexual orientation and gender minorities), and discrimination types (e.g. age, sex).

Clinical Implications

It is difficult to draw firm clinical implications from the present review since the evidence was inconsistent within clinical samples. However, the results suggest that discrimination plays an important role in the severity of psychotic experiences and, as such, during the development of clinical formulations it is essential that clinicians consider

discrimination, particularly with persons from visible minorities. In terms of specific interventions, it is important to consider the cognitive model of psychosis discussed throughout this review. A person from a minority group may have experienced discrimination throughout their lives, which will likely have been internalised and might have led to the development of underlying negative beliefs about self, low self-worth and low self-esteem. There are several approaches that might be helpful for such difficulties, for example, cognitive behavioural approaches might be particularly useful in supporting a person to modify negative beliefs about the self and to reduce attentional threat-based biases (e.g. [92]), and cognitive approaches have been found to be effective for reducing the distress associated with psychosis as well as specific experiences including paranoia and hearing voices (e.g. [93-96]).

Importantly, however, considering cognitive approaches to supporting people experiencing psychosis that may be predicted, maintained and exacerbated by discrimination is focusing on the individual, when discrimination is a societal problem. Psychological interventions would be more effective focusing on the wider societal context with the aim of reducing and preventing discrimination. Such interventions may be sought from a community psychological perspective, in which a key concept is that community is defined through a sense of belonging and identity [97]. Community psychological interventions aspire to change social relations and social systems through, for example, empowerment, involvement, networking, and promoting equal opportunities for people from minority groups [97]. Interventions include promoting dialogue within communities about different perspectives of the world in order to unite different kinds of knowledge and to promote acceptance of diversity [97,99], as well as educational approaches to promote understanding of the ideological and political contexts of oppression and discrimination of minority groups [100]. Indeed, such concepts are in opposition to our current individualistic, consumerist society, as

well as the current approach to intervention within clinical psychology in the UK, which emphasises treatment of the individual. However, considering the evidence base of factors that increase the risk of psychosis including discrimination, bullying and social inequality, it would seem reasonable to suggest that the promotion of a sharing, supporting, trusting, society in which communities experience togetherness, acceptance and solidarity, would likely reduce severe psychological difficulties such as psychosis, or difficult experiences such as paranoia.

Conclusion

In summary, the current review is the first in the area to examine the relationship between discrimination and psychosis, taking into account various specificities within the relationship including the relationship with specific psychotic experiences. The findings are interpreted with caution since research in this area is in its early stages and the results - particularly within clinical studies - are mixed. Within the review, several key findings were outlined and methodological limitations were discussed in relation to the research question. Overall, the findings suggest that discrimination does play a role in the experience of psychosis, however, several key areas for future research have been outlined in order to further clarify the findings and develop our understanding regarding this relationship.

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Tables and Figures

**Figure 1: Flow diagram of systematic search**
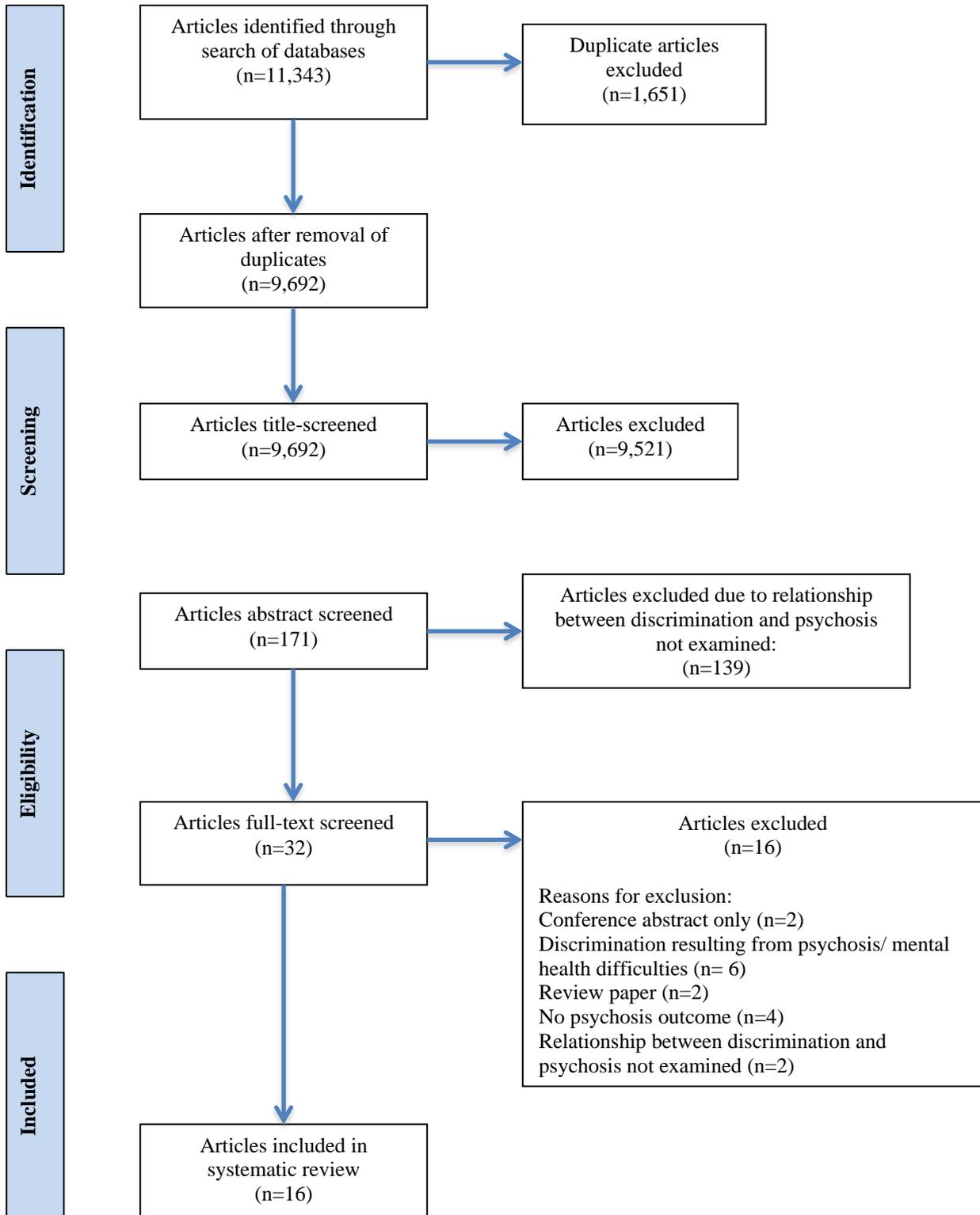
Fig. 1 Flowchart of studies included in review

Table 1: Summary of studies included in the review

Discrimi-nation type	Sample type / diagnosis	Author, date, country of recruitment	Study design	Population	Participant characteristics	Measures Psychosis	Perceived Discrimination	Main (relevant) findings	Quality rating
Racial	**Clinical**; DSM-IV psychoticdi agnosisinpa tients and outpatients	Berg et al. (2011) [57] *Norway*	Cross-sectional	Immigrants from Europe (26.7%), Africa (21.1%), Asia (46.7%), USA (2.2), South America (3.3%). 1st GI (n=59), 2nd GI (n= 31)	N= 90 Mean age 1st generation immigration (GI)= 32.95, 2nd GI= 24.84 Female n=27 (45.8%)	1. SCID-I 2. SCI-PANSS	1. Self-report questionnaire developed by Berry et al. [63]	Positive correlations were found between perceived discrimination and 'positive psychotic symptoms' (r=0.26, p<0.05). No associations were found between perceived discrimination and' negative psychotic symptoms'. African Americans had most severe 'positive symptoms' and reported highest rates of perceived discrimination (t=2.472, df=88, p<0.015). Multiple linear regression demonstrated that the relationship between African immigrant status and severity of experiences reduced when perceived discrimination was added in to the model (Model 1 without covariate: B=3.096, SE=1.103, p=.006; Model 2 controlling for perceived discrimination: B=2.535, SE=1.123, p=0.27), indicating that it partially mediates the relationship.	Weak
	Clinical; first episode psychosis	Cooper et al. (2008) [48] *UK*	Cross-sectional	Clinical sample categorised according to ethnicity	N=482 Black n=142 (Black Caribbean n=108, Black African n=32, Black Other n=2), White n=340 (British n=305, Irish n=35)	1. SCAN	1. CANDID-2	Psychosis cases were more likely to be from Black ethnic group, and were also more likely to believe they were at a greater disadvantage compared to White people (OR=1.3, 95% CI= 1.1-1.5, p<0.001) Black ethnic groups were 4 times more likely to experience psychosis (OR= 4.7, 95% CI= 3.1-7.2, p<0.001) This association reduced when perceived disadvantage was added in to the model, indicating that it partially mediates the relationship (OR= 4.1, 95% CI= 2.5-6.8, p<0.001) People experiencing psychosis were more likely to attribute disadvantage to skin colour (OR= 1.2, 95% CI=1.1-1.4, p<0.009) However, when higher perception of disadvantage was controlled for, people experiencing psychosis were less likely to attribute disadvantage to skin colour (OR= 0.82, 95% CI=0.68-0.98, p<0.027) Greater perceptions of disadvantage were not significantly associated with persecutory delusions, delusions of reference or hallucinations.	Moderate
	Clinical; Discharged from hospital or receiving outpatient care for psychosis	Gilvarry et al. (1999) [49] *UK*	Prospective (Baseline was after the onset of psychosis: baseline, 12 and 24 month follow-ups)	Clinical sample categorised as White British or African Caribbean and others	N=147 White British n=34 (54% diagnosed schizophrenia, 45% diagnosed affective psychosis, (n=14 (41%) female, mean age = 36.23 African Caribbean n=78 (49% diagnosed schizophrenia, 51% affective psychosis, 40 (52%) female, mean age = 36.85 Other n=35 (44% schizophrenia, 56% affective psychosis, 15 (43%) female, mean age = 36.68	1. RDC 2. OCCPI	1. RALES	Perceptions of racial discrimination were not associated with diagnosis or course of illness.	Weak

Racial	**Clinical**; first-episode schizophrenia 2 Comparison groups	Veling et al. (2008) [9] *Netherlands*	Case-control, cross sectional, first episode	1st and 2nd generation immigrants from non-Western countries; for every participant, 2 comparison participants were recruited (age, sex and ethnicity matched). They were excluded if psychosis present: Comparison group 1 = people seeking help for physical health difficulties Comparison group Siblings	N=263 First-episode psychosis n=100 General hospital comparison group n = 100 Sibling comparison group n=63	1. CIDI	1. Questionnaire developed by Berry et al. [63]	Participants experiencing psychosis reported slightly higher levels of perceived discrimination, but this was not statistically significant This remained after controlling for employment, education, marital status, cultural distance, mastery, ethnic identity, self esteem, social support and cannabis use. Perceived discrimination was reported more by males than females (50vs37%, $x2=3.38$, df=1, p=0.046)	Moderate
	Clinical; schizophrenia spectrum diagnosis	Veling et al. (2007) [58] *Netherlands*	Cross-sectional	Ethnic groups categorised according to level of perceived discrimination: High = Morocco Medium = Netherlands-Antilles, Surnam and Other non-Western Low = Turkey Very Low = Western countries	N=618 Female n=82 (29.5%, Mean age=29.3, SD=8.7) Male n=436 (70.6%, Mean age=26.6, SD=78)	1. CASH 2. IRAOS	1. Anti-discrimination Bureau data	In all ethnic groups the incidence of psychosis increased with degree of perceived discrimination: The adjusted IRRs were: High discrimination = 4.00 (95% CI= 3.00-5.35), medium discrimination = 1.99 (95% CI= 1.58-2.51), low discrimination = 1.20 (95% CI= 1.10-2.27) and very low discrimination = 1.20 (95% CI= 0.79 – 1.84) A Poisson regression model revealed that the adjusted pooled $x2$ for degree of discrimination was 95.97 (df=4, p<0.0005), indicating a dose-response relationship	Moderate
	Non-clinical	Anglin et al. (2014) [67] *USA*	Cross-sectional	1st or 2nd GI or Black/African American/of African descent from student sample	N=644 Female= 426 (66.5%) Mean age= 19.9 (SD 2.11)	1. PQ-likert	1. EOD	Positive correlations were found between number of racial discrimination domains (getting housing, credit or medical care, at work, getting hired, in police or courts, getting a service, at school and on the street or in public) and 'attenuated psychotic symptoms' (APPS) (r=0.242, p<0.001) Positive correlations were found between frequency of discrimination and APPS (r=0.249, p<0.001) Discrimination domains were significantly (p<0.001) associated with an increase risk of all psychotic domains: cognitive disorganisation (r=0.229), unusual thinking (r=0.197), perceptual abnormalities (r=0.199) and paranoia (r=0.204) Discrimination frequency was significantly (p<0.001) associated with an increase risk of all psychotic domains: cognitive disorganisation (r=0.204), unusual thinking (r=0.249), perceptual abnormalities (r=0.234) and paranoia (r=0.196) Racial discrimination was associated with an increased risk of being in the high APPS-distress category OR=1.41 (95% CI= 1.23, 1.60). Therefore, racial discrimination was found to increase the risk of higher levels of distress associated with psychosis.	Weak

	Non-clinical	Chakraborty et al. (2010) [68] *UK*	Cross-sectional	Epidemiological sample with greater proportion of ethnic minority groups: Black Caribbean, Indian, Pakistani, Bangladeshi and Irish.	N= 4281 White: n=837 (56.4% female); Irish: n=733 (56% female); Black Caribbean n=694 (59.5% female); Bangladeshi n=650 (42.2% female); Indian=643 (51.1% female) Pakistani n=724 (52.3% female) Age Range = 16-74	1. PSQ	1. Self-report questionnaire	Racial verbal insults were associated with being categorized as experiencing psychosis (PSQ positive) in Black Caribbean (OR= 3.35, 95% CI= 1.79-6.26), Bangladeshi (OR= 5.46, 95% CI= 1.79-6.26) and Pakistani groups (OR=2.65, 95% CI= 1.26-5.55). Job refusal was associated with being PSQ positive in the Pakistani origin group (OR=2.26, 95% CI= 1.08-4.75). There were no significant associations found between racial discrimination and psychosis in the Indian origin group.	Weak
	Non-clinical	Combs et al. (2006) [47] *USA*	Cross-sectional	African American college students	N= 128 Females n=96 (75%) Mean age= 20.5 (SD= 3.0, range= 18-37)	1. PS 2. PAI – persecutory ideation subscale	1. PRS	Males had higher levels of clinical paranoia (t(124) = 2.7, p<.007) Perceived discrimination was associated with non-clinical levels of paranoia (p=.0001) Multiple regression model was overall significant [R=.69, Adj R2=.38, F(15,81)= 5.0, p=0.0001] showing that perceived discrimination was a significant predictor of non-clinical paranoia Perceived discrimination was not a significant predictor of clinical paranoia	Weak
Racial	**Non-clinical**	Karlsen and Nazroo (2002) [50] *UK*	Cross-sectional	Epidemiological sample	N=8063 Ethnic minorities n= 5196 (Caribbean, South Asian and Chinese), White comparison group n=2867	1. CIS 2. PSQ	1. Questionnaire from Smith and Prior [101]	Logistic regression analysis revealed that the perception of racial discrimination increased the risk of psychosis (OR=1.57, 95% CI= 1.02, 2.42) Experiencing verbal racial abuse was significantly associated with experiencing psychosis (OR=2.86, 95% CI= 1.69, 4.83) Experienced physical racial attack was significantly associated with experiencing psychosis (OR= 4.77, 95% CI= 2.32, 9.80)	Weak
	Non-clinical	Karlsen et al. (2005) [51] *UK*	Cross-sectional	Epidemiological sample	N=1999 Irish n=733 (Mean age=40.6, Female 50.8%), Caribbean n=691 (Mean age=38.7, Female=57.1%), Bangladeshi n=650 (Mean age=33, Female= 13%), Indian n=648 (Mean age=39.6, Female= 41.8%), Pakistani n=724 (Mean age=34.7, Female= 24.9%)	1. PSQ	1. Questionnaire developed by authors	Risk of psychosis associated with racial verbal abuse (OR=2.18, 95% CI=1.31-3.63) Risk of psychosis associated with physical racial attack (OR=2.94, 95% CI=1.14-7.57) Risk of psychosis was not significantly associated with work-related racial discrimination Racially motivated abuse or assault in past year was associated with a 2 and 3 and a half fold increase in risk of experiencing psychosis across all ethnic minority groups	Weak
	Non-clinical	Oh Hans et al. (2014) [52] *USA*	Cross-sectional	Epidemiological sample	N=8990 (Asian n=1945, Hispanic n=2551, African American n=3200, Afro-Caribbean n=1294) Female= 51.83%	1. CIDI – psychosis section	1. EDS	Discrimination was attributed to race (64.87%, SE=1.9), other reasons (23.1%, SE=0.97), Height or weight (2.35%, SE=0.20), gender (3.7%, SE=0.29) and age (5.99%, SE=0.57) Multiple logistic regression models showed that the highest level of perceived discrimination increased the risk of psychosis (High levels OR=3.262, moderate levels OR=2.432	Weak

								Lower levels did not significantly predict psychosis (low levels OR=1.497 and mild levels OR=1.24) This relationship increased in a dose-response fashion. Participants experiencing psychosis were more likely to be African-American and less likely to be Asian. The highest levels of perceived discrimination increased the risk of delusions OR=4.278, auditory hallucinations OR=3.843, and visual hallucinations OR=2.971 after controlling for covariates When compared to those who had never experienced discrimination, those who were categories as 'high discrimination' were over 3 times more likely to report experiences of psychosis at 12 months (OR=4.959, p<0.001) and in their lifetime (OR=4.197, p<0.001) The overall odds of psychotic experiences increased with greater exposure to discrimination (z=12.22, p<0.001) indicating a dose-repose relationship.	
Sexual orientation	**Non-clinical**	Chakraborty et al. (2011) [4] *UK*	Cross-sectional	Epidemiological sample categorised 'heterosexual' or 'non-heterosexual'	N= 7403 Heterosexual n=6811 Non-heterosexual n=650	1. CIS-R 2. SCAN	1. Questionnaire developed by authors	Perceived discrimination did not predict psychosis. Non-heterosexual participants were more likely to experience psychosis (OR= 3.75, 95% CI- 1.76-8.00)	Weak
	Non-clinical	Gevonden et al. (2014) [53] *Netherlands*	Cross-sectional	Epidemiological sample categorized as heterosexual or LGB	N=5927 Mean age heterosexual group 40.6 (SE=11.7), LBG= 38.1 (SE=9.5). Heterosexual female n=2087 (53%), LGB female n=39 (34%) Total female n=3126 (52%)	1. CIDI – psychosis section 2. SCID	1. Questionnaire developed by authors	Psychosis incidence was significantly elevated in the LGB group (OR= 3.25, 95% CI= 2.22-4.76), Adjusted (OR=2.56, 95% CI 1.71-3.84) Discrimination in the past year mediated 34% of the total effect of homosexual behavior on occurrence of psychotic experiences (Z=3.52, P<0.001)	Weak
Religious	**Non-clinical**	Rippy& Newman (2006) [54] *USA*	Cross-sectional	Sample of Muslim community	N=152 Mean age male (n=92) =33.0 (SD=12.02) Mean age Female (n=60) = 35.38 (SD=12.18) Immigrant Muslims n=84 (56.8%), 2nd generation Muslim n=21 (13.8%), adult Muslim convert n=43 (29.1%).	1. PS	1. PRDS	1. Between group analysis demonstrated there were no differences between the immigrant, second generation immigrant, or convert Muslims living in the US in level of perceived discrimination. 2. A positive correlation was found between perceived discrimination and non-clinical paranoia in male (not female) Muslims (r=.42, p<.01)	Weak
General (Appearance, age, skin colour, ethnicity, sex, religion, disability, sexual	**Non-clinical**	Janssen et al. (2003) [56] *Netherlands*	Prospective (Baseline preceded the onset of psychosis, 3 year study with 2 follow-ups)	Epidemiological sample of people who had no history of experiencing psychosis	N=4076 Mean age= 44.4 (SD=11.8) Female n=2144 (53%) Rates of baseline discrimination: ethnicity 75 (2%), age 261 (6%), disability 77 (2%), gender 182 (4%), appearance 80 (2%), sexual orientation 13 (0.3%).	1. CIDI 2. BPRS	1. Questionnaire developed by authors	1. Perceived discrimination predicted the onset of delusional ideation in a dose response fashion (OR=2.1, 95% CI= 1.2-3.8, p=<0.027) 2. The relationship remained significant after controlling for confounding variables (OR= 2.3, 95% CI=1.2-4.2) 3. No association was found between baseline discrimination and hallucinations	Weak

1-50

orientate -on)	Non-clinical	Saleem et al. (2014) [55] *USA*	Cross-sectional	General population sample catergorised as CHR for psychosis or comparison group	N=540 CHR n=360 (Mean age=18.99, SD=4.18, 41.4% Female), Comparison group n=180 (Mean age=19.54, SD=4.77, 52% Female)	1. SIPS 2. SOPS	1. Questionnaire developed by Janssen et al. [56]	CHR participants had significantly higher frequencies of perceived discrimination (z= -6.04, p<0.001) than the comparison group. CHR had higher levels of negative schemas about self (U=196.23, p<0.0001), and about others (U=136.04, p<0.0001) than the comparison group Perceived discrimination was not associated with total 'positive symptoms' Perceived discrimination was not associated with specific experiences (unusual thoughts, suspiciousness, grandiose ideas, perceptual abnormalities, disorganised communication) in either the CHR or the comparison group Perceived discrimination was significantly associated with negative schemas.	Moderate

Abbreviations: APPS = attenuated psychotic positive symptoms; PD = perceived discrimination; CHR= clinical high risk of psychosis; GI = generation immigrant; SD = standard deviation; IRR=incident rate ratio; CI= confidence interval
Psychosis measures: The Prodromal Questionnaire (PQ: [102]); The Structured Clinical Interview for DSM-IV (SCID: [103]); The Structured Positive and Negative Syndrome Scale (SCI-PANSS: [104]); The Psychosis Screening Questionnaire (PSQ: [105]); Paranoia Scale (PS: [106]); Personality Assessment Inventory – persecutory ideation subscale (PAI: [107]); Schedule for Clinical Assessment in Neuropsychiatry (SCAN: [108]); Composite International Diagnostic Interview (CIDI: [109]); Clinical Interview Schedule (CIS: [110]); The Structures Interview for Prodromal Symptoms (SIPS: [111]); The Scale for Assessment of Prodromal Symptoms (SOPS: [111]); Comprehensive Assessment of Symptoms and History (CASH: [112]); Retrospective Assessment of the Onset of Schizophrenia (IRAOS: [113]); Brief Psychiatric Rating Scale (BPRS: [114]); Research Diagnostic Criteria (RDC: [115]); The Operational Criteria for Psychotic Illness (OCCPI: [116]).
Perceived discrimination measures: Experiences of Discrimination Questionnaire [59]; The Perceived Racism Scale (PRS: [60]); The Cultural and Identity Schedule 2 (CANDID-2: [61]); The Every Day Discrimination Scale (EDS: [62]); RALES [64]; The Perceived Religious Discrimination Scale [117].

Table 2: Quality appraisal results

Name of study	Selection bias	Study design	Confounders	Blinding	Data collection	Withdrawals and dropouts	Overall quality rating
Anglin et al. (2014)	Weak	Weak	Weak	Moderate	Strong	Moderate	**Weak**
Berg et al. (2011)	Moderate	Weak	Weak	Moderate	Strong	Moderate	**Weak**
Chakraborty et al. (2010)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Chakraborty et al. (2011)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Combs et al. (2006)	Moderate	Weak	Weak	Moderate	Strong	Moderate	**Weak**
Cooper et al. (2008)	Moderate	Moderate	Weak	Moderate	Strong	Moderate	**Moderate**
Gevonden et al. (2014)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Gilvarry et al. (1999)	Moderate	Weak	Weak	Moderate	Strong	Moderate	**Weak**
Janssen et al. (2003)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Karlsen and Nazroo (2002)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Karlsen et al. (2005)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Oh Hans et al. (2014)	Strong	Weak	Weak	Moderate	Moderate	Moderate	**Weak**
Rippy and Newman (2006)	Moderate	Weak	Weak	Moderate	Strong	Moderate	**Weak**
Saleem et al. (2014)	Moderate	Moderate	Weak	Moderate	Moderate	Moderate	**Moderate**
Veling et al. (2007)	Moderate	Moderate	Weak	Moderate	Moderate	Moderate	**Moderate**
Veling et al. (2008)	Moderate	Moderate	Weak	Moderate	Moderate	Moderate	**Moderate**

Appendices

Appendix A: Quality assessment tool for quantitative studies

COMPONENT RATINGS

A)   SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?
   1   Very likely
   2   Somewhat likely
   3   Not likely
   4   Can't tell

(Q2) What percentage of selected individuals agreed to participate?
   1   80-100% agreement
   2   60 – 79% agreement
   3   less than 60% agreement
   4   Not applicable
   5   Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B)   STUDY DESIGN

Indicate the study design
   1   Randomized controlled trial
   2   Controlled clinical trial
   3   Cohort analytic (two group pre + post)
   4   Case-control
   5   Cohort (one group pre + post (before and after))
   6   Interrupted time series
   7   Other specify
   8   Can't tell

Was the study described as randomized? If NO, go to Component C.
   No   Yes

If Yes, was the method of randomization described? (See dictionary)
   No   Yes

If Yes, was the method appropriate? (See dictionary)
   No   Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

C)   CONFOUNDERS

(Q1)   Were there important differences between groups prior to the intervention?
1   Yes
2   No
3   Can't tell

The following are examples of confounders:
1   Race
2   Sex
3   Marital status/family
4   Age
5   SES (income or class)
6   Education
7   Health status
8   Pre-intervention score on outcome measure

(Q2)   If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?
1   80 – 100% (most)
2   60 – 79% (some)
3   Less than 60% (few or none)
4   Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D)   BLINDING

(Q1)   Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?
1   Yes
2   No
3   Can't tell

(Q2)   Were the study participants aware of the research question?
1   Yes
2   No
3   Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E)   DATA COLLECTION METHODS

(Q1)   Were data collection tools shown to be valid?
1   Yes
2   No
3   Can't tell

(Q2)   Were data collection tools shown to be reliable?
1   Yes
2   No
3   Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F)   WITHDRAWALS AND DROP-OUTS

(Q1)   Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?
1   Yes
2   No

3   Can't tell
4   Not Applicable (i.e. one time surveys or interviews)

(Q2)   Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

1   80 -100%
2   60 - 79%
3   less than 60%
4   Can't tell
5   Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
See dictionary	1	2	3	Not Applicable

G)   INTERVENTION INTEGRITY

(Q1)   What percentage of participants received the allocated intervention or exposure of interest?
1   80 -100%
2   60 - 79%
3   less than 60%
4   Can't tell

(Q2)   Was the consistency of the intervention measured?
1   Yes
2   No
3   Can't tell

(Q3)   Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?
4   Yes
5   No
6   Can't tell

H)   ANALYSES

(Q1)   Indicate the unit of allocation (circle one)
community   organization/institution   practice/office   individual

(Q2)   Indicate the unit of analysis (circle one)
community   organization/institution   practice/office   individual

(Q3)   Are the statistical methods appropriate for the study design?
1   Yes
2   No
3   Can't tell

(Q4)   Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?
1   Yes
2   No
3   Can't tell

GLOBAL RATING

COMPONENT RATINGS

Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK	
		1	2	3	
B	STUDY DESIGN	STRONG	MODERATE	WEAK	
		1	2	3	
C	CONFOUNDERS	STRONG	MODERATE	WEAK	
		1	2	3	
D	BLINDING	STRONG	MODERATE	WEAK	
		1	2	3	
E	DATA COLLECTION METHOD	STRONG	MODERATE	WEAK	
		1	2	3	
F	WITHDRAWALS AND DROPOUTS	STRONG	MODERATE	WEAK	
		1	2	3	Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):

1	STRONG	(no WEAK ratings)
2	MODERATE	(one WEAK rating)
3	WEAK	(two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No   Yes

If yes, indicate the reason for the discrepancy

1	Oversight
2	Differences in interpretation of criteria
3	Differences in interpretation of study

Final decision of both reviewers (circle one):   **1   STRONG**
2   MODERATE
3   WEAK

Appendix B: Journal Instructions for Authors

Journal of Social Psychiatry and Psychiatric Epidemiology

Types of Papers

Papers must be written in English.

Accepted article types: Original Papers, Reviews, Invited Reviews, Brief Reports, Editorials, Commentaries (invited), Correspondence articles and Study Protocols and Samples.

Original Papers or Reviews must not exceed 4,500 words, not including references, plus 5 tables or figures. An abstract (150 to 250 words) and 4-6 keywords are required (please see also section 'title page').

Submissions for Study Protocols and Samples are welcome which describe the rationale, the design, procedures, and sample characteristics of large epidemiological studies in the context of existing research. Papers must not exceed 4,500 words. An abstract (150 to 250 words) and 4-6 keywords are required.

Brief Reports should not contain more than 1,500 words plus 1 figure or table. Please submit a short abstract of max. 100 words and 4-6 keywords.

Editorials and Correspondence articles will be considered for publication; they should not contain more than 1,500 words.

Commentaries should not contain more than 10,000 characters and less than 10 references. Please do not include an abstract or keywords

Exceptions to the word limits can be made only with the agreement of the Editor-in-Chief.

Authors are required to state the word count of their paper when submitting the manuscript.

Manuscript Submission

Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out. The publisher will not be held legally responsible should there be any claims for compensation.

Permissions

Authors wishing to include figures, tables, or text passages that have already been published elsewhere are required to obtain permission from the copyright owner(s) for both the print and online format and to include evidence that such permission has been granted when submitting their papers. Any material received without such evidence will be assumed to originate from the authors.

Title Page

The title page should include:
The name(s) of the author(s)
A concise and informative title
The affiliation(s) and address(es) of the author(s)
The e-mail address, telephone and fax numbers of the corresponding author

Abstract

Please provide a structured abstract of 150 to 250 words which should be divided into the following sections:
Purpose (stating the main purposes and research question)
Methods
Results
Conclusions

Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

Text Formatting

Manuscripts should be submitted in Word.

Use a normal, plain font (e.g., 10-point Times Roman) for text.
Use italics for emphasis.
Use the automatic page numbering function to number the pages.
Do not use field functions.
Use tab stops or other commands for indents, not the space bar.
Use the table function, not spreadsheets, to make tables.
Use the equation editor or MathType for equations.
Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Headings

Please use no more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols. Always use footnotes instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations should be written in full.

References

Citation

Reference citations in the text should be identified by numbers in square brackets. Some examples:
1. Negotiation research spans many disciplines [3].
2. This result was later contradicted by Becker and Seligman [5].
3. This effect has been widely studied [1-3, 7].

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

The entries in the list should be numbered consecutively.

Chapter 2:   Research Paper

Attachment and dissociation as mediators of the link between childhood trauma and

psychosis

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Trainee Clinical Psychologist

School of Health and Medicine

Division of Health Research

Lancaster University

Abstract

Introduction: Exposure to childhood trauma has been widely implicated in the development of paranoia and hearing voices (i.e. auditory verbal hallucinations) but the psychological mechanisms responsible for these associations remain unclear. Researchers have proposed that insecure attachment may specifically mediate the relationship between trauma and paranoia, whereas dissociation may be specifically involved in the development of voices. Despite previous findings in support of these proposals, it has recently been argued that a specific insecure attachment style, namely disorganised attachment (also known as 'fearful' in adult attachment literature), could also play a role in the relationship between childhood trauma and voices. The present study examined whether insecure attachment styles (dismissive, preoccupied and fearful) were associated with paranoia and hearing voices, and whether dissociation and fearful attachment mediated the relationships between childhood trauma and voices, and between childhood trauma and paranoia. **Method:** 112 participants experiencing clinical levels of psychosis were recruited using an online survey. Participants completed self-report measures of dissociation, childhood trauma, attachment, voices and paranoia. Data was analysed using correlation and mediation analyses. **Results:** Preoccupied and dismissive attachment styles were not associated with childhood trauma, dissociation, paranoia or voices, while fearful attachment was significantly associated with all such experiences. Mediation analyses indicated that dissociation, but not fearful attachment, significantly mediated the relationship between childhood trauma and voices. Conversely, both dissociation and fearful attachment significantly mediated the relationship between childhood trauma and paranoia. **Conclusion:** The findings support previous evidence that insecure attachment might be more strongly related to paranoia than hallucinations and suggest that fearful attachment may be more important in this relationship than other attachment styles. In contrast to the hypothesis, the results showed that dissociation mediated

the relationship between childhood trauma and paranoia, a finding not previously reported. Recommendations for further research and clinical implications are discussed.

Key Practitioner Messages

- Dissociation is a robust mediator between childhood trauma and experiences of psychosis and, as such, clinicians should routinely enquire about the presence of dissociation.

- Clinicians should consider dissociation when formulating difficulties, and include dissociation as a possible therapeutic target for psychological interventions in psychosis.

- Fearful attachment is robustly associated with paranoia and should be taken into account throughout therapeutic work (assessment, formulation, intervention).

Key Words

Childhood trauma; psychosis; hearing voices; paranoia; attachment.

Introduction

Exposure to trauma during childhood is now widely accepted as a risk factor for psychosis (Varese et al., 2012a). Meta-analytic studies have demonstrated that childhood abuse (physical, sexual and emotional), neglect and bullying increase the risk of developing psychosis (Matheson, Shepherd, Pinchbeck, Laurens & Carr, 2013; van Dam et al., 2012; Varese et al., 2012a) and that trauma has consistently been shown to predict psychosis in a cumulative fashion (increased exposure to adversity predicts increased risk of psychosis: Varese et al., 2012a). However, the heterogeneity in mental health outcomes following childhood traumatic experiences remains a topic of considerable debate. Childhood trauma has, in fact, been associated with increased risk for a variety of mental health diagnoses including, for example, bipolar (Watson & Porter, 2014), depression (Mandelli, Petrelli & Serretti, 2015) and borderline personality disorder (Macintosh, Godbout & Dubdash, 2015). Similarly, a considerable proportion of individuals with a history of traumatic events do not develop long-term mental health difficulties. Consequently, examination of the psychological mediators of the link between childhood trauma and specific mental health complaints could shed light into the differential trajectories leading to these heterogeneous outcomes. Furthermore, knowledge about mechanisms responsible for these associations would enable the development of more targeted, preventative and therapeutic interventions.

A number of theories have been proposed to explain the link between childhood trauma and the development of psychosis. For example, the 'traumagenic neurodevelopmental model' (Read, Perry, Moskowitz & Connolly, 2001; Read, Fosse, Moskowitz & Perry, 2014) proposes that adult-onset psychosis could result from trauma-induced neurodevelopmental changes to a child's brain. This theory, and other accounts, however, assumes a single biological pathway between childhood trauma and psychosis and that different psychotic experiences (e.g. hearing voices and paranoia) share common

mechanisms. Importantly, however, researchers have considered that different experiences related to psychosis, such as paranoia and voices, have different cognitive processes involved and therefore are likely to have different pathways to their development (Bentall & Fernyhough, 2008). These different cognitive processes include, for example, source-monitoring difficulties in the case of voice hearing (Brookweel, Bentall & Varese, 2013) and biased threat-based attentional and attributional styles in the case of paranoia (Bentall et al., 2008). The notion that these experiences have different pathways to their development is supported by research that highlights the associations of different types of traumas with different types of psychotic experiences (Bentall, Wickham, Shevlin, & Varese, 2012; Pickering, Simpson, & Bentall, 2008; Sitko, Bentall, Shevlin, O'Sullivan & Sellwood, 2014).

Of the mechanisms that have been investigated to explain these pathways, one of the most consistently supported is insecure attachment. Attachment theory, first detailed by Bowlby (1982), suggests that children develop mental representations of the self in relation to others, as well as expectations of how others will behave in relationships, as a result of interactions with their primary caregivers. Labelled 'internal working models', these representations predict future interpersonal interactions by providing the blueprint for the development of 'attachment styles' (Ainsworth, 1978). Through experiments with children and their caregivers, researchers described different insecure attachment styles that consisted of varying levels of anxious and avoidant behaviour toward attachment figures, as well as a secure attachment style in which no anxious or avoidant behaviours are present (Ainsworth, 1978). Attachment researchers have classified adult insecure attachment styles that are thought to be reflective of these childhood styles. For example, Bartholomew and Horowitz (1991) proposed a model of adult attachment that broadly maps onto the insecure attachment styles of anxious and avoidant behaviour. In this model, 'dismissing' adults (comparable to avoidant children) have been described to lack confidence, be uncomfortable with close

relationships and be hostile and lonely (Bartholomew & Horowitz, 1991). Preoccupied adults (comparable to anxious children) have been described as highly dependent on others and fearful of rejection (Collins & Read, 1990). Bartholomew and Horowitz's model also consisted of a fourth attachment style that has been described as 'disorganised' attachment, namely fearful attachment, which will be discussed in more detail later in this section.

As indicated, a growing body of research demonstrates the association between attachment styles and psychosis. Researchers have reported that people who experience psychosis are more likely to report insecure attachment styles (Berry, Barrowclough, & Wearden, 2008; Collins & Read, 1990; Dozier & Lee, 1995; Gumley, Taylor, Schwannauer, & Macbeth, 2014; Mickelson, Kessler, & Shaver, 1997; Ponizovsky, Nechamkin & Rosca, 2007). Attempts have been made to determine whether specific insecure attachment dimensions (anxious and avoidant) are particularly prominent in psychosis and a review of relevant studies demonstrated that avoidant attachment styles were more strongly associated with psychosis than anxious styles, however, both were significantly associated with the development of psychosis (for a review, see Gumley et al., 2014).

Researchers have also begun to examine whether insecure attachment styles increase vulnerability towards specific experiences of psychosis. Bentall et al. (2014) argue that attachment related traumas are more important in the pathways leading to paranoia than hallucinations. Empirical evidence has supported this proposal with findings demonstrating that insecure attachment styles predict paranoia, but not hallucinations, after controlling for the covariation between these two experiences (Pickering et al., 2008; Wickham, Sitko & Bentall, 2015). Pickering et al. (2008) specifically demonstrated that both anxious and avoidant attachment styles were strong predictors of paranoia, but did not predict hallucinations. Research has also identified anxious and avoidant attachment styles to mediate the relationship between adverse experiences in childhood and psychosis. A recent

study conducted on the US National Comorbidity Survey dataset demonstrated that childhood neglect predicted paranoia but not hallucinations and that anxious and avoidant attachment styles fully mediated this relationship (Sitko et al., 2014).

Alternatively, in the case of 'hallucinations' (and in particular, auditory verbal hallucinations or 'hearing voices'), researchers have proposed that dissociation may represent an important mechanism in the development of these specific experiences. Dissociation is defined as difficulties in the integration of psychological information such as that derived from memory, perception, and consciousness, and is often described as a sense of detachment from the self or the environment (American Psychiatric Association, 2013). Some researchers have argued that dissociation is a psychological defence that aims to reduce emotional and psychological pain resulting from a traumatic experience (Bernstein & Putman, 1986), and this conceptualisation is supported by strong empirical evidence suggesting that dissociative experiences are a common and pervasive consequence of trauma (Dalenberg et al., 2012). Indeed, a recent meta-analysis has found a large and robust relationship between dissociation and voice hearing (Pilton, Varese, Berry & Bucci, 2015), and evidence from cross-sectional studies with help-seeking participants has suggested that dissociation mediates the relationship between childhood trauma and voices (Perona-Garcelan et al., 2012; Varese, Barkus & Bentall, 2012). However, the exact mechanisms through which dissociation may increase vulnerability to hearing voices is still poorly understood.

In summary, theoretical proposals and previous empirical findings generally suggest that dissociation mediates the pathway between childhood trauma and hearing voices, whereas insecure attachment mediates the association between childhood trauma and paranoia. However, Berry and Bucci (2016) recently argued that a specific insecure attachment style may also play a role in the development of hearing voices, specifically disorganised attachment – a pattern of attachment characterised by simultaneous high levels

of *both* anxious and avoidant attachment behaviours (Main & Solomon, 1986; 1990). In their 'cognitive-attachment model of voices' (CAV), Berry and Bucci (2016) argue that early attachment styles, particularly disorganised attachment, might lead to an increased vulnerability to dissociation, in turn exacerbating vulnerability to hearing voices. This proposal, as yet untested, was developed in the light of theoretical arguments that disorganised attachment (which in children is characterised as both anxious and avoidant behaviours that is reflected in contradictory behaviours in response to attachment figures: Main & Solomon, 1989) may represent a developmental predecessor of dissociative experiences (Liotti, 2004). Evidence that supports the link between attachment and dissociation comes from research that has shown associations between family environmental factors, including parental loss and inconstant parenting, and dissociation (Hesse & Van Ijzendoorn, 1998; Lyons-Ruth, Dutra, Schuder & Bianchi, 2006). Since dissociation has also been found to mediate the relationship between childhood trauma and hearing voices (Perona-Garcelan et al., 2012; Varese et al., 2012b), the CAV model integrated evidence suggesting trauma, in which disorganised attachment is present, predicts a vulnerability to dissociation, which in turn, increases the risk of hearing voices.

In adult population research there have been a limited number of studies examining the link between disorganised attachment and psychosis, and many of these have focussed on fearful attachment. Fearful attachment was first proposed by Bartholomew and Horowitz (1991) in which the authors pertain this attachment style has high levels of both negative self *and* other perception, thus leading to a desire for, and simultaneous fear of, intimacy. Due to the stark similarities with the disorganised pattern of attachment behaviours (high in both anxious and avoidant behaviours), some attachment researchers have argued that fearful attachment is the adult equivalent of the disorganised child (Alexander & Larry, 1992; Bartholomew & Horowitz, 1991), however, there is a lack of empirical evidence that

supports this claim. However, adult research exploring the link between attachment and psychosis has begun to examine the role of fearful attachment. For example, a study conducted with a sample of students found that fearful attachment, but not preoccupied or dismissive attachment, mediated the relationship between childhood trauma and psychotic-like experiences (Sheinbaum, Kwapil, & Barrantes-Vidal, 2014). A study conducted with help-seeking participants experiencing psychosis found slightly different results, showing that fearful attachment was associated with the 'psychoticism' scale, but not 'paranoid ideation' scale of the Symptom Checklist-90 (SCL-90: Derogatis, Lipman & Cobi, 1973), while preoccupied attachment was associated with both scales (Strand, Goulding & Tidefors, 2015). It is important to note however, that SCL-90 'psychoticism' scale conflates a range of non-psychotic (e.g. withdrawal and isolation) and more psychotic-like experiences (e.g. hallucinations), and therefore is not a robust tool for examining psychotic experiences specifically. More specifically in support of Berry and Bucci's CAV model (2016), one study specifically identified fearful attachment to be associated with hallucinations; however, these authors also demonstrated that all insecure styles (dissmissive, preoccuped and fearful) were significantly associated with suspiciousness/persecution (Korver-Neiberg, Berry, Meijer, de Haan & Ponizovsky, 2015).

In summary, a growing body of research has examined dissociation and insecure attachment not only as possible predictors of psychotic experiences, but also as possible mediators of the relationship between childhood trauma and psychotic experiences. There is growing consensus about the importance of dissociation, a common consequence of childhood trauma, as a possible factor associated with the predisposition to hearing voices and other hallucinatory experiences (Longden, Madill & Waterman, 2012). Conversely, theoretical proposals and research findings are discordant regarding the role of insecure attachment in the vulnerability to specific psychotic experiences, with some researchers

arguing that insecure attachment may be specifically associated with paranoia (e.g. Bentall et al., 2014) and others suggest that specific insecure attachment styles, namely disorganised/fearful attachment, may also be related to increased vulnerability to hearing voices (e.g. Berry & Bucci, 2016). To clarify previous findings in this area, the present study examined whether insecure attachment and dissociation specifically mediated the relationship between childhood trauma and paranoia, and between childhood trauma and hearing voices. An survey was used considering a cross-section of UK respondents who self-reported as people who had sought help for experiences related to psychosis. Using correlation and mediation analyses, the present study tested the following hypotheses:

1) Insecure attachment styles (preoccupied, dismissive and fearful) would significantly mediate the relationship between childhood trauma and paranoia.

2) Fearful attachment would significantly mediate the relationship between childhood trauma and hearing voices.

3) Dissociation would significantly mediate the relationship between childhood trauma and hearing voices.

Method

Participants

It was decided not to limit inclusion to the study only to people with psychosis-related diagnoses since the reliability and validity of the diagnostic system for psychosis (American Psychiatric Association, 2013; World Health Organisation, 2010) is questionable due to lack of predictive validity or specific aetiology of these diagnoses (e.g. Bentall, 2014). Therefore, the present study aimed to be as inclusive as possible while ensuring that participants' experiences of psychosis could be considered clinical. The present study aimed to recruit participants who self-reported as having sought help for distressing experiences related to psychosis (voices, paranoia, unusual belief, etc.), as well as those who self-reported

diagnosis. Participants were considered eligible if they met any of the following criteria: a) they reported having ever received a schizophrenia-spectrum diagnosis (i.e. diagnosis on the schizophrenia spectrum such as schizophrenia, schizoaffective disorder, delusional disorder); b) they reported having received antipsychotic drug treatment for psychosis or psychotic experiences; c) they reported having received treatment in a mental health unit/hospital, or had received input from a community mental health team (CMHT) an early intervention service (EIS) for psychosis or related difficulties; d) had received therapeutic input (e.g. CBT therapist, psychologist) for experiences related to psychosis. Participants were also required to be aged 18 or older.

A total of 131 self-selected eligible participants entered the online survey, 14% ($n = 19$) of these withdrew following completion of the consent form leaving a total sample of 112. Participants' age ranged from 18-72 ($M = 40.26$, $SD = 12.50$). Demographic characteristics including ethnicity, sexual orientation, marital status, education and employment levels are outlined in Table 1. Additionally, Table 1 outlines the number and percentage of participants who received psychosis-related diagnosis, input from services, current input from services and current medication.

Measures

The following measures were administered:

Demographic and clinical characteristics questionnaire. A brief questionnaire was used to gather demographic details including ethnicity, sex, sexual orientation, age, marital status, education level and employment. This section also gathered inclusion criteria information including lifetime and current contact with mental health services (CMHT, EIS, inpatient, psychiatry and psychology), current medication use and psychiatric diagnoses.

The Brief Betrayal Trauma Survey (BBTS: Goldberg & Freyd, 2006) was used to assess exposure to childhood trauma. The BBTS is a 12-item measure addressing a range of

adverse life events including interpersonal and non-interpersonal events. Participants were asked to indicate if they had ever experienced these life events before the age of 18 using a three-point scale (1 = 'never', 2 = 'one or two times', or 3 = 'more than that'). For the purpose of the present study, we only employed the nine items interpersonal traumatic events scale (which included items such as being made to have sexual contact with someone, and being emotionally or psychologically mistreated over a significant period of time). The measure has been widely used in large survey designs with clinical and non-clinical participants (e.g. Goldsmith, Freyd, & DePrince, 2012; Mackelprang et al., 2014) and has been used as a measure of interpersonal trauma with participants experiencing psychosis (e.g. Stain et al., 2014). The range of possible scores were 9-24 with higher scores indicating more trauma. The measure has good construct validity (DePrince & Freyd, 2001) and test-retest reliability (Goldberg & Freyd, 2006), and reliability in the present study was excellent (α = .83).

The Dissociative Experiences Scale - Revised (DES-R: Dalenberg & Carlson, 2010) is a 28-item, self-report measure. This uses a revised Likert scale to improve reliability (Dalenberg & Carlson, 2010) in comparison to the original scale (DES-II; Carlson & Putman, 1998). Participants were asked to rate the extent to which they have experienced each dissociative experience on a 6-point Likert scale ranging from 'never' to 'at least once a week'. The range of scores for this measure was 28-168 with higher scores indicating higher levels of dissociation. Dalenberg and Carlson (2010) validated the DES-R against the original DES and reliability in the present study was excellent (α=.96).

The Community Assessment of Psychotic Experiences (CAPE: Stefanis et al., 2002) was used to measure a range of psychotic experiences. The CAPE is a 42-item self-report measure that covers experiences such as hearing voices and paranoid ideation, as well as other experiences related to psychosis. Each item is measured on a 4-point Likert scale to

indicate the frequency of each experience ('never', 'sometimes', 'often' and 'nearly always').

The measure has demonstrated good psychometric properties in both clinical and non-clinical

samples (Thewissen, Bentall, Lecomte, van Os & Myin-Germeys, 2008; Yung et al., 2009).

In the present study, only the sub-scale items relating to paranoia (5 items, for example

'feeling persecuted' and 'conspiracy against you') and hearing voices (2 items, 'hearing

voices' and 'voices talking to each other') were used (Schlier, Jaya, Moritz & Lincoln, 2015).

The CAPE has good reliability and validity, and has been cross-validated showing to highly

correlate with interview-based assessments of psychosis (Konings' Bak, Hanssen, Van Os &

Krabbendam, 2006). Reliability in the present study for voices and paranoia were good with

$\alpha = .83$ and $\alpha = .77$ respectively.

The categorical and continuous versions of Relationship Questionnaire (RQ:

Bartholomew & Horowitz, 1991) were used to assess attachment styles. The RQ is a brief

measure that allows participants to be categorised as one of four attachment styles by

choosing a descriptive paragraph associated with relationships reflective of attachment styles:

secure, preoccupied, fearful and dismissing. In addition to categorisation, the RQ also allows

for a continuous measure of each attachment style, with four paragraphs describing each

attachment style. Participants are asked to rate how much each paragraph relates to them

using a seven-point Likert scale from 'not at all like me', to 'very much like me'. The RQ has

demonstrated good psychometric properties and has been used extensively in previous studies

on clinical and non-clinical psychosis studies (e.g. Pickering et al., 2008). In the present

study, the categorical version of the RQ was used for descriptive purposes to document the

prevalence of specific attachment styles within this sample whereas the continuous scores

were used in the main analyses. The RQ has been cross-validated against interview measures

of attachment (Crowell, Treboux & Walters, 1999).

Procedure

To recruit participants, an online advert was placed on the Facebook and Twitter pages of a range of mental health charities' pages including Mind, Intervoice, The Hearing Voices Network, Rethink, Time To Change and Creative Support. The adverts contained a link to the online survey, of which the first page was the participant information sheet (PIS; see Appendix A), followed by the consent form (see Appendix B). Within the PIS, participants were provided with a detailed explanation of the study in lay terms, as well as an explanation of what participation would require. Once consent was obtained, participants were directed to complete a set of psychometric measures. At the end of the survey participants who were happy to provide their e-mail address had the opportunity to be entered into a prize draw to win a £50 voucher. Additionally, participants had the option to request a summary of the findings when the research was complete. Finally, participants had the opportunity to read a debriefing sheet (see Appendix C). This page clarified the aims of the research, in particular that the research was aiming to determine if early relationships and adverse experiences played a role in the development of psychosis. This page also gave details for support services, as well as contact details for the researchers involved in the study. A full research proposal was developed to guide the research process (see Appendix D).

Statistical Analysis

An initial power calculation using G Power (Faul, Erdfelder, Lang & Buchner, 2007) indicated that a regression analysis, including three predictor variables, would require a sample of 77 participants to achieve a power of 80% with a medium effect size of .15 (f^2: Cohen, 2007). Bivariate associations between the different variables were tested using correlational analysis. Two parallel multiple mediator models were estimated to 1) examine the indirect effect of childhood trauma on voices via dissociation and insecure attachment

while controlling for paranoia (due to high collinearity between these variables) and 2) to examine the indirect effect of childhood trauma on paranoia via dissociation and insecure attachment, while controlling for voices. The mediation macro used to conduct these analyses (PROCESS for SPSS: Hayes, 2013) also calculated regression coefficients between each of the variables included in the model. The statistical significance of the indirect effects was assessed using bootstrapped bias-corrected percentile based confidence intervals (CIs) of 5000 bootstrap draws. Comorbidity between paranoia and voices was considered throughout the analyses by controlling for the effect of each in the mediation models. All data analyses were conducted using IBM SPSS Statistics v2.

Results

Visual inspection of histograms for each measure, along with statistical tests of normality, revealed that the measures for voices, paranoia, dissociation and preoccupied attachment were normally distributed, while fearful attachment, dismissive attachment, childhood trauma and dissociation were not. Since the data contained not normally distributed data and therefore violated assumptions for parametric analysis (Field, 2013), non-parametric statistical tests were used. Inspection of missing data indicated that no missing data points could be calculated due to participants missing full measures rather than individual items. Field (2013) recommends that data individual data points are not calculated if more than 5% of items are missing. Following this guidance, no individual data points were computed.

139 participants were screened for eligibility, of which 19% (n=27) were excluded as they did not report seeking help for experiences related to psychosis, and thus did not meet eligibility requirements. Descriptive statistics (see Table 2) indicated that 86% ($n = 89$) of participants in the present study had experienced at least one childhood trauma. Table 2 outlines descriptive statistics for each measure used in the analysis. Of the 112 eligible

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participants who took part in the survey, 86% ($n = 96$) completed the CAPE measure for

voices, 92% ($n=103$) completed the RQ measure for fearful attachment and the BBTS

measure for CIT, 89% ($n=100$) completed the DES measure of dissociation and only 71%

($n=80$) completed the CAPE measure for paranoia. Around 68% ($n = 77$) of participants

completed all six measures fully, and, therefore, the mediation models included only these

participants.

Non-parametric between group analyses (Mann Whitney U) revealed there were no

significant differences between participants who completed the full survey and those who did

not, on any of the psychometric measures: fearful attachment ($U = 886.00$, $p = .42$),

preoccupied attachment ($U = 663.50$, $p = .09$), dismissive attachment ($U = 879.50$, $p= .26$),

CIT ($U = 914.00$, $p= .56$), dissociation ($U = 837.50$, $p =.76$), paranoia ($U = 69.00$, $p =.24$) or

voices ($U = 615.50$, $p = .31$). In terms of demographic characteristics, non-parametric

between group analyses revealed no significant differences between completers and non-

completers in terms of their marital status ($U = 1301.50$, $p = .84$), level of education ($U =

1175.50$, $p = .31$) or employment status ($U = 1247.00$, $p = .65$). Parametric t-tests revealed

that participants significantly differed in age ($t(109) = 2.50$, $p = .01$) between those who

completed the full survey ($M = 38.14$, $SD = 11.40$) and those who did not ($M = 44.37$, $SD =

13.69$). There were no significant differences on any of the items related to help-seeking (use

of services, diagnosis or medication) and further non-parametric between group analyses

showed there were no significant differences between male and female participants in any of

the measures. Of those that completed the categorical RQ measure the majority reported

overall fearful attachment styles ($n = 55$, 49%) in comparison to preoccupied ($n = 14$, 13%)

and dismissive ($n = 20$, 18%) styles, with only a small minority reporting secure attachment

($n = 11$, 9%).

Correlational Analyses

Prior to conducting mediation analyses, correlations were conducted to determine associations between insecure attachment styles, dissociation, voices and paranoia. Table 4 provides the non-parametric (Spearman's *rs*) correlation coefficients between the variables included in the analyses. Preoccupied and dismissive attachment styles were not significantly associated with any of the variables of interest (childhood trauma, dissociation, voices or paranoia). Fearful attachment was found to be significantly positively correlated with all variables, and correlation comparison tests (Lee & Preacher, 2013) revealed that the correlation between fearful attachment and paranoia was significantly stronger than the correlation between fearful attachment and voices ($z = -1.99, p = .04$). Positive correlations were also found between childhood trauma, voices and paranoia, as well as both dissociation and fearful attachment. Dissociation also highly correlated with both voices and paranoia, and there was no significant difference between the correlations between dissociation and paranoia and dissociation and voices ($z = -1.68, p = .09$). Paranoia and voices were also highly positively correlated, indicating that co-variation between these two experiences needed to be controlled. Age did not significantly correlate with any variables and so was not included in the analyses.

Mediation Analyses

Since the correlation coefficients revealed that preoccupied and dismissive attachment styles were not associated with any of the variables included in the study they were not included in the mediational models. The first mediation model tested the first hypothesis: that fearful attachment would significantly mediate the relationship between childhood trauma and hearing voices. Figure 1 displays the first model estimating the indirect effect of childhood trauma on voices while controlling for paranoia. The regression pathways indicated that childhood trauma significantly predicted dissociation (a_1: $b = 4.02$, 95% CI

[2.59, 5.45], $p > .001$) and dissociation significantly predicted voices (b_1: $b = .02$, 95% CI [.007, .04], $p = .005$). Childhood trauma significantly predicted fearful attachment (a_2: $b = .13$, 95% CI [.04, .22], $p = 004$), however, fearful attachment did not predict voices (b_2: $b = .19$, 95% CI [-.04, .43], $p = .117$). A bias corrected bootstrap confidence interval for the overall indirect effect via both dissociation and voices (ab: $b = .12$) based on 5000 bootstrap samples was entirely above zero (95% CI [.056, .211]) indicating that the model demonstrated a significant mediated effect of childhood trauma on voices. Similarly, there was no evidence that childhood trauma predicted voices independently of the mediators (c': $b = .01$. $p = .82$). However, the model demonstrated that dissociation was the only significant mediator between childhood trauma and voices (a_1b_1: $b = .09$, 95% CI [.03, .17]), while fearful attachment did not significantly mediate the relationship (a_2b_2: $b = .02$, 95% CI [-.001, .07]).

[INSERT FIGURE 1]

The second mediation model tested the second hypothesis that insecure attachment would significantly mediate the relationship between childhood trauma and paranoia. However, only fearful attachment was entered into the model as other styles were not associated with paranoia. Figure 2 displays the model estimating the indirect effect of childhood trauma on paranoia while controlling for voices. The regression pathways indicated that childhood trauma significantly predicted dissociation (a_1: $b = 4.02$, 95% CI [2.59, 5.45], $p < .001$) and dissociation significantly predicted paranoia (b_1: $b = .04$, 95% CI [.022, .064], $p < .001$). Similarly, childhood trauma significantly predicted fearful attachment (a_2: $b = .13$, 95% CI [.04, .22], $p = 004$) and fearful attachment was a significant predictor of paranoia (b_2: $b = .42$, 95% CI [.11, .73], $p = .007$). A bias corrected bootstrap confidence interval for the indirect effect (ab: $b = .23$) based on 5000 bootstrap samples was entirely

above zero (95% CI [.12, .37]) indicating that the mediation model significantly mediated the effect of childhood trauma on paranoia. Similarly, there was no evidence that childhood trauma predicted paranoia independently of the mediators (c': $b = -.05$. $p = .40$). The mediation model demonstrated that both dissociation (a_1b_1: $b = 17$, 95% CI [.07, .30]) and fearful attachment (a_2b_2: $b = .05$, 95% CI [.15, .12]) mediated the relationship between childhood trauma and paranoia.

As the DES-R included one item assessing voices (item 27) the data was re-analysed after removing the this item from the total score dissociation. This did not alter any of the statistical analyses reported.

[INSERT FIGURE 2]

Discussion

The present study examined the role of insecure attachment and dissociation in the pathways between childhood trauma and two specific experiences of psychosis (paranoia and hearing voices) in a sample of participants who self-reported having sought help for experiences of psychosis. The study was based on theoretical arguments cited at the outset of this paper suggesting that dissociation is important in the development only of voices and insecure attachment is important only in the development of paranoia, with one recent theory proposing specifically that disorganised/fearful attachment might *also* be important in the pathway to voices. The results did not support this latter theory and, instead, demonstrated that insecure attachment, specifically fearful attachment, is involved in the pathway to paranoia but not voices. In the case of voices, the results demonstrated, consistently with previous research, that dissociation is a robust mediator between childhood trauma and voices. However, interestingly, this mechanism was also found to be a significant mediator in the pathway to paranoia.

The present study identified that preoccupied and dismissive attachment styles were not associated with experiences of psychosis, and this is in line with previous findings in non-clinical participants (Sheinbaum et al., 2014) but in contrast to some previous research that found preoccupied and dismissive attachment to be associated with psychotic experiences (Korver-Nieberg et al., 2015; Macbeth, Schwannauer, & Gumley, 2008; Ponizovsky, Vitenberg, Baumgarten-katz, & Grinshpoon, 2013; Rosenstein & Horowitz, 1996; Strand et al., 2015). In the present study, a large majority of the sample endorsed fearful attachment style on the categorical RQ, with only minorities endorsing preoccupied and dismissive styles. This is in contrast to previous research in which endorsement of insecure attachment styles have been more dispersed (e.g. Korver-Nieberg et al., 2015). This may help explain the lack of associations with the latter two styles; however, a continuous measure was used in the main analyses, thus mitigating some of the impact of homogeneity in this sample.

The findings of the present study support previous reports highlighting dissociation as a significant and robust mediator between childhood trauma and voices (Varese et al., 2012b; Perona-Garcelan et al., 2012). In contrast to the initial hypothesis (influenced by Berry and Bucci's CAV model), no evidence was found in this sample to support proposals that fearful attachment may convey a vulnerability to voice-hearing; the mediational analyses indicated that fearful attachment did not predict voices and did not mediate the relationship between childhood trauma and voices. Hence, the results supported alternative accounts suggesting that insecure attachment might be more important in the pathway leading to paranoia than in hallucinations (Pickering et al., 2008; Sitko et al., 2014; Wickham et al., 2015). The present study adds to this evidence by suggesting that *fearful* attachment might be particularly important in the pathway between childhood trauma and paranoia than other attachment styles, and is consistent with previous research that also examined this relationship in help-seeking participants with psychosis (Korver-Nieberg et al., 2015).

The finding that fearful attachment may be particularly implicated in paranoia is plausible in the light of current theoretical understanding of the psychological underpinning of paranoid ideation and attachment representations. As discussed previously, attachment theorists argue that early relationships lead to internal working models from which we develop beliefs about ourselves in relation to others and predictions about how others will behave (Ainsworth, 1978). For a child who has disorganised attachment, in which they experience their caregiver as frightened or frightening (Schuannauer & Gumley, 2014) and potentially abusive, it would seem likely that this child would be vulnerable to developing internal working models around others being threatening, and the self as vulnerable. Cognitive and evolutionary theoretical perspectives suggest that these internal models (or schemas) predict negative biases in perceptions of the world and of others that serve to increase survival mechanisms of hypervigilance to threat, leading to attentional and attributional biases (Gilbert, 2001; Morrison et al., 2005). This is then thought to lead to a vulnerability to the development of paranoia, which is generally characterised by a mistrust and fear of others and a perception of threat and persecution (Bentall et al., 2008; Fornells-Ambrojo & Garety, 2005; Melo, Corcoran, Shrayne & Bentall, 2009). Based on this conceptualisation of paranoia, it would seem plausible that these negative schema and resulting cognitive biases could be a result of exposure to abusive attachment figures and the development of fearful attachment.

The present study found that dissociation also mediated the relationship between childhood trauma and paranoia. This is a particularly interesting and novel finding since dissociation has been found in previous research to be related specifically to hallucinatory experiences rather than other psychosis-related experiences (Altman, Collins, & Mundy, 1997; Kilcommons & Morrison, 2005). Notably, to the author's knowledge, due to the theoretical proposals regarding the pathways to paranoia, dissociation has not been

considered previously as a potential mechanism in the development of paranoia and, therefore, has not previously been examined. Due to the novelty of this finding, theoretical explanations are lacking. However, one psychological model that may provide some useful theoretical suggestions regarding this link is cognitive analytic therapy (CAT).

CAT shares similarities with attachment theory since it is a developmental model that highlights the importance of internalising patterns of relating to others and to oneself throughout the course of a person's life (Ryle & Kerr, 2002). Each individual has a range of patterns of relating (self-states) that we move fluidly between. However, the model argues that people who experience trauma are less able to move fluidly between self-states and, similarly to the concept of dissociation, this leads to a lack of integration between different aspects of the self (Kerr, Crowley & Beard, 2006). The model pertains that this lack of integration can lead to a range of cognitive difficulties such as inhibiting self-reflection and executive function such as attentional control and problem solving (Kerr, Birkett & Chanen, 2003). This model, theorising a pathway from patterns of relating to cognitive difficulties, could provide theoretical links between attachment (patterns of relating), dissociation (lack of integration between self-states) and paranoia. Firstly, difficulties in self-reflection are thought to lead to an increase in dissociative experiences (specifically depersonalisation and derealisation) that are often found in people who experience social anxiety (which has many similarities with paranoia) (Michal et al., 2005). Therefore, it could be that the disconnect between self-states that leads to difficulties in self-reflection could also be responsible for the association between dissociation and paranoia found in the present study. Moreover, since the model argues that the lack of integration between self-states also leads to cognitive difficulties such as attentional control, it could be that this is one pathway to the development of paranoia through the development of unhelpful patterns of relating to others and the emergence of threat-based attentional biases that are common feature of paranoia. Although

purely speculative, this models allows for a potential theoretical framework that integrates the associations found between trauma, attachment, dissociation and paranoia in the preset study, and future research might use this framework to explore causal pathways between these variables.

The present study had several limitations. First, because the present study utilised a cross-sectional design, it is not possible to make conclusive inferences regarding causality, and future research, particularly prospective research, will help to build evidence regarding causal pathways between the associations identified in the present study. Second, it can be argued that attempts in the present study to test hypotheses derived from Berry and Bucci's (2016) CAV model are partial, as self-report measures of fearful attachment were used rather than more comprehensive interview measures of disorganised attachment such as the Adult Attachment Interview (AAI: George, Kaplan & Main, 1985). The approach taken is justified by the lack of self-report tools to measure disorganised attachment in adults that are amenable to the online, self-report design of the present study. At present, the measurement of 'disorganised' attachment is limited to the AAI, which is a complex tool requiring in-depth training and is time consuming to administer. However, Bartholomew and Horowitz (1991) classified fearful attachment in adulthood as reflective of the disorganised child and developed the Relationship Questionnaire (RQ: Bartholomew & Horowitz, 1991), which is a short, self-report measure that suited the design of the present study. Despite this, in order to draw firm conclusions regarding the proposed CAV model, it is important for future research to use the AAI to examine this relationship with a measurement of disorganised attachment.

A third limitation is with regard to the measurement of childhood trauma in the present study as this was limited to experiences of sexual, emotional and physical abuse and the results cannot, therefore, be generalised to a range of other experiences known to be associated with an increased risk of psychosis including, for example, bullying (van Dam et

al., 2012) and social and income inequality (Burns & Esterhuizen, 2008; Burns, Tomita, & Kapadia, 2014; Wickham, Taylor, Shevlin, & Bentall, 2014). A limitation also lies within the measurement of attachment and paranoia. Since some insecure attachment behaviours and paranoid behavious share similarities such as feeling uncomfortable with close relationships and a lack of trust, these concepts overlap somewhat. Therefore, it is possible that measures of attachment and paranoia might assess factors that are in fact part of the same construct, and this could lead to bias in the measurement such as an over-reporting of fearful attachment.

A final limitation is with regard to the recruitment methodology employed in the present study in which participants self-selected to take part in the online survey through social media, which is likely to have led to biases in the sample. Research shows that there are biases in the demographics characteristics of people who use social media such as being more likely to be female, to be from higher socio-economic backgrounds, to be younger in age and to be employed or studying (Duggan & Brenner, 2013). The demographic statistics of participants in the present study revealed that the large majority of the sample were female, white, had relatively high levels of education and were working/studying, thus reflecting these biases. Such biases might have led to estimation error meaning the results might not be generalisable to the whole population (Bethlehem, 2010), and it is therefore important that future research replicates this research using different sampling methods of the same population (for example, recruiting participants through NHS services and using face-to-face interviews).

Future Research

An important area of future research is with regard to determining causal pathways in the mediational relationships demonstrated in the present study. At present, the findings suggest that dissociation might play an important role in the pathway to voices and paranoia,

and that fearful attachment is involved in the development of paranoia. However, the present study cannot infer causality and to clarify this, it is essential that prospective research is conducted which is more able to examine causality between these pathways. In addition, in the case of paranoia, the present study demonstrated that both fearful attachment and dissociation were significant mediators. Based on the theoretical speculations cited above, there is reason to examine a causal relationship between these two variables, specifically, whether fearful attachment predicts dissociation and in turn, paranoia. Serial multiple mediational models allow for causal relationships between mediating variables and therefore could be utilised to test this relationship. Alternatively, a single mediation model could examine whether dissociation mediates the relationship between fearful attachment and paranoia. Since the relationship between dissociation and paranoia has not previously been theoretically or empirically examined, future research is required to begin this process to allow for a better understanding.

Clinical Implications

Fearful attachment (and historical disorganised attachment) should be carefully considered when developing formulations about the difficulties of those clients who experience paranoia, particularly for those who have experienced childhood trauma. Attachment theory is increasingly recognised to have considerable relevance for clinical work, particularly since it allows for predictions about intervention styles that can modify insecure attachment behaviours to allow for 'secure' therapeutic relationships (Bucci, Seymour-Hyde, Harris, & Berry, 2016; Danquah & Berry, 2013; Taylor et al., 2015). Attachment behaviours are often played out within a therapeutic relationship and an important task for the therapist is to avoid being pulled toward extreme emotions such as guilt, shame, anger and hopelessness (Dalenberg, 2000; Steele, Van Der Hart, & Nijenhuis, 2001) and instead provide the opportunity for the relationship to develop into a secure,

positive relationship (Schwannauer & Gumley, 2013). In order to recognise these experiences and work effectively in therapeutic relationships, regular clinical supervision is necessary (Van der Hart, Nijenhuis & Steele, 2006).

In light of the finding that both dissociation and fearful attachment mediate the relationship between childhood trauma and paranoia, formulations should give close attention to the specific processes that have led a person to experience paranoia. Formulations based on cognitive models of paranoia can aid clinicians to focus on specific processes and mechanisms by allowing for the detection of key factors such as rumination, negative self- and other-schema, threat-based attributional bases and unhelpful safety behaviours (e.g. Freeman et al., 2015; Morrison, Renton, Dunn, Williams & Bentall, 2003). Cognitive behavioural therapy (CBT) has been found to be effective for preventing and reducing distressing experiences of psychosis (NICE, 2014). Techniques specifically aimed at altering negative schema (similar to internal working models) might also be particularly relevant for people experiencing fearful attachment in which negative views are held of the self and others. Such cognitive restructuring techniques have been found to be beneficial in reducing distressing hallucinatory, and particularly paranoid, experiences through modification of the content of unhelpful beliefs about these experiences (Bouchard, Vallières, Roy, & Maziade, 1996).

Finally, the present study showed that dissociation could play a clear role in the development of both voices and paranoia. It is therefore important that clinicians consider this when developing formulations with people distressed by such experiences and, where indicated, to offer specific interventions for dissociation. People who experience dissociation can have a wide range of different experiences including for example, depersonalisation, detachment, derealisation, identity confusion and amnesia (Kennerley, 1996). Following assessment and formulation, Kennerley (1996) outlines a range of techniques that can be

helpful for dissociative experiences including the management of triggering events and the dissociative reactions, distraction and grounding techniques, and cognitive restructuring. In addition, recent research has begun to identify mindfulness techniques to be particularly helpful for people experiencing dissociation for several reasons. For example, Zerubavel and Messman-Moore (2015) argue that mindfulness increases awareness of, and control over, dissociative process by offering tools that enable people to bring conscious awareness to the present moment to both internal and external stimuli. Moreover, mindfulness techniques may offer therapeutic intervention for the metacognitive functions involved in paranoia by encouraging a non-judgmental, self-compassionate approach to cognitive experiences (Brown, Ryan & Creswell, 2007). Finally, increases in self-compassion through mindfulness techniques may also serve to begin to modify negative self and other schema that result from abusive early relationships and disorganised attachment styles.

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Tables and Figures

Table 1. Demographic Characteristics of Participants

		n	*%*
Sex	Female	81	72
	Male	30	27
	Other	1	1
Ethnicity	White Caucasian	100	89
	Other	12	11
Sexual Orientation	Heterosexual	71	63
	Bisexual	21	19
	Homosexual	11	10
	Other	9	8
Marital status	Never married	57	51
	Married or living with partner	35	31
	Separated or divorced	20	18
Education	GCSEs or less	26	23
	A Levels	18	16
	Undergraduate degree	37	33
	Postgraduate degree or above	31	28
Employment	Unemployed	39	35
	Working	45	41
	Studying	27	24
Diagnosis (lifetime)	No diagnosis	4	4
	Schizophrenia	35	31
	Schizoaffective Disorder	19	17
	Delusional Disorder	1	1
	Bipolar	13	12
	Brief Psychotic Disorder	7	6
	Psychosis Otherwise Unspecified	13	12
	Other	20	17
Service input (lifetime)	Community or Early Intervention	80	71
	Psychological therapy	32	29
	Inpatient	89	80
Current service input	Yes	68	61
	No	44	39
Current mediation	Yes	77	69
	No	35	31

Table 2. Descriptive statistics

	N	Mean	Standard Deviation	Median	Minimum	Maximum	Skewness (z score)	Kurtosis (z score)
Fearful attachment (RQ)	103	4.82	1.82	5.00	1	7	-.42 (1.89)	-1.06 (2.25)
Preoccupied attachment (RQ)	103	3.01	1.97	3.00	1	7	.59 (1.81)	-.90 (1.91)
Dismissive attachment (RQ)	104	3.42	1.97	3.00	1	7	.48 (1.46)	-.98 (-2.09)
Voices (CAPE)	96	4.67	1.88	4.00	4	14	.33 (1.36)	-.95 (1.94)
Paranoia (CAPE)	80	10.92	2.86	11.00	5	20	.47 (1.75)	.60 (0.11)
Dissociation (DES-R)	100	85.21	33.04	82.50	28	151	.48 (1.46)	-.98 (-2.09)
Childhood Interpersonal Trauma (BBTS)	103	14.22	4.43	13.00	9	26	1.01 (4.24)	.55 (.488)

Table 3. Correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.
Fearful attachment (RQ)	-							
Preoccupied attachment (RQ)	.10	-						
Dismissive attachment (RQ)	.07	-.10	-					
Voices (CAPE)	.36**	.03	.16	-				
Paranoia (CAPE)	.54**	.16	.08	.48**	-			
Dissociation (DES-R)	.42**	.13	.03	.54**	.66**	-		
Childhood Interpersonal Trauma (BBTS)	.28**	-.18	.16	.26**	.32**	.42**	-	
Age	-.002	-.13	.16	-.08	-.09	-.18	-.03	-

RQ, Relationship Questionnaire; CAPE, Community Assessment of Psychotic Experiences; DES-R, Dissociation Experiences Scale – Revised; BBTS, Brief Betrayal Trauma Survey.
*$p<0.05$, **$p<0.001$

Figure 1. Mediation model one

M_1
Dissociation

$a_1 = 4.02$ ***

$b_1 = .02$*

X
Childhood Trauma

$c' = .01^{ns}$

Y
Voices

$a_2 = .13$*

$b_2 = .19^{ns}$

M_2
Fearful Attachment
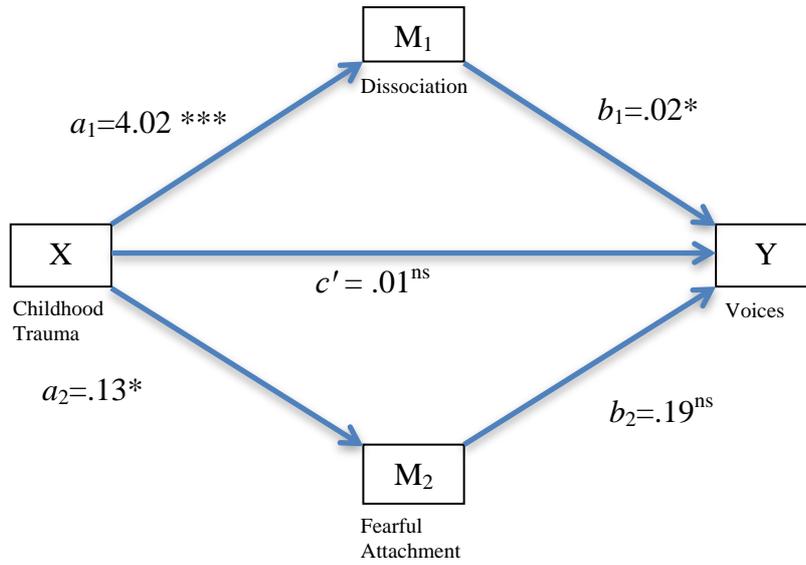
Figure 1: Mediation model testing if dissociation and fearful attachment mediate the relationship between trauma and hallucinations while controlling for paranoia (paranoia is not pictured in this illustrative diagram).
*$p<.05$,**$p< .01$, ***$p< .001$, ns= non-significant

Figure 2. Mediation model two
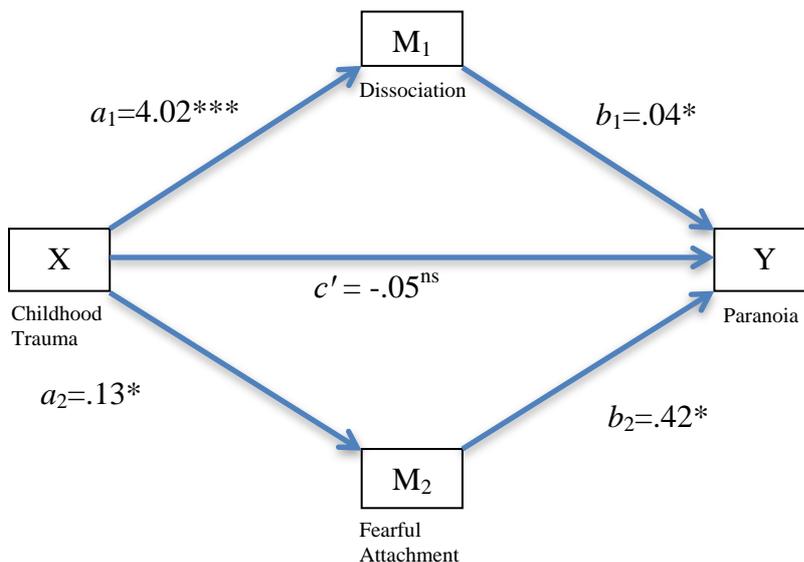
M_1
Dissociation

$a_1 = 4.02$***

$b_1 = .04$*

X
Childhood Trauma

$c' = -.05^{ns}$

Y
Paranoia

$a_2 = .13$*

$b_2 = .42$*

M_2
Fearful Attachment

Figure 2. Mediation model testing if dissociation and fearful attachment mediate the relationship between trauma and paranoia while controlling for voices (voices is not depicted in this illustrative diagram).
*$p<.05$,**$p< .01$, ***$p< .001$, ns= non-significant

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Appendices

Appendix A: Participant Information Sheet

The role of adverse experiences and early relationships in psychosis

Participant Information Sheet

Before you consent to participating in the study please read the participant information then click onto the link below if you agree to take part. If you have any questions or queries about taking part in the study, please email the principal investigator, Josie Davies (j.davies7@lancaster.ac.uk).

Introduction
My name is Josie Davies and I am conducting this research as part of a doctoral programme in clinical psychology. I would like to invite you to take part in my research. Before you decide, you need to understand why this research is being done and what it would involve for you. Please take time to read the following information carefully. If you have questions about the study or about what it involves for you, please contact me. You do not have to make the decision at this time, so if you have any doubts or feel unsure please take some time to think it over.

If you decide to participate and wish to enter the prize draw, we will enter you in to a raffle where you have the chance to win a £50 Amazon voucher.

What is the purpose of the study?
If you have, at some point in your life experienced psychosis, I would like to invite you to take part in my research by completing an online survey.

I am carrying out this research because I would like to find out more about experiences of psychosis. In particular, I would like to find out if adverse life experiences and early relationships have any impact on experiences that are related to psychosis. This might include experiences such as hearing voices, having unusual beliefs or experiencing paranoia, for example.

Do I have to take part?
You do not have to take part. If you decide you would like to, and you continue to the survey, you can also stop at any point throughout the survey if you change your mind. You are free to refuse to take part, or to withdraw at any time, without giving your reasons.

If you decide you don't want to continue with the survey after starting it, that's fine, however we won't be able to remove the data you have already given us because it is completely anonymous and we won't know which data is yours.

What will I be asked to do if I take part?
If you agree to take part, you will directed to an online survey. There are 10 sections to this survey which are 10 different questionnaires. Some people who take part will be able to complete all of the questionnaires. Other people will only have access to 8 of the questionnaires. This will depend on your answers because 2 of the questionnaires will only be relevant for some people. We expect that completing this survey will take between 20 and 45 minutes in total.

This survey will ask you questions related to early experiences of trauma, questions about your relationships, about unusual experiences, and about any distress, anxiety and depression. Some of the questions in this survey may be very sensitive for you. These include items on childhood bullying, sexual abuse, stressful events, and symptom experiences.

What are the possible disadvantages and risks of taking part?
We do not anticipate that your participation will cause you distress. However, if you do experience distress you may discontinue the survey at any time. At the bottom of this page, and on completion of the survey, there is a list of contact details of various support services that you may contact if you experience distress as a result of participating. In addition, if you would like to talk directly to me, you can do so by emailing me, or if you would prefer to speak on the phone, please leave a message on the mobile number provided and I will call you back during working hours.

If you contact me directly I will be able talk to you about anything you found difficult while taking part in the survey. If you need more support than this, for example, if you are feeling distressed, I will be able to signpost you to support services that will be able to offer you more support. I will only be able to offer one follow up call if you need it, but will be able to point you in the direction of other services that can help. I will only be able to be contacted about your participation in this study up until the end of the research in February 2016.

What are the possible benefits of taking part?
Taking part in this research might not help you directly. However, completing the survey may provide you with an opportunity to reflect on your feelings and experiences. Research findings obtained during the study will also help us to better understand the experiences of people who hear voices, and may potentially be used to improve psychological treatments.

If you would like to be entered in to a prize draw to win a £50 Amazon voucher please fill in your email address in the box provided at the end of the survey, and tick the box 'prize draw'.

If you would like me to email you a summary of the findings when the study is complete, please fill in your email address in the box provided at the end of the survey, and tick the box 'summary of findings'.

What will happen if I don't want to carry on with the study?
You can withdraw from the study at any time. We will keep the data collected up to your withdrawal as it is anonymous and it will be impossible to identify the data that is yours.

Will my taking part in the study be kept confidential?
Yes, we will follow ethical and legal practice and all information about you will be handled in strict confidence. The data collected during the study will be stored in a secure place and only researchers will have access to it. Data files stored on the computer will be password protected. No names or addresses will be included and participants will be identified only by numbers in any computerised data files used in the analyses of the results. The data you provide will be kept anonymously for a maximum of 15 years on the University's secure server. It will then be permanently deleted.

If you provide your email address so that you can be entered in to the prize draw, or so that we can send you a summary of the findings, then I will keep this in a secure, password protected file. This information will not be attached to the information you provide on the survey and so the data collected will remain anonymous. The only time I would need to break confidentiality is if you contacted me directly and told me something that made me concerned about yours, or someone else's safety. If I needed to do this, I would try to tell you before I did it. Breaking confidentiality would mean I would need to ask my supervisors for advice, and in urgent circumstances I would need to contact emergency services.

What will happen to the results of the research study?
The results of the research will be included in a report that will be submitted for examination by Lancaster University. The results may also be published within an academic journal, and may be presented at conferences. There will be no personal information about any of the people who participate within any of these reports or presentations.

Who is involved in this research?

The chief investigator of this research is me, **Josie Davies.**

My contact details are:

Address:	Clinical Psychology Doctorate Programme
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	Furness College
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The research supervisor is **Dr Filippo Varese**.

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The academic supervisor is **Dr Jane Simpson.**

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If you have any experience during your participation that you are unhappy with and wish to make a complaint, please contact:

Dr Jane Simpson
Director of Research
Doctorate in Clinical Psychology
Division of Health Research
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Where can I obtain further information if I need it?
Should you have any questions regarding this study, please contact Josie Davies at j.davies7@lancaster.ac.uk or telephone xxxxxxxx xxx

The following is a list of services you may contact for support, advice, or in emergency:

The Samaritans

The Samaritans are open 24 hours a day 365 days a year. You can contact them to talk through anything that is troubling you. For more information visit their website, or contact them on:

Website: www.samaritans.org
Telephone: 08457 90 90 90

Email: jo@samaritans.org

<u>Victim Support</u>

If you've been a victim of any crime or have been affected by a crime committed against someone you know, we can help you find the strength to deal with what you've been through. Our services are free and available to everyone, whether or not the crime has been reported and regardless of when it happened.

See more at: www.victimsupport.org.uk
Or Call: 0845 30 30 900
Weekdays 9am to 8pm, weekends 9am to 7pm, bank holidays 9am to 5pm - See more at:

<u>Police</u>

<u>If you think someone is in immediate danger please call the police on their emergency number 999</u>

Telephone for non-emergency calls: 101
Telephone for emergencies: 999

Thank you for reading this information sheet

Appendix B: Consent Form

<u>ONLINE CONSENT FORM</u>

Study Title: The role of adverse experiences and early relationships in psychosis

We are asking if you would like to take part in a survey to find out more the impact of adverse experiences. Before you consent to participating in the study we ask that you read the participant information sheet and tick the box at the side of each statement below if you agree. If you have any questions or queries before signing the consent form please contact the principal investigator, Josie Davies (j.davies7@lancaster.ac.uk or xxxxxxxx xxx)

I confirm that I have read the information sheet and fully understand what is expected of me within this survey.

I confirm that I have had the opportunity to ask any questions and to have them answered.

I understand that my answers will be electronically stored and then analysed along with the responses from the other respondents in this survey.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.

I understand that once my responses have recorded it will not be possible for them to be withdrawn.

I understand that the information from my responses will be pooled with other participants' responses, anonymised and may be published.

I consent to the anonymous information and quotations from my survey being used in reports, conferences and training events.

I understand that the information I give within the survey is completely anonymous

I understand that the anonymous data that I give within this survey will be shared with the supervisors of the research

I understand that if I provide my email address that this will be kept confidential and will not be kept with the anonymous data that I provide within the survey.

I understand that if I contact the researcher directly that there may be circumstances in which the researcher may need to break confidentiality

I consent to Lancaster University keeping anonymous electronic responses for up to 15 years after the study has finished.

I consent to take part in the above study.

Appendix C: Debriefing Sheet

DEBRIEFING SHEET

Thank you for your participation. The following page aims to give you a summary of the main aims of our investigation.

Hearing voices is **<u>not</u>** in itself a sign of mental health difficulties. Research has shown that hearing voices is quite common among people with no history of mental health difficulties. Hearing voices can be distressing for some people but for others they can be a positive experience. Research has been attempting to identify different experiences that may cause voice hearing. Research has shown that for some people, voices may be related to stressful experiences, particularly in their early lives.

This research is attempting to find out if there are other experiences that might protect people from the impact of stressful early experiences, or if there are experiences that might make it worse. One of the experiences we are particularly interested is the experience of early relationships, for example with parents or caregivers.

We will analyse the measures and interviews carried out as part of this study, and we hope that the findings of this study will help us to develop better ways to support individuals with distressing voices.

If you would like further information concerning the aforementioned topics, or would like to be kept informed about the progress and results of the study, please contact Josie Davies at j.davies7@lancaster.ac.uk or phone xxxxx xxx xxx. We understand that some of the topics covered in this investigation and the materials used in this study might have caused you some discomfort. If you still feel upset as a result of the procedures involved in this study, don't hesitate to contact any of the support services we have provided contact details for at the bottom of this page.

If you would like to contact the researcher directly, please do so, however please be aware that Josie will not be able to respond to a voicemail or email immediately, and is only available during working hours. Josie will be able to offer one follow up session to talk about your experience of participating, however, if you need any further support, she will direct you to services that can help.

Appendix D: Research Protocol

The role of attachment in the relationship between trauma, dissociation and hearing voices

Introduction

Auditory verbal hallucinations (AVHs, or hearing voices) are experienced by around 70% of people who have received diagnoses of psychosis but have also been found to be relatively common among the general population (Waters et al., 2012). Evidence suggests that some people experience positive voices (Jenner et al., 2008), however, voices are frequently experienced as severely distressing. In order to alleviate the distress often experienced, a strong focus of current research is the exploration of the potential aetiological factors and underlying mechanisms of this phenomenon.

One such factor is trauma, which has emerged as an established vulnerability factor in the development of voices, with evidence of strong links between hallucination-proneness and several types of adverse childhood experiences (e.g. childhood sexual, emotional and physical abuse, neglect and bullying). Furthermore, there is growing evidence that trauma is predictive of voices through the identification of a dose-response relationship; that is, the more severe or the more frequent the exposure to trauma, the greater the risk of hearing voices (and other symptoms of psychosis; *for a review, see* Varese et al., 2012).

Researchers are now turning their attention toward the mechanisms that underlie this relationship. One such mechanism recently identified is dissociation. It has been proposed at a theoretical level that trauma-induced dissociation may increase vulnerability to voices

(Longden et al., 2012), and there is growing empirical evidence to suggest that dissociation mediates (or explains) the relationship between childhood trauma and hearing voices (Perona-Garcelán et al; 2012 Varese, Barkus & Bentall, 2012). Dissociation is a common post-traumatic response (e.g. Murray, Ehlers & Mayou, 2002) that has also been found to be a common experience among people who hear voices, in both clinical and non-clinical populations (e.g. Kilcommons et al., 2008; Perona-Garcelán et al., 2012).

This trauma-inducing model of understanding the relationship between trauma and dissociation has been argued to be incorrect. Some researchers argue that dissociative experiences lead to an increase in proneness to fantasy, thus suggesting that trauma memories are often fabricated (for a review, see Dalenberg et al., 2012). Dalenberg and colleagues (2012) provide evidence in a meta-analysis that the trauma-model of dissociation has significantly stronger empirical evidence than the fantasy model, however, it is possible that fantasy-proneness is involved in the relationship between trauma, dissociation and voices through some other mechanism.

A potential mechanism that is gaining more attention within the trauma model of understanding dissociation is attachment. Since the work of Bowlby (1982) research has suggested that early interpersonal relationships provide children with 'internal working models' of relationships, which then impact on all future relationships throughout adulthood. Bartholamew's (1990) model of attachment suggests that these internal models are specifically related to cognitive models of self and others. Bartholomew suggests that individuals can have different combinations of high/low anxiety and avoidance as a result of these models. Bartholomew categorised these different combinations in to four main 'organised' attachment styles; secure, preoccupied, dismissing and fearful. The latter three are 'insecure' attachment styles and are characterised by high levels of anxious or avoidant attachment behaviours. Researchers have reported that people who experience psychosis are

more likely to report either anxious or avoidant attachment behaviours (Berry, Barrowclough & Wearden, 2008). In addition to the commonly researched 'organised' attachment styles, the Strange Situation pioneered by Mary Ainsworth also identified a 'disorganised' pattern of attachment in which patterns of behaviours associated with both anxious and avoidant attachment were identified (Main & Solomon, 1990). These children sought proximity to their caregivers while simultaneously experiencing them as distressing.

Liotti (2004) suggests that this attachment style is a result of experiencing the primary caregiver as both a source of safety and distress simultaneously. Liotti proposed that this intense approach-avoid attachment behaviour results in incoherent and confusing emotional and behavioural coping strategies in which the person is unable to resolve the conflict between seeking safety from their attachment figure and avoiding distress from them simultaneously. Liotti suggests that in adulthood, when faced with a stressor, these incoherent coping strategies are activated causing reactions that mirror dissociative experiences during which the person is unable to coherently integrate memories, consciousness and self-identity.

Based on these findings, Berry and Bucci (*in press)* have developed a cognitive attachment model of voices (CAV) proposing that disorganised attachment may be an influential process within the established relationship between trauma, dissociation and voices. In this model, the authors argue that early attachment styles, particularly disorganised attachment, lead to an increased vulnerability to dissociation, and that in turn heightened dissociation might increase predisposition to voices. However, elements of this model, and in particular the role played by disorganised attachments, have not yet been empirically tested.

Aims of the study

Primary aim

The primary aim of the present study is to test Berry and Bucci's cognitive attachment model of voices, specifically exploring if disorganised attachment is involved in the

meditating relationship between childhood trauma, dissociation and hearing voices (see Fig. 1 for a conceptual representation of the hypothesised associations between the variables of interest, with disorganised attachment representing a mediator of the apparent relationship between trauma and dissociation).
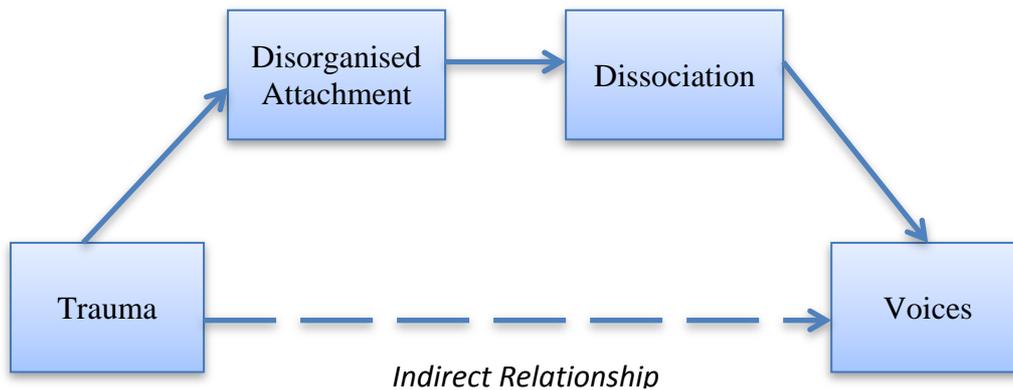
Fig. 1. Proposed mediating relationship between trauma, disorganised attachment, dissociation and voices.

Secondary aims

In addition to the primary research aims, a number of secondary aims/hypotheses will be examined, including: determine if there is a specific trauma-type (e.g. interpersonal versus non-interpersonal trauma types) more strongly involved in the meditating relationship between trauma, attachment, dissociation and voices; explore the relationship between disorganised attachment and other experiences associated with psychosis (such as unusual beliefs, 'negative symptoms' and measures of anxiety and depression) to control for the potential effect of symptom comorbidity/uncover symptom-specific effects.

Method

Design

This study will involve the administration of the same set of measures in two separate online surveys in two participant groups: a student sample (Survey 1) and a sample of participants experiencing psychosis (Survey 2). By conducting this study within both a

clinical and non-clinical sample, it will ensure that the results can be generalisable across the continuum of severity of hearing voices and dissociative experiences. That is, the mechanism will be explored within the student sample as *proneness* to hallucination and dissociation and thus at the lesser end of the severity spectrum. Within the clinical sample the mechanism will explored with regard to actual experiences of voice hearing and dissociation, and, therefore, at the more severe end of the spectrum. Furthermore, conducting the research within two separate populations increases the possibility of recruiting the minimum number of participants to ensure adequate power so that the study will be feasible.

In both surveys, participants will be asked to complete a battery of measures testing relevant variables (see the measure section below). The use of similar survey methods has been shown to be feasible in previous research on hallucination-proneness in university students (Varese, Barkus & Bentall, 2011) and recent surveys with individuals who hear voices or experience other psychotic complaints (Woods, Jones, Alderson-Day, Callard, Fernyhough, 2015).

Participants and recruitment procedures

Survey 1: To recruit participants from within the student population, emails will be sent via Lancaster University's student services department containing an invitation to take part in the study. Those who wish to take part will click on a link within the email directing them to the online survey where they will read an online Participant Information Sheet, and will then complete a consent form before proceeding to the measures. Posters advertising the study will be also pinned to university notice boards in student areas. There advertisements will also contain a link to the online survey.

Inclusion Criteria:

18 years or older

Sufficient command of English so that the survey can be completed

Survey 2: Participants who have experienced psychosis will also be asked to take part in the study. To ensure that participants have experienced psychosis we will ask that they have received a diagnosis of psychosis at some point in their lives (i.e. a diagnosis in the schizophrenia spectrum such as schizophrenia, schizoaffective disorder, delusional disorder), or that they have received anti-psychotic medication or therapeutic input for experiences related to psychosis such as hearing voices, unusual beliefs or paranoid ideation. To recruit participants from within this population, an online advert will be placed within a range of mental health charity websites, including Mind, Intervoice, Hearing Voices Network, Paranoia Network, Rethink, Time To Change and Creative Support. Finally, posters and information sheets will be pinned to notice boards in charitable organisation waiting rooms and adverts will be submitted to charitable newsletters. All online and hardcopy adverts and information sheets contain a link to the survey, along with the contact details of the researcher (university email address and research mobile phone number) if participants wish for further information before they take part.

Inclusion Criteria:

Diagnosis of psychosis (i.e. diagnosis on schizophrenia spectrum such as schizophrenia, schizoaffective disorder, delusional disorder)

OR received antipsychotic medication for experiences related to psychosis

OR received treatment in a mental health unit / hospital for experiences related to psychosis

OR received input from community mental health team or early intervention service for experiences related to psychosis

OR received therapeutic input (e.g. CBT therapist, psychologist) for experiences related to psychosis, such as hearing voices, visual hallucinations, paranoid ideation or unusual beliefs.

18 years or older

Sufficient command of English so that the survey can be completed

Sample Size

The study aims to recruit in excess of 100 participants from within each population (student and individuals with psychosis), will be able to reliably detect significant effects as small as $r = .27$ (i.e. generally regarded as a small to moderate effect; Field, 2009) at the recommended power of .80 (derived from power analysis using G*Power). The power analysis was conducted using a priori methods based on a sample of 100. It should be noted that several of the key relationships considered (e.g. the association between trauma and voices, and between dissociative experiences and voices) are considerably more robust than this estimate, and that studies examining the mediating role of psychological variables in the relationship of trauma and psychosis have uncovered significant and robust indirect effects with samples as small as 45 participants (Pilton, Varese, Berry and Bucci, *in press*; Varese, Barkus & Bentall, 2011).

Procedure

Surveys 1 & 2: For the purpose of recruitment the two surveys will be given different titles. This will be to ensure not to deter participants with a title that could be deemed to be not applicable to an individual. The student survey (survey 1) will be titled 'psychological wellbeing and the impact of adverse experience'. The clinical survey (survey 2) will be titled 'the role of adverse experiences and early relationships in psychosis'. The overall title that will be used to encapsulate both surveys will be 'the role of attachment in the relationship between trauma, dissociation and hearing voices'.

The Lancaster University's online survey software, Qualtrics, will be used to create, and administer the online surveys. For both surveys, those who wish to take part will click on a link directing them to the online survey. On the initial page there will be the Participants

Information Sheet. Within this page participants will be provided with a detailed explanation of the study in lay terms, and of what it will mean if they decide to participate. Participants will then be directed to a consent form which will ask them to tick each item to indicate that they agree, followed by two final boxes asking that they confirm they are 18 years or older, and that they consent to take part in the research. Once consent is obtained participants will then be directed to the complete a set of psychometric measures. Based on length of time taken to complete the measures on hard copy, it is estimated that it will take participants between 20 and 40 minutes to complete the survey

At the end of the survey participants will have the option to be entered in to a prize draw to win a £50 Amazon voucher. If participants wish to enter, they will be asked to provide their email address, and consent to be contacted at a specific date in early 2016 to be informed whether they won the voucher. Participants will also have the option to request a summary of the findings when the research is complete, they will be asked to provide their email address, and consent to be contacted in the summer of 2016. Finally, participants will have the opportunity to read a debriefing sheet. This page will explain the specificities of the research, in particular that the research is aiming to determine if early relationships and adverse experiences play a role in the development of hearing voices. This page will also contain the contact details of various organisations/services that they may contact for further advice or support, and the contact details (i.e. work email address) of the researcher in case participants had further queries about the study.

Measures

Demographic questionnaire

A 14 item demographic questionnaire will be included. The questionnaire asks for participants' sex, age, gender, nationality, ethnicity, first language, marital status, level of

education, years in education, employment status, contact with services for psychological difficulties, psychiatric diagnosis and current medication.

The Brief Betrayal Trauma Survey (BBTS: Goldberg & Freyd, 2006)

The BBTS will be used to assess exposure to traumatic or adverse life experiences. The BBTS consists of 12 items addressing a range of adverse life experiences including those involving a high degree of betrayal (for example sexual assault by close family member) and those involving low betrayal (for example a natural disaster). Within each item, the measure asks if the event has happened 'never', 'one or two times', or 'more than that'. The measure asks participants to tick one of these three frequencies for both 'before 18' and 'after 18'. The measure can identify those participants who score more highly in high-betrayal events, or more generally those scoring highly on interpersonal vs non-interpersonal traumatic experiences. The measure has been widely used in large survey designs with clinical and non-clinical participants (e.g. Goldsmith, Freyd & DePrince, 2012; Stein et al., 2013).

Dissociative Experiences Scale - Revised (DES-R: Dalenberg & Carlson, under review)

The DES-R is a 28 item self-report measure. It includes the same items as the DES-II (Carlson & Putman, 1998) but with a revised scale from a percent scoring visual analogue scale to a Likert scale to improve the reliability of the measure (Dalenberg & Carlson, under review). Reliability was reported to be good with alpha levels of .77, .84 and .88. Participants are asked to rate the extent to which they have experienced each item. The scale ranges are: a) Never; b) It has happened once or twice; c) No more than once a year; d) Once every few months; e) At least once a month; f) At least once a week. Consistently with a previous version of the DES, the measure has three subscales: absorption, depersonalisation and derealisation. The authors demonstrated good reliability of the revised version of the DES (Burnstein & Putman, 1989).

Community Assessment of Psychotic Experiences (CAPE: Stefani set al., 2002).

The CAPE will be used to screen for presence of voices, and assess other symptom dimensions that frequently co-vary with hallucinations in clinical and non-clinical samples (e.g. delusional thinking, syndromal and sub-syndromal negative symptoms of psychosis, and depression). The CAPE is a 42-item self-report measure that covers three symptom dimensions: positive symptoms (2 items assessing auditory verbal hallucinations, and 16 items assessing delusions), depressive symptoms (8 items) and negative symptoms (14 items). Each item is measured on a 4-point Likert scale to indicate frequency ('Never', 'Sometimes', 'Often' and 'Nearly always'), and a 4-point scale to indicate degree of distress experienced in relation to each symptom ('Not distressed', 'A bit distressed', 'Quite distressed', and 'Very distressed'). The measure has demonstrated good psychometric properties in both clinical and non-clinical samples (e.g. Thewissen, Bental, Lecomte, van Os, Myin-Germeys, 2008; Yung, Nelson, Baker, Buckby, Baksheev & Cosgrove, 2009). The CAPE showed validity (Stefanis et al., 2002). The selection of this measure, rather than alternative measures assessing predisposition to hallucinations (e.g. the Launey Slade Hallucination Scale), was informed by the necessity to control for possible covariates. Experiences of depression and other experiences of psychosis have been found to be strongly associated with voices, and to be highly inter-correlated (e.g. Hartley, Barrowclough & Haddock, 2013). Similarly, these symptoms have been found to be related to attachment in previous research (e.g. Bentall et al., 2014) and, therefore, may be important confounding variables in the context of the present study.

Further screening questions on recent voice hearing, and the Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ: Van Lieshout & Goldberg, 2007).

To collect more detailed information about the characteristics of the clinical and non-clinical hallucinatory experiences reported by respondents, participants who endorsed the 2-

hallucination items of the CAPE will be asked a series of follow-up questions about these experiences. Firstly participant will be asked to indicate when was the last time they heard voices ('In the previous question, you have indicated you have had the experience of hearing voices, whispers or noises that other people can't hear. Roughly when was the last time you had this experience?'; 1 = 'In the two past weeks'; 2 = 'in the past month'; 3 = 'in the past year', 4 = 'over a year ago') . Participants who reported hearing voices in the past week will be subsequently asked to complete the HPSVQ, a 13-item self-report measure. The items measure a number of important phenomenological dimensions of auditory verbal hallucinations, including their frequency, distressing content, loudness, interference with daily life, the presence of commanding voices and the 'clarity' of the hallucinatory experience. Each of these are measured on 5 point Likert scales. Internal consistency of the HPSVQ was found to be adequate. Correlation with the PSYRATS-AH (i.e. a "state-of-the-art" multi-dimensional interview measure of hallucinations, which unfortunately cannot be administered in the context of the present study due to its interview format; Haddock et al., 1999) indicated adequate validity (r = 0.76; Van Lieshout & Goldberg, 2007). Only participants who indicate that they heard voices in the previous week will complete this measure. Participants who do not indicate this experience will not be directed to this measure.

The Revised Beliefs About Voices Questionnaire (BAVQ-R: Chadwick, Lees & Birchwood, 2000)

The BAVQ-R is a 35 item self-report measure that measures beliefs, emotions and behaviours about auditory hallucinations. There are three sub-scales relating to beliefs including malevolence, benevolence and omnipotence. There are two sub-scales related to emotional and behavioural relationships to voices including resistance and engagement. All responses are rated on a 4-point Likert scale. The measure has been widely used in both studies with patients with psychosis, and non-clinical individuals with AVHs (e.g. Andrews

et al., 2008; Jones, Hacker, Cormac, Meaden & Irving, 2012). As this measure is only relevant to participants who hear voices, only those who indicated that they hear voices in the screening measures above will complete the BAVQ-R. Participants who do not indicate this experience will not be directed to this measure. The mean Cronbach's α for the five sub-scales of the BAVQ-R was 0.86 (range 0.74-0.88).

Psychosis Attachment Measure (PAM; Berry, Wearden, Barraowclough & Liversidge, 2006)

The PAM is a self-report measure designed to measure attachment in people who are experiencing psychosis. The measure has 16-items relating to thoughts, feelings and behaviours within significant relationships. Each item is rated on a 4-point Likert scale. The PAM has demonstrated good psychometric properties in studies investigating psychotic experiences in both clinical (Berry, Wearden, Barrowclough, Oakland & Bradley, 2012) and non-clinical samples (Wearden, Peters, Berry, Barrowclough & Liversidge, 2008). The PAM demonstrated good reliability with Cronbach's alpha for the anxiety subscale of .96 and the avoidance subscale of .86 (Berry et al., 2006).

Relationship Questionnaire (RQ: Bartholomew & Horowitz, 1991)

The RQ is a brief (4-items) categorical measure of attachment. The measure allows for participants to be categorised within one of 4 attachment styles: secure, preoccupied, fearful and dismissing. There are 4 paragraphs describing each attachment style and participants are asked to rate how much each paragraph relates to them using a 7-point Likert scale. The RQ has demonstrated good psychometric properties, and has been used extensively in previous studies on clinical and non-clinical hallucination-proneness [Pickering, Simpson & Bentall, 2009].

The Creative Experiences Scale (CES: Merckelbach, Horselenberg & Muris, 2001).

The CES is a 25-item yes/no self report measure of fantasy proneness. The number of yes scores are calculated to give an over all score of proneness. Test-retest reliability and

internal consistency of the CEQ are good (0.95 and 0.72). The scale also correlates strongly with other validated measures of fantasy proneness e.g., Tellegen Absorption Scale (TAS; Kihlstrom et al., 1994). Fantasy proneness will be measured to allow for the researcher to control for the impact of this in the relationship between trauma and dissociation.

The Generalised Anxiety Disorder 7 (GAD-7: Spitzer, Kroenke, Williams & Lowe, 2006)

The GAD-7 is a 7-item self-report measure of experiences associated with anxiety. The measure has shown good reliability and is a widely used measure clinically as well as in research. The measure asks participants to rate the frequency that they have experienced each item in the previous 2 weeks on a 4-point Likert scale: 'not at all', 'several days', 'more than half of the days', 'nearly everyday'. The inclusion of an anxiety measure is justified by the need to control for emotional symptomatology when investigating risk factors for psychosis. Anxiety has been found to be significantly associated with experiences of psychosis (Hartley, Barrowclough & Haddock, 2004).

Statistical analysis

The data collected as part of the two surveys (student and psychosis samples) will be analysed separately. Parametric or non-parametric statistics will be chosen depending on the distribution of the data, and score transformations will be conducted where appropriate. Descriptive statistics will be used to outline the variables of interest in the two datasets as appropriate. Correlational and multiple regression analysis will be used to examine the strength of the associations between the key variables considered (trauma, dissociation, attachment styles and hearing voices).

The primary hypotheses will be examined using a series of causal meditational analyses, carried out either with the SPSS analytic procedures described by Hayes et al. (2013), or the Imai et al. (2010) non-parametric approach to causal mediation analysis using specific R-based packages. The models that will be tested are:

- disorganised attachment (PAM and RQ) as a mediator between trauma (BBTS) and dissociation (DES);

- disorganised attachment as a mediator of the relationship between trauma and hearing voices (i.e. as indexed by CAPS scores in the analogue sample, and HPSVQ in the psychosis sample);

- dissociation (DES) as a mediator of the relationship between trauma and hearing voices (i.e. CAPS scores in the analogue sample, HPSVQ in the clinical sample).

All models will control for appropriate covariates (e.g. comorbid affective and psychotic symptoms, fantasy-proneness). In addition to the above mediation analyses, we will explore the possibility of analysing these dataset using structural equation modelling (SEM). This analytic approach would be preferable, as it will allow testing for all the primary hypotheses within a single analysis. However, SEM requires relatively large participant samples, so this analytic approach will be only explored if a sufficient number of participants will be recruited in both surveys.

Ethical considerations

Potential for distress: It is not anticipated that participants will experience excessive discomfort or distress as a result of the procedures involved in this study. Nonetheless, a number of measures have been integrated in the study design and material to minimise the likelihood of distress occurring. Within the information page and online consent form, participants will be made aware of their right to withdraw from the study at any time. It is acknowledged that participants will be asked some sensitive questions, particularly related to early adversity. Despite this, the researchers are confident that such questions are unlikely to cause participants distress, since there is evidence that research participants who are asked about trauma and adversity do not tend to experience negative emotions as a result. For example, Felitti and colleagues (1998) asked participants about childhood trauma and then

offered them further support if they had been distressed by the questions. The authors found that no one accepted the offer, suggesting they were not distressed by the questions, and the authors received a letter from one of the participants saying "thank you for asking. I feared I would die and no one would ever know what had happened" (Felitti & Anda, 2014, p.204-205). Specifically to the use of the Brief Betrayal Trauma Survey (BBTS: Goldberg &Freyd, 2006), Cromer, Freyd, Binder and Becker-Blease (2010) conducted a study exploring the level of distress experienced by research participants who completed the BBTS. Their findings indicted that participants experienced minimal distress as a result of completing the questionnaire, and also perceived trauma research as being of greater importance than other types of research, and therefore gave much greater cost-benefit ratings to such questionnaires. This is strongly supported by other evidence, which consistently shows that people are resilient to questions about trauma, and some have argued that researchers tend to overemphasise participants vulnerability to distress in this area of inquiry (Becker-Blease & Freyd, 2006).

Despite this, every effort will be made to ensure that participants are fully aware of the types of questions they will be asked before they consent to take part. Furthermore, it will be made clear to participants that if they do experience any discomfort due to the questions they may discontinue at any time. Finally, contact details for various organisations that can offer immediate support should participants experience distress will be available at the beginning and at the end of the survey. These will include details for Victim Support, Lancashire Police, and the Samaritans. The contact details of the researcher will also be provided, however, it will be explained that the researcher will only be available during working hours.

Confidentiality and data management: All data collected as part of this study will be anonymous – participants will not be required to disclose identifying information as part of

the procedure involved in this study. However, participant may opt to disclose their contact details (email address) in order to 1) be entered in the lottery draw, and 2) received a summary of the study findings once the project will be completed. Participants' contact details will be used for these purposes exclusively, and will be deleted by September 2016. All data generated as part of this study will be collected using Qualtrics and stored on secure University servers. Once downloaded from the Qualtrics system for data cleaning and analysis, data will be stored on University of Lancaster computers. Data will be 'filtered' so that only anonymised research data (i.e. excluding the participant email addresses) will be downloaded from Qualtrics. Research data will be stored for a minimum of 10 years in line with Lancaster University Data Management policy.

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Appendix E: SPSS Mediation Output

Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.2 **************

    Written by Andrew F. Hayes, Ph.D.   www.afhayes.com
  Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****
Model = 4
  Y = Voices
X = CIT
  M1 = FearAtt
  M2 = Dissoc
Statistical Controls:
CONTROL= Parano
Sample size
    77

****
Outcome: FearAtt

Model Summary
R	R-sq	MSE	F	df1	df2	p
.3224	.1039	3.1057	8.7006	1.0000	75.0000	.0042

Model
	coeff	se	t	p	LLCI	ULCI
constant	2.9445	.6872	4.2846	.0001	1.5755	4.3135
CIT	.1348	.0457	2.9497	.0042	.0438	.2259

****
Outcome: Dissoc

Model Summary
R	R-sq	MSE	F	df1	df2	p
.5443	.2963	763.0766	31.5751	1.0000	75.0000	.0000

Model
	coeff	se	t	p	LLCI	ULCI
constant	27.6699	10.7722	2.5686	.0122	6.2105	49.1293
CIT	4.0266	.7166	5.6192	.0000	2.5991	5.4541

****
Outcome: Voices

Model Summary
R	R-sq	MSE	F	df1	df2	p
.6154	.3787	2.5650	10.9711	4.0000	72.0000	.0000

Model
	coeff	se	t	p	LLCI	ULCI
constant	.6829	.8471	.8061	.4228	-1.0058	2.3715
FearAtt	.1918	.1209	1.5861	.1171	-.0493	.4328
Dissoc	.0240	.0084	2.8593	.0056	.0073	.0408
CIT	.0112	.0499	.2240	.8234	-.0883	.1107
Parano	.0860	.0880	.9762	.3322	-.0896	.2615

****************** DIRECT AND INDIRECT EFFECTS ***********************

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.0112	.0499	.2240	.8234	-.0883	.1107

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
TOTAL	.1226	.0390	.0568	.2119
FearAtt	.0259	.0181	-.0019	.0705
Dissoc	.0967	.0367	.0313	.1781

******************* ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    5000

Level of confidence for all confidence intervals in output:
   95.00

NOTE: Some cases were deleted due to missing data. The number of such cases was:
  35

------ END MATRIX -----

Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Release 2.13.2 **************

      Written by Andrew F. Hayes, Ph.D.   www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****
Model = 4
   Y = Parano
   X = CIT
  M1 = FearAtt
  M2 = Dissoc
Statistical Controls:
CONTROL= Voices
Sample size
     77

****
Outcome: FearAtt

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3224	.1039	3.1057	8.7006	1.0000	75.0000	.0042

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.9445	.6872	4.2846	.0001	1.5755	4.3135
CIT	.1348	.0457	2.9497	.0042	.0438	.2259

****
Outcome: Dissoc

Model Summary

```
      R     R-sq    MSE      F      df1     df2       p
   .5443   .2963  763.0766  31.5751  1.0000  75.0000   .0000
```

Model
```
         coeff    se       t       p      LLCI     ULCI
constant  27.6699  10.7722  2.5686   .0122   6.2105  49.1293
CIT        4.0266   .7166   5.6192   .0000   2.5991   5.4541
```

****
Outcome: Parano

Model Summary
```
      R     R-sq    MSE      F      df1     df2       p
   .6969   .4857   4.5358  16.9987  4.0000  72.0000   .0000
```

Model
```
         coeff    se       t       p      LLCI     ULCI
constant   5.2368   .9484   5.5217   .0000   3.3462   7.1274
FearAtt     .4277   .1556   2.7485   .0076   .1175    .7379
Dissoc      .0437   .0106   4.1165   .0001   .0225    .0648
CIT        -.0556   .0661  -.8416    .4028  -.1873    .0761
Voices      .1520   .1557   .9762    .3322  -.1584    .4624
```

******************** DIRECT AND INDIRECT EFFECTS ************************

Direct effect of X on Y
```
Effect     SE       t       p      LLCI     ULCI
-.0556    .0661   -.8416    .4028   -.1873    .0761
```

Indirect effect of X on Y
```
           Effect   Boot SE   BootLLCI BootULCI
TOTAL      .2334    .0640     .1224    .3766
FearAtt    .0577    .0283     .0158    .1286
Dissoc     .1758    .0562     .0789    .3026
```

******************** ANALYSIS NOTES AND WARNINGS ************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
   5000

Level of confidence for all confidence intervals in output:
   95.00

NOTE: Some cases were deleted due to missing data. The number of such cases was:
  35

------ END MATRIX -----

Appendix E: Journal Instructions for Authors

Journal of Clinical Psychology & Psychotherapy

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Specific citations of pages or chapters follow the year .

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When the reference is to a work by two authors, cite both names each time the reference appears .

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Differentiate works by the same author and with the same publication date by adding an identifying letter to each date: (Bloom, 1987a, 1987b).

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Book

Paloutzian, R. F. (1996). *Invitation to the psychology of religion* (2nd ed.). Boston: Allyn and Bacon.

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Abstract from Secondary Database

Garrity, K., & Degelman, D. (1990). Effect of server introduction on restaurant

tipping. *Journal of Applied Social Psychology, 20* , 168-172. Abstract retrieved July 23,

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Chapter 3:   Critical Appraisal

Josie Davies

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Summary of the Results

I conducted this study in order to add to the current evidence base that identifies adverse experiences that contribute to the development of psychosis, as well as psychosocial mechanisms involved in the pathways leading to the development of experiences related to psychosis (specifically paranoia and hearing voices). This area of research is particularly complex because of the vast array of potential factors and mechanisms that may be involved in the development of paranoia and hearing voices and theoretical explanations are somewhat contradictory. The following critical review is intended to give a reflective view of two important considerations associated with the present thesis: methodological reflections regarding the use of social media in the research paper, and reflections of the conceptualisations of psychosis as informed by the entirety of the thesis. To begin, I will provide an overview of the main findings from both the systematic review and research paper, followed by the two main sections in which these reflections will be discussed.

The first paper, a systematic literature review, explored the relationship between discrimination and psychosis. As a less widely researched adversity, the role of this experience in the development of psychosis was not clear. The review highlighted that many methodological limitations are present within current research and more robust methodologies need to be employed to help clarify the findings. However, the review tentatively demonstrated that discrimination played a role in the severity of non-psychotic experiences, that there was limited evidence that discrimination might be a risk factor for psychosis (particularly non-clinical experiences) and that there may be a trend toward discrimination being more strongly associated with non-clinical paranoia than with hallucinatory experiences. Despite these suggestions, the findings were not conclusive, with some limited evidence also showing links with 'hallucinations' and some significant findings within clinical populations. Within the paper I discussed the various theories that might help

to explain these conflicting findings such as more extreme, immediately threatening discriminatory experiences leading to dissociation that causes vulnerability to hearing voices. This theory was supported by findings that physical discriminatory abuse was associated with an increased risk of severity of experiences. Although these findings must be interpreted with caution, due to the limitations of the studies as well as the review, it offered evidence toward more clarity and suggestions for future research.

The second paper was an empirical study that aimed to test conflicting theoretical proposals regarding the pathways that lead to paranoia and hearing voices. Generally, researchers focus on attachment as a mechanism involved in the development of paranoia, and dissociation in the development of voices. However, leading researchers recently proposed a new theoretical model in which one particular attachment style that has been much less researched is assumed to be important for the development of voices. In the present study, I intend to empirically examine these specific theories in order to clarify the involvement of attachment and dissociation in the vulnerability to paranoia and voices.

The main findings of the study were that fearful attachment was the only insecure attachment style associated with dissociation, voices and paranoia; preoccupied and dismissive styles were not. Correlation comparison tests revealed that the relationship between fearful attachment and paranoia was significantly stronger than the relationship between fearful attachment and voices. However, in mediation analyses, fearful attachment only predicted paranoia and not voices, and significantly mediated the relationship between childhood trauma and paranoia. As was expected, dissociation mediated the relationship between childhood trauma and voices; however, unexpectedly, it also mediated the relationship between childhood trauma and paranoia. These findings provide support for theoretical arguments that attachment appears to be more robustly involved in the pathway to the development of paranoia than voices. The findings also provided novelty in this research

field by demonstrating that dissociation was also important in the development of paranoia as well as voices; a finding that has not previously been identified. These findings provide interesting and important areas for future research, as well as important implications for clinicians working with people who experience distressing voices or paranoia.

Methodological Reflections: Recruitment Through Social Media

In setting up the empirical study within this thesis, I decided to consider the use of online social network pages to recruit participants, for a number of reasons. The two main aims in recruitment are to ensure that sufficient numbers are enlisted so that the study has adequate power to detect effects, and to recruit a sample of people who are representative of the target population (Patel, Doku & Tennakoon, 2003). In order to meet the first aim, I felt it was important to adopt time efficient recruitment methods due to the limited period of recruitment for this doctoral research project. Recruiting sufficient numbers of participants for research studies is a recognised difficulty throughout research arenas and, without adequate recruitment, research has to be abandoned (Ashrey & McAuliffe, 1992). Based on my previous experience of recruiting through the NHS, I felt that it would be unlikely to recruit an adequate number of people experiencing psychosis through these methods within the six-month time frame.

Indeed, numerous obstacles must be successfully navigated when recruiting participants through NHS services. For example, as Patel et al. (2003) point out, an essential first stage is to develop rapport with administrative and professional staff within services, as their response to recruitment heavily depends on their attitude towards research. Therefore, careful consideration is required to identify staff who are supportive of research. Moreover, as authors have previously highlighted, staff teams need to be convinced of the researcher's integrity as well as the value of the research (Bell, 1993; Miller et al., 1998). Through my previous experience as a Research Assistant for a large, multi-site, randomised controlled

trial, I encountered the challenges of making contact with teams, which included being present with the team and developing relationships with care-coordinators; presenting the research project at team meetings and conferences; attending MDT and regular 'hand-over' meetings in order to share the project. I frequently encountered staff who were (understandably) 'too busy' to think about research, or informed me that clients 'wouldn't want to take part' even though the client had not been consulted. It was a very challenging and time-consuming approach and I felt that a much more time efficient approach was necessary. Online recruitment methods therefore seemed to be a suitable option.

In terms of meeting recruitment aim two (to recruit a sample of people representative of the target population), I considered how the use of social media in the UK has, and is still, rapidly expanding. Government statistics from 2012 (Office for National Statistics, 2013) revealed that 90% of people aged 16-24, 74% of people aged 25-44, 44% of people aged 45-54, 29% of 55-64 year olds, and 19% of 65-74 year olds living in the UK were using social media. However, despite the increasing use of social media, there are considerable biases in the demographics of users. Social media users are more likely to be female, to be from higher socio-economic backgrounds, to be younger in age and to be employed or studying (Duggan & Brenner, 2013). Indeed, the demographic statistics of participants in the present study revealed that the large majority of the sample were female, white, had relatively high levels of education and were working/studying. Therefore, in terms of recruiting a sample of people who are representative of the whole population of people who experience psychosis, the recruitment methodology of the present study had limitations. Research has demonstrated that demographic risk factors for receiving a psychosis-related diagnosis are lower income, unemployment, being single, divorced or separated and living in an urban residence (Kendler, Gallagher, Abelson, Kessler, 1996). Therefore, there is a possibility that the sample of people within the research study was not representative of the target population, and such a bias

could have been exacerbated, not only by general factors related to participation in research, but also by the use of a social media recruitment strategy.

A further, important limitation is with regard to the more ethically-based, pragmatic challenges of online recruitment through social media. I encountered two incidents that were ethically challenging and have informed changes I will make to future online recruitment strategies. In the first situation, after posting an advert for the study on Twitter, I noticed a person had posted a 'tweet' in which they described distressing emotions and had linked my name, along with others, to the tweet (this allows for linked persons to be notified of the tweet). This person had not participated in my research but had found my name on a mental health charity page. I responded to this with the support of my supervisor and in line with the National Institute of Health Research's Guidelines on using social media in research (NIHR, 2014). The guidelines identify that responding to difficult issues in public forums is a challenge of recruiting through social media and they recommend engaging in discussion, where appropriate, while clarifying one's position as a researcher and to not offer clinical advice. The second situation followed an advert I posted on Facebook in which a person contacted me through the instant messaging service that is a feature of this site. The person expressed their unhappiness with my study since it implied that 'schizophrenia' was not a disease. The NIHR (2014) again identifies this approach as being a challenge because the exposure of the study is open to potential criticism. I responded to the Facebook message by engaging in a short discussion in which I explained my position but was sure to also validate the person's beliefs. Through my sensitive handling of this, the conversation ended positively.

To ensure I responded appropriately to these situations I sought advice from my supervisor and followed the National Institute for Health Research's guidance on using social media in research (NIHR, 2014) as well as the British Psychological Society's supplementary

guidance as part of the Code of Ethics and Conduct (BPS, 2009). Despite these situations being easily resolved, they highlighted some ethical challenges, particularly since I had used my personal accounts to advertise my research and, therefore, had to respond to these challenges through the same personal channels. Despite my privacy settings on Facebook and Twitter ensuring that people could not access my personal information, I felt that professional and personal boundaries were uncomfortably blurred. As a result of this, I would highly recommend that researchers create new social media accounts that are specifically for research purposes, as well as stating that the accounts will only be accessed during working hours. Using this approach, research-specific accounts can be used as one uses professional emails: during working hours and not linked to personal accounts.

Despite these limitations, social media recruitment strategies also have strengths. Research has demonstrated that the internet has become a place where people experiencing psychosis search for information, share experiences through communicating with others around the world, and for accessing self-help material (Haker, Lauber & Rossler, 2005; Schrank, Sibitz, Unger, Amering, & 2010; Spinzy et al., 2012). Due to the high level of stigma attached to people with psychosis-related diagnoses and thus potentially high levels of social anxiety, the internet can be a place of relative safety in which people can communicate with anonymity and without feeling devalued or unsafe (Schrank et al., 2010). Anonymity is certainly an important feature of online recruitment methods that might encourage more participation. In fact, in a recent systematic review, Highton-Williamson, Priebeand Giacco (2015) demonstrated that people experiencing psychosis were more likely to access social media sites than comparison groups of people not experiencing psychosis. Their analysis revealed participants' reasons for accessing social media including establishing new contacts, re-connecting with lost contacts, and finding or providing peer support. Thus, with regard to the strategy employed in this paper in which I primarily targeted mental health charity pages

on Facebook and Twitter, it may be that a population of people who are less likely to participate in research through services may have been identified.

In summary, there are limitations and benefits to using online surveys and social media recruitment strategies for studies involving people experiencing psychosis. A major benefit is time and cost efficiency and a major drawback is recruiting a population representative sample. Personally, I have valued this approach for recruiting a sufficient number of people to ensure my study was adequately powered, as well as enabling people to decide for themselves if they wished to participate. That is, in comparison to recruiting through NHS services, in which care-coordinators can act as gatekeepers, I feel this approach is much more respectful to a person's rights to make their own informed decisions regarding participation in research.

Reflections on the Conceptualisation of Psychosis

One of the main underlying factors that drew me to conducting research exploring psychosocial pathways to psychosis is my personal critical view of the medical approach to understanding paranoia and voices. The medical approach to understanding psychosis has historically been based on the assumption that psychosis is biologically and genetically determined and recovery has been regarded as impossible with the only option being neuroleptic medication (e.g. Bentall, 2009; Johnstone, 2000). This belief is clearly reflected in an inspiring book written by Eleanor Longden (2013) in which she described being told by a psychiatrist that it would have been preferable to have a diagnosis of cancer over 'schizophrenia' because cancer is easier to cure (Londgen, 2013). Certainly, this belief and approach appears to have diluted somewhat over the years and I have not encountered such demoralising beliefs through my own recent experience working alongside psychiatric colleagues. However, medication is still first-line 'treatment' (NICE, 2014) in which 'symptom' reduction is the primary aim.

The work of leading researchers and activists, including Eleanor Longen, Jacqui Dillon, Lucy Johnstone, Richard Bentall, John Read, Marius Romme and Tony Morrison, has guided my perception and understanding of the concept of 'psychosis' and - coupled with my own practice - has led me to firmly believe that the current service approach to 'treating' the 'symptoms' of psychosis is, for some people, a barrier to recovery. By conceptualising voices and paranoia as symptoms of an illness, we are undermining a person's experiences and are masking important clues about the underlying factors that are causing distress (Johnstone, 2000). As Johnstone points out, labelling someone 'mentally ill' implies that the person is not responsible for - and therefore not able to take control of - their distress, and then responsibility falls to psychiatric services to 'treat' the person. Johnstone also points out that this is often an understandable, easier option because facing the truth behind the distress, whether it be, for example, childhood abuse or difficulties in family dynamics, is often a very challenging and difficult experience. Coupling this with the power and political positions of pharmaceutical companies, our society has fallen into a trap of too often labelling people 'mentally ill', inducing feelings of helplessness and treating symptoms with tranquilising medication (neuroleptics). One major problem with this approach, in addition to hindering meaningful recovery, is that the treatment of symptoms relies on neuroleptic medication (often referred to as anti-psychotics) that come with significant side effects and can vastly reduce a person's quality of life.

I recognise that some people experiencing psychosis find neuroleptic medication to be extremely helpful in reducing distress and that they can enable some people to manage their distress (e.g. Gerlach & Larsen, 1999; Jenkins et al., 2005). However, it is the costs associated with these benefits that I find particularly concerning. These medications can cause significantly reduced motivation, distressing effects such as restlessness, considerable weight gain, pseudo-Parkinsonism, sexual impairment, cognitive impairment, tardive

dyskinesia (uncontrollable physical movements) and increased salivation (e.g. Moncrieff, Cohen & Mason, 2009). Further medication is often then prescribed to treat these side effects, which in turn comes with their own side effects. It may be that, in comparison to terrifying voices or beliefs, these side effects are welcomed in return for a reduction in the experiences; however, I believe that many people choose medication because they are not provided with alternative therapies. In support of this, Romme, Escher, Dillion, Corstens and Morrison (2009) identified themes from responses of voice hearers in relation to barriers to recovery to include associating voice hearing with 'schizophrenia', being hospitalised, receiving hopeless messages about 'illness', the implication that only medication can help and receiving stigmatising diagnoses.

Alternatives to the medical treatment of symptoms are underpinned by an entirely different philosophical and conceptual approach to experiences related to psychosis. Principally, these approaches do not focus on 'symptom' reduction as their primary aim. If we consider that we now have a wealth of evidence that demonstrates experiences such as a paranoia and voices can be caused by adverse life experiences, possibly through psychological pathways such as internalised shame, trauma-induced dissociation and negative beliefs about the self, world and others, then surely it is *these* factors that should be our therapeutic focus for recovery. Indeed, research that has asked people experiencing psychosis how they conceptualise recovery has identified themes included rebuilding self, rebuilding life and hope for the future (Pitt, Kilbride, Nothard, Welford & Morrison, 2007). Similarly, Law and Morrison (2014) found in a large sample of people experiencing psychosis that the most commonly endorsed definitions were that recovery is "the achievement of a personally acceptable quality of life" and is "feeling better about yourself" (p.1350). Romme and colleagues (2009) also identified themes of recovery from people who hear voices to include positive relationships, hope, optimism, normalisation of experiences, acceptance from others

of being a voice hearer, recognising voices as a meaningful and personal experience, positive life changes and developing meaningful relationships with voices. It would seem plausible to suggest that a therapeutic focus on psychological difficulties induced by adverse experiences and on the development of positive, hopeful futures would be more likely to promote recovery within this conceptualisation of psychosis than medication focussed on 'symptom' reduction.

Very much in line with these conceptualisations of recovery are movements within the UK and other parts of Europe that demonstrate more helpful, person-centred and humane ways to support people distressed by experiences such as hearing voices and paranoia. Movements such as The Hearing Voices Network, the Soteria Project and therapeutic interventions such as Open Dialogue and Dialogue with Voices are all examples of approaches that conceptualise psychosis as 'normal' reactions to difficult experiences and view experiences of voices, paranoia and unusual beliefs as important aspects of a person's life that should be explored and understood and responded to with compassion. These approaches are in considerable contrast to the medical approach. For example, the Soteria Project, initially developed by Mosher and Hendrix (2004), highlights the core principles of their approach to be small, community-based settings with significant lay support in which the person in distress is supported to preserve their autonomy and independence through communal responsibilities, as well as relational support to allow the person to find meaning in their subjective experience (Calton, Ferriter, Huband & Spandler, 2007). Similarly, the Open Dialogue approach - gradually being adopted in the UK from Finland - is based within a framework in which distressing experiences are viewed as reflective of difficult life experiences that have no other form of expression (Seikkula & Olson, 2003). The therapeutic approach is a network-based psychological model involving the person, their family and friends, and professionals to guide the process (Marlowe, 2015). The focus of the approach is

to facilitate mutual understanding and trust through open communication that allows for a new language to develop to give meaning to the experiences and to empower and promote self-worth and self-efficacy (Seikkula & Olson, 2003).

I feel strongly that these approaches are more community and systems-based, promoting autonomy, independence and acceptance, and are the approaches that our mental health services should adopt. I believe the research I have conducted and cited in this thesis theoretically and philosophically supports such approaches to the understanding of distressing experiences of psychosis and in supporting people in a way that is not reflected in our current dominant medical approach. My research contributes to the evidence base by clearly demonstrating that adverse experiences such as discrimination and childhood trauma are involved in the development of distressing experiences of psychosis and that specific pathways include early relationship styles and trauma-induced dissociation. I strongly believe that this is evidence toward the need for services to take a different stance in mental health care. We need to help people to understand their experiences through shared formulations and – as clinicians – we need to engage in therapeutic techniques that promote acceptance and self-compassion. We need to open dialogues among systems and communities to promote self-worth, acceptance of diversity, empathy and compassion, and ultimately, we need to understand people within the context of their social worlds and work with communities to promote social change.

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Chapter 4: **Ethics Section**

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Division of Health Research

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Ethics Application Form

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

Application for Ethical Approval for Research

Submit one collated and signed paper copy of the full application materials. If the applicant is a student, the paper copy of the application form must be signed by the Academic Supervisor.

Committee meeting dates and application submission dates are listed on the research ethics committee website http://www.lancs.ac.uk/shm/research/ethics.   Applications must be submitted by the deadline stated on the website, to:

> Diane Hopkins
> Faculty of Health & Medicine
> B03, Furness College
> Lancaster University, LA1 4YG
> d.hopkins@lancaster.ac.uk

Attend the committee meeting on the day that the application is considered.

1. Title of Project: **The role of attachment in the relationship between trauma, dissociation and hearing voices**
2. If this is a student project, please indicate what type of project by ticking the relevant box: □ PG Diploma   □Masters dissertation   □MRes   □MSc   □ DClinPsy SRP   □ PhD Thesis   □PhD Pall. Care/Pub. Hlth/Org. Hlth& Well Being   □MD   ✓DClinPsy Thesis   □ Special Study Module (3rd year medical student)
3. Type of study   ✓Involves direct involvement by human subjects   □ Involves existing documents/data only. Contact the Chair of FHMREC before continuing.

Applicant information
4. Name of applicant/researcher: Josie Davies
5. Appointment/position held by applicant and Division within FHM   Student of the Doctorate in Clinical Psychology Programme.
6. Contact information for applicant: E-mail:_j.davies7@lancaster.ac.uk Telephone:___xxxxxxxxxxx

Address: Clinical Psychology, Faculty of Health and Medicine, Furness College, Lancaster University , LA1 4YF

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7. Project supervisor(s), if different from applicant:

Name(s): Dr Filippo Varese and Dr Jane Simpson

E-mail(s): j.simpson2@lancaster.ac.uk and f.varese@lancaster.ac.uk

---

8. Appointment held by supervisor(s) and institution(s) where based (if applicable):
Dr Jane Simpson: Research Director and Senior Lecturer at Lancaster University
Dr Filippo Varese: Lecturer in Mental Health at The Spectrum Centre, Lancaster University

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9. Names and appointments of all members of the research team (including degree where applicable)
Josie Davies, BSc, MSc
Dr Filippo Varese, PhD, ClinPsyD
Dr Jane Simpson, DClinPsy

NOTE: In addition to completing this form you must submit a detailed research protocol and all supporting materials.

---

10. Summary of research protocol in lay terms (maximum length 150 words).

Research provides evidence to suggest that experiences of trauma can lead to hearing voices in adulthood, which are sometimes experienced as very distressing. Research also indicates that dissociation mediates this relationship between trauma and voices. Dissociation is a term used to describe difficulties with the integration of thoughts, feelings and experiences into consciousness and memory. Dissociation has also been linked to an insecure attachment style known as 'disorganised attachment', which describes attachment behaviour involving seeking proximity to others while simultaneously experiencing this as distressing. Researchers have developed a cognitive model of voices that suggests that disorganised attachment might also play a role in the mediating relationship between trauma, dissociation and voices, although this has not yet been empirically tested. Therefore, the aim of the present study is to use quantitative methods to determine if disorganised attachment plays a role in the relationship between trauma, dissociation and hearing voices.

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11. Anticipated project dates

Start date: _June 2015 – July 2016

12. Please describe the sample of participants to be studied (including number, age, gender):

Two populations: Participants will be asked to take part from within two populations: students at Lancaster University, and people who experience psychosis. All participants will be 18 years or older. It was decided that two samples of people (student sample, and psychosis sample) would ensure that the project will be viable, and will collect sufficient data, in the event that the researcher is unable to recruit an adequate number of people within the psychosis sample. Within the sample of participants who are experiencing psychosis, participants will be assessed for experiences that are present, for example, the presence of hearing voices or dissociation. In the sample of participants who are students, variables will be measured based on *proneness* to experiences, for example proneness to hearing voices and dissociation. The measures used in this study have all been validated within non-clinical populations and, therefore, are appropriate to measure actual experiences, and proneness to experiences. The researcher decided to conduct this study within two populations for two reasons. First, since the analysis used will be a form of mediation analysis and will, therefore, have multiple parameters, it is even more important that the sample size is adequately large enough to detect an effect. Since recruiting from a clinical sample is more difficult than from a student sample, the researcher felt having a student sample study in addition would ensure that the likelihood of recruiting enough participants to ensure the study was viable (has adequate power). Second, conducting the same study within two populations may increase the generalisability of study since the relationship will be examined in a clinical and non-clinical population. The researcher will be exploring whether the same mechanisms underpinning the relationship between trauma and voices are apparent within both populations, allowing for the results to be more generalisable. The researcher believes that psychological experiences such as voice hearing and dissociation exist on a continuum and are, therefore, present within the population as a whole in varying degrees. In this light, the student population will have such experiences present at the lesser end of the spectrum, while the clinical sample at the higher end of the spectrum. By testing these mechanisms across the whole spectrum we can explore whether the same mechanisms between trauma and voices apply across the whole continuum.

Power analysis: The study aims to recruit a minimum of 100 participants from within each population (student and individuals with psychosis), which will ensure that the researcher is able to reliably detect significant effects as small as $r = .27$ (i.e. generally regarded as a small to moderate effect; Field, 2009) at the recommended power of .80 (derived from power analysis using G*Power). The power analysis was conducted using a priori methods based on a sample of 100. It should be noted that several of the key relationships considered (e.g. the association between trauma and voices, and between dissociative experiences and voices) are considerably more robust than this estimate, and that studies examining the mediating role of psychological variables in the relationship of trauma and psychosis have uncovered

significant and robust indirect effects with samples as small as 45 participants (Pilton, Varese, Berry and Bucci, *in press*; Varese, Barkus & Bentall, 2011). The sample size of 100 was used based on previous research that used similar methods of recruitment (online recruitment of people who experience psychosis). The researcher contacted other researchers that had recently completed their recruitment and found on average 100 participants were recruited in a 6 month period. Previous research indicates perhaps even more promising recruitment numbers, for example, Woods, Jones, Alderson-Day, Callard and Fernyhough (2015) recruited 153 participants that heard voices in 3 months via similar recruitment methods. Based on these findings the researcher based the power calculation on a 100 as a minimum. There will be no maximum number of participants, however, data collection will end at the latest date of December 2015.

In the event that the researcher recruits an adequate number of participants in both samples, the researcher intends to analyse both sets of data and write both for publication, however will only submit the psychosis sample paper as part of the doctoral thesis.

13. How will participants be recruited and from where? Be as specific as possible.

Study 1: Student Sample (analogue)

To recruit participants from within the student population, the researcher is currently communicating with student services about the most appropriate approach. Based on what has been discussed this far with student services and with researchers from within the health research division who have experience of recruiting students, it seems that most likely emails will be sent via Lancaster University's student services department containing an invite to take part in the study, and individual admin departments will be contacted and will be asked if they too can distribute the emails. Furthermore, as agreed with the student newsletter coordinator, an advert will also be placed in the newsletter. Those who wish to take part will click on a link within the email directing them to the online survey.

Sample of people experiencing psychosis (clinical)

To recruit participants from within a population of people who experience psychosis, an online advert will be placed within a range of mental health charity websites and associated social media (e.g. Facebook pages, discussion forums), including Mind, Intervoice, Hearing Voices Network, Paranoia Network, Rethink, Time To Change and Creative Support (the researcher has already made contact with these organisations). An advert of the study will also be placed on social media sites including Facebook and Twitter, with links to the survey. Finally, posters and information sheets will be pinned to notice boards in charitable organisation waiting rooms within the North West of England, and adverts will be submitted to charitable newsletters. All online and hardcopy adverts and information sheets contain a link to the survey, along with the contact details of the researcher if participants wish for further information before they take part. Those who wish to take part will click on a link directing them to the online survey.

Mental Capacity: In accordance with The Mental Capacity Act (2005) the researcher will assume that participants have capacity. Due to the nature of anonymous, online research, it is not possible to assess for capacity.

14. What procedure is proposed for obtaining consent?

When participants access the link to the online survey, they will first have to read the Participant Information Sheet. This information sheet will provide a full and detailed explanation of why the research is being conducted in lay terms, will ensure participants know of their right to withdraw and to stop the survey at any time point, will give examples of the sensitive questions that they will encounter in the survey, and will be informed that the survey may cause some participants distress. The information sheet will also ensure participants are aware of confidentiality, and that this may be broken by the researcher if they feel the person, or someone else, is at risk of being harmed.

The researcher's contact details including email address and phone number will be provided if the participant feels unsure about any part of the study and wishes to ask further questions before they continue. It will be made clear that the researcher will only be contactable during working hours. Following reading the participant information sheet, participants will be directed to an online consent form. Participants will have to tick each box in the form to indicate their consent before they can continue. They will also have to tick two final boxes at the end of the consent form before they will be able to access the survey. These two boxes will ask participants to confirm that they consent to participate in the research, and that they are 18 years or older. If participants do not tick any of the boxes on the consent form they will not be able to continue to the survey.

Withdrawal: If participants withdraw after beginning the survey and recording responses, the data that they entered up to the point of withdrawal will be kept by the researcher. The researcher will not be able to remove data since all data is anonymous and will not be able to identify individual participant responses. This will be made clear to participants within the information sheet, and there is a section for this on the consent form that participants must tick to indicate that they consent for any information being kept up to the point of withdrawal. If participants do not tick this to indicate consent, they will not be able to access the survey.

15. What discomfort (including psychological), inconvenience or danger could be caused by participation in the project? Please indicate plans to address these potential risks.

The researcher acknowledges that some of the people who are being asked to take part in this research will be experiencing psychosis which can be a distressing experience. Due to the anonymous, online nature of the study, the researcher will not be able to assess participants suitability to take part in the research. Furthermore, the researcher will not be able to provide

support to anyone experiencing psychosis unless they contact the researcher directly. For any that do contact the researcher, support will be offered for any distress that arises as a result of taking part.

It is acknowledged that participants will be asked sensitive questions, particularly related to adverse experiences. There is a possibility that some participants may experience distress as a result of being asked such questions, however, there is evidence to suggest that research participants asked about trauma and adversity do not tend to experience negative emotions as a result. For example, Felitti and colleagues (1998) asked participants about childhood trauma and then offered them further support if they had been distressed by the questions. The authors found that no one took up the offer, suggesting they were not distressed by the questions. Furthermore, the authors reported that one participant sent them a letter following the study in which they wrote, "thank you for asking. I feared I would die and no one would ever know what had happened" (Felitti & Anda, 2014, p204-205). Specifically to the use of the Brief Betrayal Trauma Survey (BBTS: Goldberg & Freyd, 2006), Cromer, Freyd, Binder and Becker-Blease (2010) conducted a study in which they explored the level of distress experienced by research participants who completed the survey. These findings indicate that not only do participants experience minimal distress as a result of completing the questionnaire, but that they also perceive trauma research as being of greater importance than other types of research, and therefore give much greater cost-benefit ratings to such questionnaires. This is supported by further evidence, which consistently shows that people are resilient to questions about trauma, and some have argued that researchers tend to overemphasise participants vulnerability to distress (*for a review, see* Becker-Blease & Freyd, 2006).

Despite this, the researcher acknowledges that there is a possibility of distress and therefore will make every effort to reduce this possibility. In order to ensure wellbeing of participants, the online survey will provide details of organisations that can offer support, for example the Victim Support service and the Samaritans. Furthermore, the researcher's contact details will be provided on every page of the online survey. It will be explained that the researcher will not be able to offer support 24 hours a day or 7 days a week, and that if the person needs immediate support they should contact the support services detailed. It will be explained that if participants wish to speak to the researcher they should contact via email, or by leaving a voice message on the mobile telephone number provided, and that the researcher will call back during working hours to discuss any problems, to signpost to relevant services, or to offer advice. This is felt to be appropriate since the researcher is a Trainee Clinical Psychologist and feels the experience and training they have had to date has provided them with the skills to respond empathically and appropriately. Within placements on clinical training, and previous experience within both clinical, and research settings, the researcher has experienced such situations and has developed skills throughout these learning processes.

Confidentiality and risk: It will be explained to participants within the information sheet

that if they contact the researcher directly and indicate that they are at risk of being harmed, or that someone else is at risk of being harmed, then the researcher may have to break confidentiality. The specific circumstances in which this may occur are if a participant indicates, for example, that they are being harmed in some way by another person, that they are intending to end their own life, or that they are, or are intending to, harm another person. If any of these are indicated by participants who have directly contacted the researcher, then the researcher will follow safeguarding procedure. The researcher will first ask the participant for identifiable information, for example their name and address and where they are at that present moment. The researcher will, where appropriate, inform the person that they will have to break confidentiality due to their concern. The researcher will then contact the most appropriate person depending on the situation. For example, if the researcher has the person's identity or current location and feels the person, or another person, is at immediate risk, then the emergency services will be contacted first. The researcher will then immediately following contact the research supervisors for further guidance. If the participant does not indicate immediate risk, then the researcher will signpost the participant to relevant support services, for example Victim Support or the Samaritans, and will immediately following this contact the research supervisors for guidance. Both supervisors are Clinical Psychologists and are, therefore, experts in responding to distress. If the researcher referred a person to appropriate services but felt it appropriate to offer a follow up call to ensure the person has identified appropriate support then they will do so, however, the researcher will not expect to offer any additional calls and this will be made clear to participants in the participant information sheet and debriefing sheet. Furthermore, the researcher will not offer support following the end of the study in February 2016, however, the researcher would expect this to be enough time because any distress is likely to occur at the time of completing the survey which will end by December 2015. Again, this will be made clear in the information sheets.

Despite this, the majority of participants are expected not to directly contact the researcher. Due to the anonymous nature of online research the researcher will be unable to identify individual people who may indicate harm to self or others within the survey if they do not contact the researcher and provide identifiable information.

16. What potential risks may exist for the researcher(s)? Please indicate plans to address such

There is minimal risk to the researcher, as this research will not involve direct contact with research participants. Furthermore, the contact details provided on the study information material will pertain to work mobile/contact details, not the personal details of the researcher. If the researcher is contacted by participants who are experiencing distress, the researcher will reflect on these during supervision with the research supervisor, and take appropriate action as required (e.g. signpost the participant to appropriate sources of support).

17. 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 experience benefits from the opportunity to reflect on their experiences throughout the survey. Furthermore, participants will be asked if they wish to receive a summary of the findings of the research upon its completion. Participants will be asked to provide their email if they wish for this. This may help participants better appreciate the value of their participation and how it may help clinicians and researchers working with people who hear voices.

18. Details of any incentives/payments (including out-of-pocket expenses) made to participants:

Participants will be invited to take part in a raffle in which they will be entered in a draw to win a £50 Amazon voucher. To do this, participants will be asked to enter their email addresses and to tick a box indicating they wish to be entered in to the draw. The voucher will be sent to the winning participant via email.

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

Data Collection
Data will be gathered through Qualtrics, Lancaster University's online survey software, where there will be a battery of psychometric measures that participants will complete online. Each of the measures have been selected to assess the variables pertinent to the research question. An online survey was chosen as the method of data collection as it has the potential to reach a far wider sample of participants than face-to-face recruitment strategies. Consideration was taken when deciding the order of the measures within the online survey. Measures were ordered to ensure more difficult questions were asked within the middle of the survey so as to allow participants to get used to the questions before being asked these, as well as ensuring not to ask them last. By doing this, it is thought that any difficult material will not be at the forefront of participants' minds when ending the survey.
The researcher has asked non-psychologists to complete the measures on hardcopies to allow an estimation of the length of time it may take to complete the measures. The measures took 19, 21 and 25 minutes on 3 volunteers. We have allowed an extra 15 minutes and provided an estimate of 20-40 minutes to complete the survey.

Measures
The survey consists of 10 questionnaires in total, including the demographic questionnaire. Not all participants will complete all questionnaires. Two of the questionnaires are specifically designed to assess voices and so these will only be available for those who indicate that they hear voices in a screening question prior to the questionnaires. For those that don't indicate the presence of voices, these two questionnaires will not be available to

them and they will complete 8 of the measures including the demographic questionnaire. The full 10 questionnaires have been completed by volunteers who are not part of academia or psychology. The volunteers were asked to complete the questionnaires as if they had experiences of voices and dissociation and other experiences involved with psychosis. They were asked to do this so that they had to answer most of the questions and the follow up questions, and therefore had to respond to almost every question as if they had some experience. These volunteers took a maximum of 21 minutes to complete the full battery of questionnaires. Despite this, the researcher acknowledges that participants are likely to have a wide range of cognitive ability and therefore may take longer than 20 minutes. The researcher estimates that participants are unlikely to take longer than 45 minutes to complete the questionnaire.

The full battery of measures are as follows:
The survey will begin with a demographic section asking questions related to age, gender, ethnicity, nationality, marital status, level of education, employment status, past or present psychological difficulties or psychiatric diagnoses.
Attachment style will be measured using two questionnaires adding to 16 items in total. These are measures of adult attachment styles including secure, anxious, avoidant and disorganised attachment (Psychosis Attachment Measure: PAM: Berry, Wearden, Barraowclough & Liversidge, 2006; and the Relationship Questionnaire: RQ: Bartholomew & Horowitz, 1991).
PLEASE NOTE: The following 2 measures (HPSVQ and BAVQ-R) will only be available to, and therefore completed by, participants who hear voices
Experiences of voice hearing will be measured using The Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ: Van Lieshout & Goldberg, 2007)
   The revised Beliefs About Voices Questionnaire (BAVQ-R: Chadwick, Lees & Birchwood, 2000) 35 item self-report measure of patients' beliefs, emotions and behaviour about auditory hallucinations.

Experiences associated with psychosis will be measured using a 42-item measure that covers experiences including hearing voices, unusual beliefs and paranoid ideation (Community Assessment of Psychotic Experiences (CAPE: Stefanis, Hanssen, Smirnis, Avramopoulos, Evdokimidis, Stefanis, Verdoux & Van Os, 2002).
Experiences of trauma will be measured using a 28-item measure that asks questions related to adverse life experience, including exposure to non-interpersonal (e.g. natural disasters) and interpersonal (e.g. exposure to violence, abuse) life events (The Brief Betrayal Trauma Survey (BBTS: Goldberg & Freyd, 2006).
Dissociative experiences will be measured using a 28-item dissociation measure (Dissociative Experiences Scale Revised: DES-R: Dalenberg & Carlson, *in press*).
Covariates will be measured using measures of anxiety and depression (The Generalised Anxiety Disorder measure: GAD-7: Spitzer, Kroenke, Williams, Lowe, 2006; and the low mood subscale of the CAPE – as above). Fantasy proneness will be measured using The Creative Experiences Scale (CES: Merckelbach, Horselenberg & Muris, 2001).
Analysis

The data collected as part of the two surveys (student and psychosis samples) will be analysed separately. Parametric or non-parametric statistics will be chosen depending on the distribution of the data, and score transformations will be conducted where appropriate. Descriptive statistics will be used to outline the variables of interest in the two datasets as appropriate. Correlational and multiple regression analysis will be used to examine the strength of the associations between the key variables considered (trauma, dissociation, attachment styles and hearing voices).

The primary hypotheses will be examined using a series of causal meditational analyses, carried out either with the SPSS analytic procedures described by Hayes et al. (2013), or the Imai et al. (2010) non-parametric approach to causal mediation analysis using specific R-based packages. The models that will be tested are:

Disorganised attachment (PAM and RQ) as a mediator between trauma (BBTS) and dissociation (DES)

Disorganised attachment as a mediator of the relationship between trauma and hearing voices (i.e. as indexed by CAPS scores in the analogue sample, and HPSVQ in the psychosis sample)

Dissociation (DES) as a mediator of the relationship between trauma and hearing voices (i.e. CAPS scores in the analogue sample, HPSVQ in the clinical sample).

All models will control for appropriate covariates (e.g. comorbid affective and psychotic symptoms, fantasy-proneness). In addition to the above mediation analyses, we will explore the possibility of analysing these dataset using structural equation modelling (SEM). This analytic approach would be preferable, as it will allow testing for all the primary hypotheses within a single analysis. However, SEM requires relatively large participant samples, so this analytic approach will be only explored if a sufficient number of participants will be recruited in both surveys.

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20. Describe the involvement of users/service users in the design and conduct of your research. If you have not involved users/service users in developing your research protocol, please indicate this and provide a brief rationale/explanation.

The researcher has requested the support and input from a member of the Hearing Voices Network. This person will provide the researcher with advice of the content and conduct of the research throughout the recruitment process to ensure that it is conducted as sensitively as possible.

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21. What plan is in place for the storage of data (electronic, digital, paper, etc.)? Please ensure that your plans comply with the Data Protection Act 1998.

The anonymous data collected via Qualtrix will be downloaded and stored in the researcher's secure, online storage system on the University server. Following completion of the study, the data will be encrypted and securely transferred to the DClinPsy admin team. This data will be stored securely within the Division of Health Research in line with Lancaster University and the Data Protection Act (1998). Data will be stored in a password protected file on the university's secure server for ten years; if the decision is made to publish this

work, data will be stored for a further five years from the date of publication. Therefore, the maximum total time that the data may be stored us up to 15 years.

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22. Will audio or video recording take place?   ☐ no ☐ audio   ☐video

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

The final report will be written as part of a thesis and submitted to the university for examination. The report will also be submitted for publication in an academic journal and may be presented to university and research conferences. Those participants who requested a summary of the findings of the research will be sent a summary document via email. This summary will be of the main findings of the research and will not be data related to individual participants. The researcher will not know finding from each individual participant and so providing participants with such data is impossible.

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24. What particular ethical problems, 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 advice from the FHMREC?

An issue not yet addressed it with regard to the personal email addresses that participants will provide if they wish to have a summary of the findings sent to them, or if they wish to enter the prize draw following completion of the study. These email addresses will be kept securely in a password-protected file on the University's secure server. The researcher will send participants the emails from their university account, and will then securely erase the file.

Appendices

Appendix A: Full Online Survey

Survey Questions

Thank you for taking the time to complete this survey. If you would like to save the questions and continue at a later time you may do so. Please remember you can discontinue the survey at any time. If you have any queries please contact the principle investigator, Josie Davies (j.davies7@lancaster.ac.uk, or xxx xxxxxxxx). If you feel distressed by any of the questions, please contact one of the services I have provided the contact details of.

There are 9 sections to this survey. For each section the way you are asked to answer the questions is slightly different, so please read the instructions carefully at the start of each section. At the end of the survey you will be asked to enter your email address if you wish to enter in to the prize draw, or if you wish to receive a summary of the findings of the study when it is complete. This is optional and you do not have to provide your email address if you do not wish to.

About You	
Sex:	Male Female
Age	
Nationality:	
Ethnicity:	White - Caucasian Asian Black Middle-Eastern Mixed-race Other:
First Language:	English Other:
Are you married? IF NO: Were you ever?	married or living with someone as if married widowed divorced or annulled separated never married
How far did you get in school?	grade 6 or less GCSE (without doing A-levels) A-levels part university graduated from university
How many years did you spend at school all together?	
Are you working or studying at the moment?	Unemployed Working Studying
Have you ever seen someone for emotional or psychological difficulties? When was the first time you saw someone for emotional or psychological difficulties? What was it for?	

Have you ever been a patient in hospital for mental health difficulties? IF YES: What was that for? (How many times?)	4-15
Have you received input from a community mental health team or early intervention service? IF YES: What was it for?	
Do you have any psychiatric diagnoses? IF YES, what is it?	
Do you take any medication? (Write down the name of the medication and the dose).	

Survey Part 1

We all differ in how we relate to other people. This questionnaire lists different thoughts, feelings and ways of behaving in relationships with others.
Thinking generally about how you relate to other key people in your life, **please use a tick to show how much each statement is like you**. Key people could include family members, friends, partner or mental health workers.
There are no right or wrong answers

	Not at all	**A little**	**Quite a bit**	**Very much**
1. I prefer not to let other people know my 'true' thoughts and feelings.	(..)	(..)	(..)	(..)
2. I find it easy to depend on other people for support with problems or difficult situations.	(..)	(..)	(..)	(..)
3. I tend to get upset, anxious or angry if other people are not there when I need them.	(..)	(..)	(..)	(..)
4. I usually discuss my problems and concerns with other people.	(..)	(..)	(..)	(..)
5. I worry that key people in my life won't be around in the future.	(..)	(..)	(..)	(..)
6. I ask other people to reassure me that they care about me.	(..)	(..)	(..)	(..)
7. If other people disapprove of something I do, I get very upset.	(..)	(..)	(..)	(..)
8. I find it difficult to accept help from other people when I have problems or difficulties.	(..)	(..)	(..)	(..)
9. It helps to turn to other people when I'm stressed.	(..)	(..)	(..)	(..)
10. I worry that if other people get to know me better, they won't like me.	(..)	(..)	(..)	(..)

	Not at all	A little	Quite a bit	Very much
11. When I'm feeling stressed, I prefer being on my own to being in the company of other people.	(..)	(..)	(..)	(..)
12. I worry a lot about my relationships with other people.	(..)	(..)	(..)	(..)
13. I try to cope with stressful situations on my own.	(..)	(..)	(..)	(..)
14. I worry that if I displease other people, they won't want to know me anymore.	(..)	(..)	(..)	(..)
15. I worry about having to cope with problems and difficult situations on my own.	(..)	(..)	(..)	(..)
16. I feel uncomfortable when other people want to get to know me better.	(..)	(..)	(..)	(..)

In answering the previous questions, what relationships were you thinking about?

_____

(E.g. relationship with mother, father, sister, brother, husband, wife, friend, romantic partner, mental health workers etc)

Survey Part 2

Please tick only ONE statement that best describes you.

It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me. ☐

I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others. ☐

I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them. ☐

I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me. ☐

Please rate each of the following according to the *extent* to which you think each description corresponds to you.

It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

1	2	3	4	5	6	7
Not at all like me			Somewhat like me			Very much like me

I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

1	2	3	4	5	6	7
Not at all like me			Somewhat like me			Very much like me

I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

1	2	3	4	5	6	7
Not at all like me			Somewhat like me			Very much like me

I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

1	2	3	4	5	6	7
Not at all like me			Somewhat like me			Very much like me

Survey part 3

Sometimes people hear voices, whispers or noises that other people can't hear. Have you ever had this experience?	YES NO
If you have ever had this experience roughly how long ago was this?	1. In the past week 2. In the past month 3. In the past year 4. Over a year ago

Please tick the ONE box that best describes your experience of voices DURING THE PAST WEEK, including today.

How frequently did you hear a voice or voices?

No voices	Less than once a day	Once or twice a day	Several times a day	All of the time/Constantly

How *bad* are the things the voices say to you?

No voices saying bad things	Not that bad	Fairly bad	Very bad	Horrible

How *loud* are the voices?

Voices not present	Very quiet (like whispering)	Average (same as my own voice)	Fairly loud	Very loud (yelling or shouting)

How *long* do the voices usually last?

Voices not present	A few seconds to 1 minute	A few minutes	More than 10 minutes but less than an hour	Longer than 1 hour/they just seem to persist

How much do the voices *interfere* with your daily activities?

No interference	A little bit	Moderately	Quite a bit	Extremely interfering

How *distressing* are the voices that you hear?

No voices are distressing me	A little bit	Moderately	Quite a bit	Extremely distressing

How *bad* (worthless/useless) do the voices make you *feel about yourself*?

No voices make me feel bad	A little bit	Fairly bad	Very bad	Extremely bad (as bad as I can feel)

How *clearly* do you hear the voices?

Voices not present	Very mumbled	Fairly mumbled	Fairly clear	Very clear voices

How often do you **DO** what the voices say?

No voices telling me what to do	Rarely	Sometimes	Often	Always

In what *part of the day* do you hear the voices most often?[a]

Right when I wake up	Morning	Afternoon	Evening	Just before bed	The voices are equally as likely at all times of the day

What kind of *social situations* are you in most often when your voices start?

When I am alone	When I am with a few people (like in 'group')	When I am around a lot of people (like in a mall or on a busy street)	No situation in particular/they occur equally in all social situations

12. **Where** do the voices come from?[a]

From Inside my head	From Outside my head	From both Inside and Outside

13. Would you say the last week is like a *typical* week of your hearing voices?[a]

Yes	No (Please explain below)

Survey part 4
There are many people who hear voices. It would help us to find out how you are feeling about your voices by completing this questionnaire. Please read each statement and tick the box which best describes the way you have been feeling in the past week.
If you hear more than one voice, please complete the form for the voice which is dominant.

(Each item will have a choice of 'disagree', 'unsure', 'slightly agree', 'strongly agree'

1 My voice is punishing me for something I have done
2 My voice wants to help me
3 My voice is very powerful
4 My voice is persecuting me for no good reason
5 My voice wants to protect me
6 My voice seems to know everything about me
7 My voice is evil
8 My voice is helping to keep me sane
9 My voice makes me do things I really don't want to do
10 My voice wants to harm me
11 My voice is helping me to develop my special powers or abilities
12 I cannot control my voices
13 My voice wants me to do bad things
14 My voice is helping me to achieve my goal in life
15 My voice will harm or kill me if I disobey or resist it
16 My voice is trying to corrupt or destroy me
17 I am grateful for my voice
18 My voice rules my life
19 My voice reassures me
20 My voice frightens me
21 My voice makes me happy
22 My voice makes me feel down
23 My voice makes me feel angry
24 My voice makes me feel calm
25 My voice makes me feel anxious
26 My voice makes me feel confident

When I hear my voice, usually ...
27 I tell it to leave me alone
28 I try and take my mind off it
29 I try and stop it
30 I do things to prevent it talking
31 I am reluctant to obey it
32 I listen to it because I want to
33 I willingly follow what my voice tells me to do
34 I have done things to start to get in contact with my voice
35 I seek the advice of my voice

Survey Part 5

1.	Do you ever feel sad? (please tick)

Never 	☐	Sometimes	☐	Often	☐	Nearly always	☐

	If you ticked 'never', please go to question 2

	If you ticked 'sometimes', 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐	A bit distressed ☐	Quite distressed ☐	Very distressed ☐

2.	Do you ever feel as if people seem to drop hints about you or say things with a double meaning? (please tick)

Never 	☐	Sometimes	☐	Often	☐	Nearly always	☐

	If you ticked 'never', please go to question 3

	If you ticked 'sometimes', 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐	A bit distressed ☐	Quite distressed ☐	Very distressed ☐

3.	Do you ever feel that you are not a very animated person? (please tick)

Never 	☐	Sometimes	☐	Often	☐	Nearly always	☐

	 If you ticked 'never', please go to question 4

	If you ticked 'sometimes', 'often' or 'nearly always'please indicate how distressed you are by this experience: (please tick)

Not distressed ☐	A bit distressed ☐	Quite distressed ☐	Very distressed ☐

 4.	Do you ever feel that you are not much of a talker when you are conversing with other people? (please tick)

Never 	☐	Sometimes ☐	Often ☐	Nearly always 	☐

	If you ticked 'never' please go to question 5

	If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐	A bit distressed ☐	Quite distressed ☐	Very distressed ☐

5.   Do you ever feel as if things in magazines or on TV were written especially for you? (please tick)

Never   ☐   Sometimes   ☐   Often   ☐   Nearly always ☐

     If you ticked 'never', please go to question 6

     If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐   A bit distressed ☐   Quite distressed ☐   Very distressed ☐

6.   Do you ever feel as if some people are not what they seem to be? (please tick)

Never   ☐   Sometimes   ☐   Often   ☐   Nearly always ☐

     If you ticked 'never', please go to question 7

     If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐   A bit distressed ☐   Quite distressed ☐   Very distressed ☐

7.   Do you ever feel as if you are being persecuted in some way? (please tick)

 Never   ☐   Sometimes   ☐   Often ☐   Nearly always ☐

     If you ticked 'never', please go to question 8

     If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐   A bit distressed ☐   Quite distressed ☐   Very distressed ☐

8.   Do you ever feel that you experience few or no emotions at important events? (please tick)

 Never   Sometimes   Often   Nearly always

     If you ticked 'never', please go to question 9

     If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed ☐   A bit distressed ☐   Quite distressed ☐   Very distressed ☐

9.   Do you ever feel pessimistic about everything? (please tick)

Never   Sometimes   Often   Nearly always

   If you ticked 'never', please go to question 10

   If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed
   you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

10.   Do you ever feel as if there is a conspiracy against you? (please tick)

Never   Sometimes   Often   Nearly always

   If you ticked 'never', please go to question 11

   If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed
   you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

11.   Do you ever feel as if you are destined to be someone very important? (please tick)

Never   Sometimes   Often   Nearly always

   If you ticked 'never', please go to question 12

   If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed
   you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

12.   Do you ever feel as if there is no future for you? (please tick)

Never   Sometimes   Often   Nearly always

   If you ticked 'never', please go to question 13

   If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed
   you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

13.   Do you ever feel that you are a very special or unusual person? (please tick)

 Never   Sometimes   Often   Nearly always

      If you ticked 'never', please go to question 14
      If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

14.   Do you ever feel as if you do not want to live anymore? (please tick)

 Never   Sometimes   Often   Nearly always

      If you ticked 'never', please go to question 15

      If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

15.   Do you ever think that people can communicate telepathically? (please tick)

 Never   Sometimes   Often   Nearly always

      If you ticked 'never', please go to question 16

      If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

16.   Do you ever feel that you have no interest to be with other people? (please tick)

 Never   Sometimes   Often   Nearly always

      If you ticked 'never', please go to question 17

      If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

17.   Do you ever feel as if electrical devices such as computers can influence the way you think? (please tick)

 Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 18

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

18.   Do you ever feel that you are lacking in motivation to do things? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 19

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

19.   Do you ever cry about nothing? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 20

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

20.   Do you believe in the power of witchcraft, voodoo or the occult? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 21

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

21.   Do you ever feel that you are lacking in energy? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 22

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

22.   Do you ever feel that people look at you oddly because of your appearance? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 23

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

23.   Do you ever feel that your mind is empty? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 24

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

24.   Do you ever feel as if the thoughts in your head are being taken away from you? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 25

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

25.   Do you ever feel that you are spending all your days doing nothing? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 26

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

26.   Do you ever feel as if the thoughts in your head are not your own? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 27

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

27.   Do you ever feel that your feelings are lacking in intensity? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never' , please go to question 28

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

28.   Have your thoughts ever been so vivid that you were worried other people would hear them? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 29

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

29.   Do you ever feel that you are lacking in spontaneity? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 30

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

30.   Do you ever hear your own thoughts being echoed back to you? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 31

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

31.   Do you ever feel as if you are under the control of some force or power other than yourself? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 32

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

32.   Do you ever feel that your emotions are blunted? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 33

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

33.   Do you ever hear voices when you are alone? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 34

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

34.   Do you ever hear voices talking to each other when you are alone? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 35

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed
35.   Do you ever feel that you are neglecting your appearance or personal hygiene? (please tick)

 Never   Sometimes   Often   Nearly always

        If you ticked 'never', please go to question 36

        If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

36.   Do you ever feel that you can never get things done? (please tick)

 Never   Sometimes   Often   Nearly always

        If you ticked 'never', please go to question 37

        If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

37.   Do you ever feel that you have only few hobbies or interests?(please tick)

 Never   Sometimes   Often   Nearly always

        If you ticked 'never', please go to question 38

        If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

38.   Do you ever feel guilty? (please tick)

 Never   Sometimes   Often   Nearly always

        If you ticked 'never', please go to question 39

        If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

 Not distressed   A bit distressed   Quite distressed   Very distressed

39.   Do you ever feel like a failure? (please tick)

 Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 40

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

40.   Do you ever feel tense? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 41

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

41.   Do you ever feel as if a double has taken the place of a family member, friend or acquaintance? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', please go to question 42

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

42.   Do you ever see objects, people or animals that other people cannot see? (please tick)

Never   Sometimes   Often   Nearly always

If you ticked 'never', you are now finished.

If you ticked 'sometimes' , 'often' or 'nearly always' please indicate how distressed you are by this experience: (please tick)

Not distressed   A bit distressed   Quite distressed   Very distressed

Survey part 6

Have each of these events happened to you, and if so, how often?
For each item please mark one response in the columns under 'before 18' <u>AND</u>
one mark in the columns '18 or older'.

	Before 18			18 or older		
	Never	One or two times	More than that	Never	One or two times	More than that

Been in a major earthquake, fire, flood, hurricane, or tornado that resulted in significant loss of personal property, serious injury to yourself or a significant other, the death of a significant other, or the fear of your own death.

Been in a major automobile, boat, motorcycle, plane, train, or industrial accident that resulted in similar consequences.

Witnessed someone with whom you were very close (such as a parent, brother or sister, caretaker, or intimate partner) committing suicide, being killed, or being injured by another person so severely as to result in marks, bruises, burns, blood, or broken bones. This might include a close friend in combat.

Witnessed someone with whom you were not so close undergoing a similar kind of traumatic event.

Witnessed someone with whom you were very close deliberately attack another family member so severely as to result in marks, bruises, blood, broken bones, or broken teeth.

You were deliberately attacked that severely by someone with whom you were very close.

You were deliberately attacked that severely by someone with whom you were not close.

You were made to have some form of sexual contact, such as touching or penetration, by someone with whom you were very close (such as a parent or lover).

You were made to have such sexual contact by someone with whom you were not close

You were emotionally or psychologically mistreated over a significant period of time by someone with whom you were very close (such as a parent or lover).

Experienced the death of one of your own children.

Experienced a seriously traumatic event not already covered in any of these questions.

Survey part 7

This questionnaire consists of twenty-eight questions about experiences that you may have in your daily life. We are interested in *how often you have these experiences*. It is important, however, that your answers show how often these experiences happen to you when you are <u>not</u> under the influence of alcohol or drugs.

Fill in the answer that shows how much this happens to you.

a. Never
b. It has happened once or twice
c. No more than once a year
d. Once every few months
e. At least once a month
f. At least once a week

_____ 1. Some people have the experience of driving a car and suddenly realizing that they don't remember what has happened during all or part of the trip.

_____ 2. Some people find sometimes that they are listening to someone talk and they suddenly realize that they did not hear part or all of what has just been said.

_____ 3. Some people have the experience of finding themselves in a place and they have no idea how they got there.

_____ 4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on.

_____ 5. Some people have the experience of finding new things among their belongings that they do not remember buying.

_____ 6. Some people sometimes find that they are approached by people that they do not know who call them by name or insist that they have met before

_____ 7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person.

_____ 8. Some people are told that they sometimes do not recognize friends or family members.

_____ 9. Some people find that they have no memory for some important events in their lives, for example a wedding or graduation

_____ 10. Some people had the experience of being accused of lying when they do not think that they have lied.

_____ 11. Some people have the experience of looking in a mirror and not recognizing themselves.

_____ 12. Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real.

_____ 13. Some people sometimes have the experience of feeling that their body does not seem to belong to them.

_____ 14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event.

_____ 15. Some people have the experience of not being sure if things that they remember happening really did happen or whether they just dreamed them

_____ 16. Some people have the experience of being in a familiar place and finding it strange and unfamiliar.

_____ 17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them.

_____ 18. Some people find that they become so involved in fantasy or daydream that it feels as though it were really happening to them.

_____ 19. Some people find that they are sometimes able to ignore pain.

_____ 20. Some people find that they sometimes sit staring off into space thinking of another event and are not aware of the passage of time.

_____ 21. Some people sometimes find that when they are alone they sometimes talk out loud to themselves.

_____ 22. Some people find that in one situation they may act so differently compared to another situation that they feel almost as if they were two different people.

_____ 23. Some people sometimes feel that in some situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them, for example, sports or social situations, etc.

_____ 24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that things, for example, whether they have just mailed a letter or just thought about mailing it.

_____ 25. Some people sometimes find evidence that they have done things that they do not remember doing.

_____ 26. Some people sometimes find writings, drawing, or notes among their belongings that they must have done but cannot remember doing.

_____ 27. Some people sometimes find that they hear voices in their head that tell them to do things or comment on what they are doing.

_____ 28. Some people sometimes feel as if they are looking at the world through a fog so that people or objects appear far away or unclear.

Survey Part 8

Over the last 2 weeks, how often have you been bothered by the following problems?
Please tick the box to best describe how often.

	Not at all	Several Days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge				
Not being able to stop or control worrying				
Worrying too much about different things				
Trouble relaxing				
Being so restless that it is hard to sit still				
Becoming easily annoyed or irritable				
Feeling afraid as if something awful might happen				

<u>Survey Part 9</u>

Please answer **yes or no** for the final 25 items to let us know if you have experienced the following.

As a child I thought that the dolls, teddy bears, and stuffed animals that I played with were living creatures.
As a child I strongly believed in the existence of dwarves, elves and other fairy tale creatures.
As a child I had my own make believe friend or animal.
As a child I would very easily identify with the main character of a story and/or movie.
As a child I often had the feeling that I was someone else (e.g. a princess, an orphan, etc.).
As a child I was encouraged by adults (parents, grandparents, brothers, sisters) to fully indulge myself in my fantasies or daydreams.
As a child I often felt lonely.
As a child I devoted my time to playing a musical instrument, dancing, acting and/or drawing.
I spend more that half of the day (daytime) daydreaming or fantasising.
Many of my friends and/or relatives do not know that I have such detailed fantasies.
Many of my fantasies have a realistic intensity.
Many of my fantasies are often just as lively as a good movie.
I often confuse fantasies with real memories.
I am never bored because I start fantasising when things get boring.
Sometimes I act as if I am someone else and I completely identify myself with that role.
When I recall my childhood, I have very vivid and lively memories
I can recall many occurrences before the age of three.
When I perceive violence on television, I get so in to it that I get really upset.
When I think of something cold I actually get cold.
When I imagine I have eaten rotten food I really get nauseous.
I often have the feeling that I can predict things that are bound to happen in the future.
I often have the experience of thinking of someone and soon after that particular person calls or shows up.
I sometimes feel that I have had an outer body experience.
When I sing or write something, I sometimes have the feeling that someone or something outside myself directs me.
During my life I have had intense religious experiences, which influenced me in a very strong manner.

Appendix B: Ethical Approval Letter

Research and Enterprise
Services Division

Lancaster
University

Applicant: Josie Davies
Supervisor: Filippo Varese and Jane Simpson
Department: DHR
UREC Ref: RS2014/84

18 June 2015

Dear Josie, Filippo and Jane,

Re: The role of attachment in the relationship between trauma, dissociation and hearing voices.

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 University Research Ethics Committee (UREC), 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 (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 the Research Ethics Officer, Debbie Knight (01542 592605 ethics@lancaster.ac.uk) if you have any queries or require further information.

Yours sincerely,

S.C. Taylor

Sarah Taylor
Secretary, University Research Ethics Committee

Cc Fiona Aiken, University Secretary, Professor Roger Pickup (Chair, FHMREC); Prof Stephen Decent (Chair, UREC).

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