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Doctoral Thesis

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Word Count

	Main text	Appendices (inc. tables, references, abstracts and title pages)	Total
Thesis Abstract	296	0	296
Literature Review	7,757	9,157	16,914
Research Paper	7,836	8,079	15,915
Critical Appraisal	2,847	700	3,547
Ethics Section	3,984	5,831	9,815
Total	22,720	23,767	46,487

Thesis Abstract

Traumatic experiences have been shown to have a significant impact upon psychological wellbeing. However, this impact varies between individuals and it appears that certain trauma types and characteristics are more damaging than others. Therefore, developing a better understanding of the specific characteristics responsible for this differential impact would further the field of trauma research and improve interventions for traumagenic mental health difficulties. Moreover, particular negative emotional experiences have also been implicated in the development and maintenance of emotional and psychological distress following traumatic exposure. In particular, negative self-directed emotions, for example, disgust and shame have been shown to play a role across a range of mental health problems. The first section of this thesis describes a systematic literature review that employed narrative synthesis to examine quantitative evidence regarding the differential impact of betrayal trauma level on mental health outcomes. The review's findings were mixed, however, there was preliminary evidence that high betrayal trauma events lead to more symptom severity than medium or low betrayal traumas. The second section of the thesis is an empirical research paper. The paper reports findings from a study that used mediation analyses to examine the role of self-disgust in the relationship between childhood trauma and psychosis. The analyses also controlled for other relevant self-directed emotions to establish whether there was evidence for the discrete impact of self-disgust over and above related constructs. The study found that self-disgust significantly mediated the relationship between exposure to trauma in childhood and later onset of psychosis. Furthermore, self-disgust mediated this relationship despite the inclusion of self-esteem, external shame and general disgust as covariates. The third section of the thesis is a critical appraisal of the systematic review and empirical study and provides reflections on my experience of the research process as a whole.

Declaration

This thesis was completed between September 2016 and April 2018, in partial fulfilment of the Lancaster University Doctorate in Clinical Psychology. The work presented here is my own, except where due reference has been made. This thesis has not been submitted for the award of a higher degree elsewhere. The word length of the thesis conforms to the permitted maximum.

Signature:

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Date: 27/04/2018

Acknowledgements

In memory of J.W. for his love of all things Left and for believing in a *project*.

First, I would like to thank my research supervisors, Dr Jane Simpson and Dr Filippo Varese because without their continued guidance and expertise this project simply would not have been possible. I also appreciate the patience they have shown me along the way despite the ups and downs. I would also like to thank Dr Philip Powell for his invaluable contributions to the project and for being so giving of his time and knowledge.

There have been many sources of support that I have drawn upon throughout the thesis process, some internal to the Doctorate and others not. In terms of the former, I want to thank my friend and colleague, Selane who always knew exactly what I needed to hear when it counted most. Of course, the unshakeable love, support and encouragement provided by my family and friends has been necessary beyond words. At many times during the thesis process it was the thought of you all that kept me going. In particular, I want to say special thanks to my parents, Keith and Tracey and sister, Elizabeth for keeping me in touch with what really matters when all is said and done.

Contents

Thesis Section 1: Systematic Literature Review

Betrayal Trauma and Mental Health Outcomes: A Review of Evidence from the Betrayal Trauma Inventory and Brief Betrayal Trauma Survey

Prepared for submission to Psychological Trauma: Theory, Research, Practice and Policy

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Abstract

High betrayal traumas are characterised by greater levels of relational closeness, trust and dependency between the perpetrator and victim (e.g., childhood sexual abuse by a parent or caregiver). Indeed, they have been shown to have a more negative impact on mental health than medium betrayal traumas (e.g., childhood sexual abuse by a stranger) and low betrayal traumas (e.g., being involved in a car accident/natural disaster). The present review aimed to provide a synthesis of current evidence pertaining to the differential impact of high, medium and low betrayal traumas on mental health outcomes and their relevant psychological correlates. A systematic search of quantitative studies was conducted using Medline, CINAHL, PsychInfo and Web of Science. Twenty-eight studies were eligible for inclusion in the review. All of the studies were cross-sectional and included 22 correlational study designs and six between-group designs. Overall, the findings were mixed, with a number of studies finding a differential impact of betrayal trauma level on mental health outcomes. Specifically, high betrayal traumas were associated with greater symptom severity across a range of outcomes. Nevertheless, a proportion of the eligible studies reported no differential impact of betrayal trauma level on mental health. Moreover, there were a number of methodological shortcomings across all of the studies. The research and clinical implications of the review's findings are outlined.

Keywords: betrayal trauma, mental health outcomes, psychological correlates

Betrayal Trauma and Mental Health Outcomes: A Review of Evidence from the Betrayal Trauma Inventory and Brief Betrayal Trauma Survey

The detrimental impact of trauma on wellbeing is now firmly established (Sweeney, Clement, Filson, & Kennedy, 2016). Several studies have demonstrated an association between early exposure to traumatic life events and a range of later mental health difficulties including, among others, depression, anxiety and psychosis (Bentall et al., 2014; Suliman et al., 2009; Varese et al., 2012). However, it has been argued that not all types of trauma events impact mental health to the same degree (e.g., Cloitre et al., 2009; Gagnon, Lee, & DePrince, 2017). Therefore, identifying the trauma event characteristics responsible for this differential impact is a key task for trauma researchers. Indeed, contemporary research has started to reveal the nuanced and complex nature of the relationship between trauma event characteristics and wellbeing. For example, research has indicated that cumulative trauma increases the survivor's risk for experiencing mental health difficulties more than single trauma events (Cloitre et al., 2009). Indeed, this increase follows a dose-response pattern, therefore, the risk of mental health difficulties shows a proportionate increase in line with the number of trauma events experienced (e.g., Varese et al., 2012). Moreover, several other trauma event characteristics have been shown to be associated with an increased risk of poor mental health outcomes. For example, trauma events defined as complex, that is those involving multiple victimisations and high levels of social betrayal, are believed to present the greatest risk to the affected individual's mental health (Van Der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). This type of trauma predominantly takes place within an interpersonal context in which the perpetrator has a close relationship to the targeted individual and/or the individual is highly dependent on the perpetrator for their survival, such as childhood sexual abuse (CSA) by a caregiver (Freyd, DePrince, & Zurbriggen, 2001). Moreover, abusive relationships that are chronic, especially in childhood, and involve

frequent victimisation have been found to be the most damaging to an individual's mental health due to their impact on multiple affective and interpersonal domains (van der Kolk, 2007).

Betrayal trauma theory, BTT hereafter, has offered a theoretical rationale for the research findings discussed above. Within the context of BTT, betrayal trauma has been defined specifically as occurring "when the people…on which a person depends for survival significantly violate that person' s trust or well-being: Childhood physical, emotional, or sexual abuse perpetrated by a caregiver are examples of betrayal trauma" (Freyd, 2008, p. 76). The theory was developed by Jennifer Freyd at the University of Oregon to explain certain dissociative responses to particularly complex and severe traumas (Freyd, 1994, 1996). Adopting an evolutionary, attachment-informed framework, BTT suggests that being highly attuned to betrayal is important within social relationships. This is because it allows people to make informed choices about who to make future social agreements with. However, according to BTT, there are certain scenarios, such as when abuse takes place and escape is not a viable option, in which recognition of betrayal is subverted or blocked by the affected individual. From this perspective, when a traumatic event involves a high level of betrayal, for example, abuse perpetrated by someone close to the individual (e.g., a parent/caregiver), and the relationship is perceived to be necessary for survival, then they are likely to develop *betrayal blindness*, a type of knowledge isolation characterised by dissociative amnesia for the traumatic event/s (Freyd, 1996). According to BTT, in such circumstances *betrayal blindness* is adaptive because it enables the affected individual to remain in contact with the perpetrator despite the abusive nature of the relationship. This is because interpersonal attachment to the abuser is perceived to be vital for their survival, development and thriving.

However, more recently researchers have started to consider the impact of betrayal trauma across a range of mental health outcomes and not just in relation to dissociative responses. For example, studies have investigated its relationship with emotion regulation (Goldsmith, Chesney, Heath, & Barlow, 2013), general PTSD symptoms, depression and anxiety (Allard, 2009), relational health within the context of borderline personality characteristics (Belford, Kaehler, & Birrell, 2012) and symptoms of psychosis (Stain et al., 2014). Therefore, despite betrayal trauma having been initially developed in the context of BTT to explain dissociation and forgetting of trauma memories, the construct has been used more generally to indicate a range of traumatic exposures that are more complex or severe than those captured by general trauma assessment instruments.

Despite research findings suggesting an association between betrayal trauma and a variety of mental health outcomes, to date there has not been a comprehensive evidence synthesis that has attempted to summarise this literature. Indeed, such a review has been hindered by the heterogeneous way betrayal trauma has been assessed and operationalised within the literature. Although previous studies have used closeness to perpetrator (e.g. Chu & Deprince, 2006; Edwards, Freyd, Dube, Anda, & Felitti, 2012), and the victim's dependency on them, to indicate betrayal trauma (see, for example, Freyd, 2008), inconsistencies exist in the empirical literature with regard to the application of these parameters. For instance, some researchers have considered interpersonal trauma events (e.g., assault) to represent high betrayal trauma and non-interpersonal trauma events (e.g., car accident) to represent low betrayal trauma (see, for example, Stain et al., 2014). However, given the definition of betrayal trauma from BTT, it is possible for interpersonal trauma events to differ in level of betrayal: the same type of interpersonal event, for instance and assault, would be deemed to have differential levels of betrayal trauma depending on relational closeness and/or dependency between the victim and perpetrator. If relational

closeness and/or dependency on the perpetrator is greater (e.g., scenarios where the perpetrator is a parent, caregiver or partner), then the event would be considered high in betrayal trauma. In contrast, if relational closeness and/or dependency was less prominent (e.g., an assault perpetrated by a stranger), then the event would be considered lower in betrayal trauma. Researchers in the area have created measurement tools that specifically assess for betrayal trauma exposure, as defined by BTT, using the parameters of closeness to perpetrator and perceived level of dependency. Given this, the following section will discuss the two betrayal trauma measurement tools that are most closely related to BTT.

Initially, the Betrayal Trauma Inventory (BTI; Freyd et al., 2001) was developed to measure predictions from BTT about the association between dissociative amnesia and betrayal trauma by a caregiver. The BTI includes items related to physical, sexual and emotional childhood abuse (prior to age 16) as well as potentially traumatic events across the lifespan (e.g., adult interpersonal violence, natural disasters), with these subscales being considered equivalent within the measure (Freyd et al., 2001). If a participant endorses an item related to childhood abuse they are asked to complete a number of follow-up questions. One of these relates to relational closeness and dependency on the perpetrator. An affirmative answer means that the event is categorised as high in betrayal trauma, while a negative answer is taken to indicate low betrayal trauma.

Goldberg and Freyd (2006) subsequently developed the Brief Betrayal Trauma Survey (BBTS). The BBTS was adapted from the BTI but requires less time to administer and offers a more succinct means of measuring betrayal trauma (Goldberg & Freyd, 2006). The BBTS includes 12 items and participants report on exposure to the respective events before age 18 and after. Of note, the majority of studies using the BBTS have focused on traumatic experiences that took place before the age of 18. In addition, the wording of the BBTS items allows for the assessment of separate betrayal trauma levels, for example, by

explicitly asking about relational closeness to the perpetrator. Moreover, the fact that the BBTS asks respondents about a range of different events (e.g., interpersonal/non-interpersonal trauma) confers the advantage of being able to assess betrayal trauma exposure across a range of trauma types. Moreover, a further point of contrast between the BBTS and BTI is that the former defines childhood trauma as adverse events occurring before the age of 18, whereas the BTI defines childhood trauma as adverse events before the age of 16. Nevertheless, given that both scales measure the same abuse types, it is argued here that there is sufficient consistency between them to mean that aggregation of their findings is a valid proposition.

Overall, this systematic review aims to examine the differential impact of betrayal trauma level on mental health outcomes. Therefore, ensuring homogeneity in how betrayal trauma was operationalised across eligible studies included in this review is of paramount importance. Given this, the review will focus only on studies that used the BBTS (Goldberg & Freyd, 2006) and/or BTI (Freyd et al., 2001). This was decided for two reasons: first, both measures were developed in the context of BTT specifically and therefore construct validity of betrayal trauma between the studies that used them is more likely. Second, despite the fact that a number of other trauma measures produce betrayal subscale scores, such as the Trauma Appraisal Questionnaire (TAQ; DePrince, Zurbriggen, Chu, & Smart, 2010), the BBTS/BTI are unique in that they include separate items for events that involve abuse by someone close, abuse by someone not close and non-interpersonal trauma events, allowing for the stratification of betrayal trauma level. Consequently, they offer the most valid and direct way to answer the research question posed in this review, namely: do high betrayal trauma events have a greater impact on mental health outcomes and psychological correlates, than medium and/or low betrayal trauma events?

Method

This systematic review was completed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009).

Search Procedure

Electronic database searches were carried out between up to and including June 2017 to locate studies that were eligible for inclusion in the review. Specifically, the databases Medline, CINAHL, PsychINFO and Web of Science were used. No restrictions were applied to the any of the database searches. The search term used in the electronic databases was *betrayal trauma.* This was decided upon by the reviewer due to the limited research studies that have been carried out in this topic area. For example, preliminary searches using a more specific set of search terms proved to be overly conservative and led to relevant studies being missed. Moreover, no previous systematic reviews on this topic area were identified, therefore, the option to develop search terms based on pre-existing search strategies was not available. The electronic database search was supplemented by other manual search strategies including forward and backward citation tracking as well as focused searches in key journals that had published studies eligible for inclusion in the review (i.e., Psychological Trauma: Theory, Research, Practice and Policy; Journal of Trauma & Dissociation; Journal of Traumatic Stress). However, it should be noted that dissertation projects investigating betrayal trauma were not included in the review. Instead, a published version of the study was located and included in the analysis where one was available. Eligibility for inclusion was determined across two stages: 1) title and abstract screening; 2) full-text screening. The PRISMA flowchart outlining the systematic search and eligibility screening process is displayed in Figure 1.

[INSERT FIGURE 1]

Inclusion and Exclusion Criteria

Studies that met the following criteria were included in the review: 1) used either the BTI (Freyd et al., 2001) and/or BBTS (Goldberg & Freyd, 2006) to categorise level of BT into three scales (high, medium and low betrayal) or two scales (high/more betrayal and low/less betrayal) according to scoring systems for these measures proposed in previous studies (e.g., Freyd, Klest, & Allard, 2005; Kaehler & Freyd, 2009) 2) used a validated diagnostic or dimensional measure of mental health outcomes and/or psychological correlates. Moreover, given that research investigating exposure to betrayal trauma, as defined by BTT, is limited, it was decided by the reviewer to keep the outcomes of interest as broad as possible, so as not to restrict the review by focusing on a specific type of mental health outcome.

Studies that met the following criteria were excluded from the review: 1) investigated the impact of BT on the mental health outcomes of a non-victim (i.e. an individual not directly impacted by the BT incident/s, as in cases of intergenerational effect of BT upon mental health outcomes of infants and children). 2) Intervention study designs that did not include a treatment as usual (TAU) arm. 3) investigated the impact of *institutional* betrayal trauma (a related but distinct construct developed in the context of BTT, involving institutional action/s [or inaction/s] that worsen the impact of a traumatic event, see Smith and Freyd, 2014 for further discussion) on mental health outcomes. 4) dissertation projects and/or unpublished reports or those that were not peer-reviewed.

Quality Assessment

Studies deemed eligible for inclusion were quality assessed using the Effective Public Health Practice Project tool (EPHPP; Thomas, 2003). The EPHPP assesses quality in

observational, cross-sectional, longitudinal studies and has shown good inter-rater reliability and validity (Thomas, Ciliska, Dobbins, & Micucci, 2004). The tool includes sections on selection bias, study design, blinding, data collection and attrition rates, and each study was rated as 'weak', 'moderate' or 'strong' based on EPHPP guidelines (see Appendix for full quality assessment tool). Following this, each study was given an overall quality rating. For instance, studies were given a rating of 'strong' if four to six of the assessment criteria were rated as 'strong' and no ratings of 'weak' were given. Moreover, studies were given a rating of 'moderate' if fewer than four of the criteria were rated 'strong' and a maximum of one rated 'weak'; Finally, studies were given a rating of 'weak' if they received two or more 'weak' ratings on the criteria specified by in the EPHPP. It should be noted that no studies were excluded from the review based on their quality rating. However, the methodological quality of different reports informed the interpretation and weighting of the findings extracted from the primary studies.

Data Extraction

A custom data extraction tool was used to ensure that data from the studies included in the review was extracted in a systematic way. The data extracted for analysis were the sample characteristics (i.e. sample size, participant gender percentage, the population from which the sample was drawn and the country of recruitment); a description of the research measures used to assess level of betrayal trauma and mental health outcomes; information about the statistical analysis adopted to investigate the differential impact of betrayal trauma level on mental health outcomes; and a narrative description of the primary findings that were relevant to the research question examined by the present review.

Data Synthesis

The characteristics and key findings extracted of the studies included in the review were tabulated. The studies were then grouped based on the mental health outcomes they assessed (e.g., post-traumatic responses, including dissociation, affective conditions, including anxiety and depression, personality problems, including borderline traits). Following this, a narrative synthesis of the findings was conducted to summarise the evidence available from the eligible studies. Moreover, narrative analysis was chosen as the method of data synthesis because alternative synthesis approaches, such as meta-analysis, were not feasible due to extreme outcome heterogeneity.

Results

Table 1 gives an overview of the study characteristics and relevant research findings for each study included in the present review. The information in Table 1 also includes a global quality assessment score for all eligible studies.

[INSERT TABLE 1 HERE]

Overview of Study Characteristics and Research Designs

Out of the 28 eligible studies, 24 recruited in the USA, two in Taiwan, one in Scandinavia and one study combined country of recruitment across Japan and the USA. Overall, a total of 10,225 individuals participated in the studies included in this systematic review. Two of the studies used a clinical sample (n = 280; i.e. psychiatric inpatients and patients diagnosed with psychosis). The remaining 26 recruited the samples from non-clinical populations (i.e., 19 studies used university undergraduate samples, with 10 of these recruiting via the University of Oregon's Human Subjects Pool, therefore, these 10 studies cannot be assumed to be fully independent due to potential participant crossover and this has been taken into account in the narrative synthesis of the findings). Two studies used

community samples, two used youth recruited from juvenile detention centres, one study recruited homeless adults and one study recruited patients diagnosed with a urogenital condition. In terms of demographics, all of the eligible studies provided data on participant gender, which revealed 61% to be female (n = 6,205). Participant age ranged from seven years to 68 years, with one study not providing data pertaining to participant age.

The studies included in this review were all cross-sectional and a mix of correlational (n = 22) and between-group (n = 6) designs. The studies that used correlational designs examined the relationship between betrayal trauma and mental health outcomes in a single group of participants. The studies that employed between-group designs examined group differences between participants with different levels of betrayal trauma history and/or mental health conditions.

Study Quality Assessment

Table 2 provides a full summary of the EPHPP quality assessment process undertaken. The majority of studies included in the present review were given a quality rating of *weak* (a total of 26 studies). The remaining two studies were given a rating of *moderate.* Moreover, none of the studies received a rating of *strong* as defined by the EPHPP quality assessment tool. The low-quality ratings were due to a number of methodological shortcomings present across the eligible studies, for example, selection bias, study design and insufficient control of potential confounding variables.

[INSERT TABLE 2 HERE]

The Impact of Betrayal Trauma Across Mental Health Outcomes

The studies included in this review investigated the impact of betrayal trauma on a range of mental health outcomes. In this case, 18 studies provided data on the impact of betrayal trauma on post-traumatic responses, including PTSD symptoms and dissociation

(Allard, 2009; Barlow & Cromer, 2006; Bennett, Modrowski, Chaplo, & Kerig, 2016; Bernstein, Delker, Knight, & Freyd, 2015b; Chiu, Lee, Chen, Ho, & Wu, 2017; Chiu et al., 2015; DePrince & Freyd, 2004; Gamache, Cromer, Deprince, & Freyd, 2013; Gobin & Freyd, 2009, 2017; Gomez, Kaehler, & Freyd, 2014; Hulette, Kaehler, & Freyd, 2011; Klest, Freyd, & Foynes, 2013; Mackelprang et al., 2014; Platt & Freyd, 2012, 2015; M. Platt, J. B. Luoma, & J. J. Freyd, 2017; Tang & Freyd, 2012). Ten studies provided data on betrayal trauma and affective conditions, such as anxiety and depression (Allard, 2009; Chiu et al., 2017; Gamache et al., 2013; Goldsmith et al., 2013; Goldsmith, Freyd, & DePrince, 2012; Klest et al., 2013; Mackelprang et al., 2014; Marriott, Lewis, & Gobin, 2016; Platt & Freyd, 2012; Tang & Freyd, 2012). Four studies included data on betrayal trauma and personality problems, including borderline traits (Belford et al., 2012; Kaehler & Freyd, 2009, 2012; Yalch & Levendosky, 2014). Two studies provided data on the relationship between betrayal trauma and psychosis (Gomez et al., 2014; Haahr et al., 2016). Three studies presented data on the association between betrayal trauma and general psychological wellbeing (Chiu et al., 2015; Haahr et al., 2016; Owen, Quirk, & Manthos, 2012). Finally, six studies provided data on the relationship between betrayal trauma and a range of mental health correlates, including attachment difficulties and problems with emotion regulation (Bernstein et al., 2015b; Kerig, Bennett, Thompson, & Becker, 2012; Mackelprang et al., 2014; Platt & Freyd, 2012, 2015; Platt et al., 2017).

Betrayal Trauma and Posttraumatic Responses

The most frequently investigated mental health outcomes across all of the eligible studies were dissociation and PTSD symptoms. Several studies found an association between betrayal trauma and dissociation, specifically, the findings suggested that high betrayal trauma led to more dissociative symptoms than medium or low betrayal trauma (Chiu et al., 2017; Chiu et al., 2015; DePrince & Freyd, 2004; Gobin & Freyd, 2009, 2017; Gomez et al.,

2014; Hulette et al., 2011; Klest et al., 2013). Five of these studies used between-group designs to a) examine difference in level of betrayal trauma between groups of high and low "dissociators" (DePrince & Freyd, 2004); or b) examine variation in dissociation between groups with different levels of betrayal trauma (Chiu et al., 2017; Gobin & Freyd, 2009, 2017; Hulette et al., 2011). In addition, three of the studies that found a link between betrayal trauma and dissociation used correlational study designs (Chiu et al., 2015; Gomez et al., 2014; Klest et al., 2013). These studies provide preliminary evidence that high betrayal trauma events are associated with dissociation more strongly than low betrayal trauma events. For example, Chiu et al. (2015) used regression analyses to examine the relationship between betrayal trauma and dissociation, finding that high betrayal trauma scores on the BBTS significantly predicted dissociation but low betrayal trauma did not. However, it should be noted that low betrayal trauma approached significance in this analysis ($p = .06$). Similarly using a regression analysis, Klest et al. (2013) found that both high betrayal trauma and low betrayal trauma predicted dissociation, but that high betrayal trauma explained a larger proportion of the variance in the regression model. In contrast, a number of studies found no evidence of a differential impact of betrayal trauma level on dissociation (Barlow & Cromer, 2006; Bernstein et al., 2015b; Platt & Freyd, 2012, 2015). These studies all employed correlational study designs and the findings unanimously emerged from correlation analyses with limited control of potential confounding variables.

Overall, studies with more robust statistical procedures found evidence of a link between betrayal trauma level and dissociation, with high betrayal traumas generally demonstrating a greater association with dissociative symptoms compared to medium or low betrayal trauma. Those studies that did not find evidence of a differential impact of betrayal trauma level on dissociation tended to employ less robust statistical procedures. Nevertheless, even studies that used appropriate statistical controls were limited by a number of other

methodological weaknesses. For example, only one study recruited a clinical sample (Chiu et al., 2015). The rest of the studies used non-clinical samples with ten recruiting university undergraduates from the USA (Barlow & Cromer, 2006; Bernstein et al., 2015b; DePrince & Freyd, 2004; Gobin & Freyd, 2017; Gomez et al., 2014; Platt & Freyd, 2012, 2015; M. Platt et al., 2017); three using community samples (Hulette et al., 2011; Klest et al., 2013; Tang & Freyd, 2012); and one recruiting a sample of patients diagnosed with urogenital conditions (Chiu et al., 2017). Furthermore, of the studies that used undergraduate samples, seven recruited from the University of Oregon's Human Subjects Pool (Barlow & Cromer, 2006; Bernstein et al., 2015b; Gobin & Freyd, 2009, 2017; Platt & Freyd, 2012, 2015; M. Platt et al., 2017). Consequently, this highlights potential non-independence of effects between these studies. This should be taken into account when interpreting the findings because considering them as fully independent is likely to overestimate the evidence they provide.

In terms of other post-traumatic responses, seven studies provided data on the link between betrayal trauma and PTSD symptoms, as measured by various assessment tools. Of these, four studies found evidence of a differential impact of betrayal trauma level on symptom severity. Three employed correlational study designs (Allard, 2009; Gamache et al., 2013; Tang & Freyd, 2012) and one used a between-groups design (Gobin & Freyd, 2009). Two of the three studies that used correlational designs employed regression analysis (Allard, 2009; Gamache et al., 2013), allowing them to control for betrayal trauma level by simultaneously adding different levels as predictors in the models. The third study only employed correlation analyses, however, the authors further tested for statistically significant differences between the betrayal trauma levels using post-hoc analyses (i.e., Steiger's Z statistic) and found that high betrayal trauma was more strongly associated with PTSD symptoms than both medium and low betrayal trauma (Tang & Freyd, 2012). Moreover, t-tests were used to assess group differences in the single study that employed a between-

groups design (Gobin & Freyd, 2009). The findings showed that individuals with high betrayal trauma histories reported more PTSD symptoms than those without histories of high betrayal trauma.

However, three studies found no evidence that level of betrayal trauma differentially impacts PTSD symptoms (Bennett et al., 2016; Klest et al., 2013; Mackelprang et al., 2014). One study used regression analysis and entered high betrayal and low betrayal trauma into the model simultaneously, finding that each level of betrayal predicted PTSD symptoms when controlling for the other (Klest et al., 2013). Another used structural equation modelling and found significant direct effects for both high and low betrayal trauma and PTSD symptoms (Bennett et al., 2016). Less robust findings from simple correlation analyses showed that both high and low betrayal trauma were significantly associated with PTSD symptoms (Mackelprang et al., 2014). However, a number of the studies recruited participants from the University of Oregon's Human Subjects Pool (Allard, 2009; Gobin & Freyd, 2009; Tang & Freyd, 2012).

Betrayal Trauma and Affective Conditions

Ten studies described findings in relation to betrayal trauma and depression. The majority of these studies found evidence that higher levels of betrayal trauma were associated with more severe symptoms of depression. A number of the studies used regression analyses to examine the predictive effect of betrayal trauma level on depression and found that high betrayal trauma predicted greater symptom levels when controlling for trauma level (Allard, 2009; Gamache et al., 2013; Goldsmith et al., 2013; Goldsmith et al., 2012; Klest et al., 2013; Marriott et al., 2016). In addition, another study used simple correlation analyses, but also applied post hoc tests to establish the relative strengths of the associations, and found that high betrayal trauma was more strongly associated with depression than medium or low

betrayal trauma (Tang & Freyd, 2012). The only study to employ a between-groups design found significant group differences in depression symptoms between people with high betrayal trauma histories and those without such histories, with the former reporting higher levels of depression (Chiu et al., 2017). In contrast, two studies did not find evidence regarding the differential impact of betrayal trauma level on depression (Mackelprang et al., 2014; Platt & Freyd, 2012). In these cases, it was found that both high betrayal trauma and low betrayal trauma events were associated with symptoms of depression. However, neither of the studies used robust statistical controls to measure the relationship between level of betrayal trauma and depression because both used simple correlation analysis only. Therefore, the lack of robust statistical procedures may explain the disparity between the findings from these two studies and those that found evidence of a differential impact of betrayal trauma level on symptoms of depression.

Six studies considered the impact of betrayal trauma level on symptoms of anxiety. Again, the majority of these studies employed correlational research designs (Allard, 2009; Goldsmith et al., 2013; Goldsmith et al., 2012; Klest et al., 2013; Tang & Freyd, 2012) with one adopting a between-groups design (Chiu et al., 2017).

In terms of findings, five of the studies reported evidence of a differential impact of betrayal trauma level on symptoms of anxiety (Chiu et al., 2017; Goldsmith et al., 2013; Goldsmith et al., 2012; Klest et al., 2013; Tang & Freyd, 2012). In fact, one study found that low betrayal trauma predicted anxiety symptoms but that high betrayal trauma did not (Goldsmith et al., 2013). This study used path analysis to test a model with gender and age added as covariates as well as adding high betrayal and low betrayal trauma as simultaneous predictors. Therefore, the statistical procedures employed can be considered robust. However, the remaining studies that reported a differential impact of betrayal trauma level on symptoms of anxiety found that high betrayal trauma predicted more symptoms than medium

or low betrayal trauma. Indeed, Allard (2009) was the only study in this group not to find a differential impact of betrayal trauma level on anxiety. In this case neither high betrayal trauma or medium betrayal trauma predicted anxiety when controlling for each in a regression model.

Finally, one study presented findings in relation to betrayal trauma and alexithymia and showed that high betrayal trauma significantly predicted alexithymia but low betrayal trauma did not (Goldsmith et al., 2012). This was demonstrated using a multiple regression model that simultaneously included high betrayal and low betrayal trauma as predictors. Similar to the findings for depression and anxiety above, the validity of these findings is limited due to a lack of control for potential confounders, as defined by the EPHPP critical appraisal tool.

Betrayal Trauma and Personality Problems

Four studies investigated the differential impact of betrayal trauma level on personality problems, in particular borderline characteristics (Belford et al., 2012; Kaehler & Freyd, 2009, 2012; Yalch & Levendosky, 2014). One of the studies specifically considered the impact of betrayal trauma level on the various types of borderline personality organisation (BPO), a term used within psychodynamic theory to indicate difficulties including primitive defense, identity diffusion and impaired reality testing (Yalch & Levendosky, 2014). Therefore, the findings from this study are difficult to compare directly with those from the other studies in this group. Nevertheless, Yalch and Levendosky (2014) found that high betrayal trauma predicted all three types of BPO, medium betrayal trauma only predicted impaired reality testing and low betrayal trauma predicted primitive defense only.

The other studies in this group conceptualised borderline traits using psychiatric classification and relevant validated measures (Belford et al., 2012; Kaehler & Freyd, 2009,

2012). Each of these studies used either regression or mediation analyses and found consistently that betrayal trauma level had a differential impact on borderline personality characteristics, with high betrayal trauma predicting more symptoms than either medium or low betrayal trauma. However, despite the unanimous nature of these findings they should be considered with caution due to the methodological limitations of the corresponding studies. For example, only one study used a non-student sample and recruited participants from the community (Kaehler & Freyd, 2012). Consequently, the generalisability of findings from this group of studies is likely to be low. Furthermore, the study that recruited a community sample did so from a cohort of local residents who volunteered to be involved in research projects as part of the Eugene-Springfield Community Sample (ESCS). Therefore, this may have introduced selection bias because participants were selected from a specific source (i.e., ESCS) in a systematic manner and possibly self-selected based on studies that interested them.

Betrayal Trauma and Psychosis

Two studies investigated the differential impact of betrayal trauma level on symptoms of psychosis (Gomez et al., 2014; Haahr et al., 2016). Only one of these studies used a clinical sample of patients diagnosed with the condition (Haahr et al., 2016). In this case, the researchers conducted a between-groups analysis comparing participants with histories of interpersonal trauma by close others and those without such histories using t-tests and found that there were no significant differences in positive or negative symptoms between the two groups. However, despite the use of a clinical sample counting as a methodological strength, the study did not include a control group of participants with other psychiatric diagnoses, therefore, the researchers were unable to control for relevant co-morbid conditions.

The second report in this group presented data from two studies that examined associations between betrayal trauma level and hallucinations (Gomez et al., 2014). Neither study recruited a clinical sample but instead used university undergraduates. The first Gomez et al. (2014) study found that both high and medium betrayal trauma, but not low betrayal trauma predicted hallucinations. The second study reported in Gomez et al. (2014) only analysed BBTS data relating to sexual abuse in childhood (i.e., under 13 years of age) and adolescence/adulthood (i.e., over 13 years of age), therefore, limiting the extension of the findings to this abuse type. The results suggested that people who experienced high betrayal sexual abuse were four times more likely to experience tactile hallucinations. Contrary to predictions by the authors, adolescent/adulthood high betrayal sexual abuse did not predict hallucinations. Moreover, medium betrayal sexual abuse was not significantly associated with tactile hallucinations. Subsequent analyses revealed that individuals with histories of high and medium betrayal sexual abuse in childhood were over three times more likely to report visual hallucinations. However, high betrayal and medium betrayal adolescent/adult sexual abuse did not predict visual hallucinations, nor did they approach significance. Furthermore, childhood sexual abuse by a non-close other, characterised as medium betrayal trauma, significantly predicted auditory hallucinations, however, high betrayal trauma, characterised as child sexual abuse by a close other, only approached significance. Contrary to expectations, neither high betrayal or medium betrayal sexual abuse in adolescence/adulthood predicted auditory hallucinations.

Overall, these findings point to the particularly toxic nature of childhood sexual abuse characterised by higher levels of betrayal trauma, in terms of increased risk for particular types of hallucinatory experience. The evidence suggests that high betrayal trauma events have the greatest impact on development of tactile and visual hallucinations. The findings related to auditory hallucinations were the exception to this pattern. However, the limited

evidence from clinical samples and the cross-sectional nature of the studies included in this group, require that these findings are considered tentatively.

Betrayal Trauma and General Psychological Wellbeing

Three studies presented findings related to betrayal trauma and general psychological wellbeing. Two of these used correlational designs (Chiu et al., 2015; Owen et al., 2012) and one used a between groups design (Haahr et al., 2016). Moreover, two used clinical samples including Taiwanese psychiatric inpatients (Chiu et al., 2015) and Scandinavian patients diagnosed with psychosis (Haahr et al., 2016). The third study used a university undergraduate sample from the USA (Owen et al., 2012). The studies in this group were heterogeneous in terms of the outcomes they investigated. For example, one study measured general psychological functioning (Haahr et al., 2016); one measured general psychological wellbeing (Owen et al., 2012); and one measured general psychopathology (Chiu et al., 2015). However, it can be argued that when taken together the findings provide tentative evidence regarding the differential impact of betrayal trauma level on general psychological wellbeing.

Overall, findings were mixed because two studies found evidence of a differential impact of betrayal trauma (Chiu et al., 2015; Owen et al., 2012), however, one did not (Haahr et al., 2016). For instance, Owen et al. (2012) found that high betrayal traumas were significantly negatively correlated with psychological wellbeing, whereas low betrayal traumas were also negatively correlated but the association was not significant. Furthermore, Chiu et al. (2015) found that higher levels of betrayal trauma in both adulthood and childhood were significantly correlated with general psychopathology. In contrast, Haahr et al. (2016) used a t-test to examine differences in general psychological functioning between

patients diagnosed with psychosis who had high and low betrayal trauma histories and found no difference between the groups.

Betrayal Trauma and Mental Health Correlates

Six studies provided data in relation to betrayal trauma and a range of mental health correlates (Bernstein et al., 2015b; Kerig et al., 2012; Mackelprang et al., 2014; Platt & Freyd, 2012, 2015; M. Platt et al., 2017). The most common mental health correlates investigated were shame and fear (Platt & Freyd, 2012, 2015; M. Platt et al., 2017). Findings from one study that manipulated state shame in participants, revealed that both high betrayal trauma and low betrayal trauma were significantly associated with shame, suggesting no differential impact of betrayal trauma level on this mental health correlate (Platt & Freyd, 2012). In contrast, Platt and Freyd (2015) found that high betrayal trauma correlated with shame but not fear. Low betrayal trauma was not significantly correlated with shame or fear. Similarly, Platt, Luoma and Freyd (2017), using structural equation modelling, found that high betrayal trauma significantly predicted shame but not fear. However, in opposition to the Platt and Freyd (2015) findings, low betrayal predicted both shame and fear.

One study found evidence using regression analyses that betrayal trauma level significantly predicted emotional numbing and callous-unemotional traits in youths recruited from juvenile detention centres (Kerig et al., 2012). Another study found that both high betrayal and low betrayal trauma were significantly correlated with sleep disturbance (Platt & Freyd, 2012), suggesting no differential impact of betrayal trauma level on this outcome. A further study found that both adulthood high and low betrayal trauma were significantly correlated with psychological stress (Mackelprang et al., 2014). Finally, one study found that adulthood high betrayal trauma was significantly associated with hypervigilance when

controlling for betrayal trauma level, however, medium betrayal trauma in adulthood was not (Bernstein et al., 2015b).

Discussion

The aim of the present review was to provide a summary of current evidence regarding the differential impact of betrayal trauma level on mental health outcomes and to establish whether level of betrayal trauma is responsible for the differential outcomes of various trauma event types. Specifically, the research question asked if high betrayal traumas have a greater impact on mental health outcomes than medium and/or low betrayal traumas.

In terms of findings from the present review, the evidence for a differential impact of betrayal trauma on mental health outcomes was mixed. A number of studies across outcome groups found that high betrayal traumas led to more symptoms than medium or low betrayal trauma events. Nevertheless, a minority of studies across the groups reported no differential impact of betrayal trauma level. However, these studies tended to employ less robust statistical procedures in comparison to those that found evidence that high betrayal traumas have the greatest impact on mental health outcomes and relevant psychological correlates. However, despite the more robust statistical procedures characterising the studies that presented evidence to support a differential impact of betrayal trauma on mental health outcomes and relevant psychological correlates, a number of other methodological issues suggest a cautious interpretation of the current review's findings. For example, a number of these studies recruited university undergraduates from the University of Oregon's Human Subjects Pool, therefore, making it difficult to ascertain the independence of these samples and increasing the risk of overestimating support for the proposal that high betrayal trauma is more conducive to psychopathology. Also, it is important to note that there was considerable heterogeneity between the studies eligible for inclusion and this was, in part, due to the

disparate research aims and analytic procedures used across the studies. Indeed, these issues presented a challenge with regard to achieving the review's aim. Nevertheless, measures taken to standardise the review process, in this case defining use of the BTI and/or BBTS as an inclusion criterion, helped to mitigate this challenge.

Overall, the findings of the present review provide preliminary evidence to suggest that level of betrayal trauma impacts upon a range of different mental health outcomes and relevant psychological correlates. Furthermore, when considered in light of previous research findings suggesting that trauma events with certain characteristics, for example, those that are cumulative (Cloitre et al., 2009), the present review offers support to proposals that the level of betrayal trauma involved in a traumatic event, matters when it comes to mental health outcomes. In this sense, the higher the level of betrayal trauma inherent in the event, the more toxic it is to the affected individual's emotional and psychological wellbeing. Indeed, these findings can be understood in the context of attachment theory. For example, the concept of internal working models (IWM) refers to the development of psychobiological systems for dealing with the demands of adult life, including emotion regulation, relationship monitoring and relevant goal driven/motivational behaviours (Danquah & Berry, 2013). Moreover, IWMs are thought to develop within the context of caregiving relationships during early life. Therefore, if the infant is subjected to negative caregiving experiences, such as abuse by a parent, it is possible that their IWM would lead to attachment disorganisation, for example, approach-avoidance tendencies as they struggle to strike a balance between having their needs met by the abusive caregiver and staying safe (Van der Hart, Nijenhuis, & Steele, 2006). This type of attachment pattern may initially be an adaptive, safety maintaining response that protects the individual, however, in the longer term it may lead them to develop emotional and psychological difficulties, which can manifest as mental health problems in adulthood (Amos, Furber, & Segal, 2011).

Limitations of the Review

The present review has several limitations that should be considered when interpreting the findings presented here. First, the review prioritised the development of a valid and reliable method for synthesising the evidence regarding the impact of betrayal trauma on mental health outcomes. In order to achieve this, careful thought had to be given to how to best operationalise and define the construct of betrayal trauma. Indeed, the heterogeneous way in which betrayal trauma has been defined in the field made this a challenging task. For example, betrayal trauma has been operationalised in different ways by various researchers investigating the construct (e.g., DePrince et al., 2010; Finkelhor & Browne, 1985). However, two validated psychometric measures of betrayal trauma have been created that are theoretically consistent because both were developed in the context of BTT, namely; the BTI (Freyd et al., 2001) and the BBTS (Goldberg & Freyd, 2006). Given that the development of both measures was conceptually and theoretically guided by an established theory of betrayal trauma, it was felt that they offered the most effective way to consistently operationalise the betrayal construct in the present review. Therefore, it was decided that the best way to ensure the internal consistency and construct validity of betrayal trauma across the eligible studies was to limit study inclusion to those that used one or both of these tools to measure betrayal trauma. This provided a level of assurance that the review was selecting studies in a way that meant the research question could be answered as directly and validly as possible, despite the inherent difficulties relating to the heterogeneous way that betrayal trauma has been operationalised by researchers. However, this stringent approach to ensuring the validity and internal consistency of the betrayal trauma construct across the eligible studies may have restricted the scope of the review and this needs to be acknowledged. Specifically, it could be argued that the decision to limit inclusion to studies that used either

the BBTS and/or BTI characterised an overly narrow eligibility criterion. Furthermore, it could be argued that the scales do not sufficiently account for the frequency or heterogeneity of trauma events. Therefore, this may have further limited the findings of present review. However, it is argued here that this was a necessary decision in order to systematically examine the differential impact of betrayal trauma level on mental health outcomes. Nevertheless, it is acknowledged that this approach may have led to potentially relevant studies being excluded because they did not use either the BTI or BBTS, even if they measured level of betrayal trauma in other ways. Therefore, it is suggested that future systematic reviews in this topic area review the criterion to exclude studies that did not use either BTI and/or BBTS, so that the findings presented here can be compared to those from reviews that used a less stringent but still valid approach to investigating the impact of betrayal trauma on mental health outcomes.

A further limitation of the present review is its use of the EPHPP quality assessment tool. It is acknowledged here that tools of this type are limited by the subjectivity they introduce into the coding procedure. Moreover, quality assessment tools like the one used here have been criticised for lacking rigour and potentially introducing bias (Crowe & Sheppard, 2011). Although attempts were made to mitigate the negative impact of this on the critical appraisal process by discussing critical appraisal with other members of the research team, it is difficult to say how successful this safeguard was.

Finally, it is unclear how prone to publication bias research studies in the betrayal trauma field are. For example, it is possible that studies that found significant effects for high betrayal trauma are more likely to be published than those that produce negative findings. This is the so called *file drawer* phenomenon highlighted by Rosenthal (1979). This suggest that potentially important study findings may be unknown because unpublished studies may have biased the review in favour of studies finding positive effects of betrayal trauma level

on mental health outcomes. Therefore, it is important that future reviews make efforts to include unpublished papers in a systematic fashion.

Future Research and Clinical Implications

The findings from the present review suggest a mixed picture regarding the differential impact of betrayal trauma level on mental health outcomes, with a tentative pattern of results pointing to evidence that high betrayal traumas have a greater impact compared to medium and low betrayal traumas. Consequently, a number of important research questions are left unanswered, for example, a lack of studies that recruited clinical samples means that the role of betrayal trauma in the development and maintenance of mental health outcomes that reach clinical levels is unclear. Therefore, a key task for future trauma researchers will be to investigate the impact of trauma events characterised by social betrayal upon mental health conditions, such as psychosis (see, for example, Section 2 of the present thesis for an empirical study relevant to this topic area). Moreover, it will be important for future studies to employ prospective and longitudinal designs where possible to enable assertions about causality to be made. In addition, future studies should employ more robust statistical procedures that enable for a range of confounding variables to be controlled for, such as comorbid conditions, where clinical samples are used.

In terms of clinical implications, it is difficult to make clear recommendations given the lack of clinical samples used across the eligible studies. Furthermore, intervention studies were excluded from the review and, therefore, specific interventions to target negative mental health outcomes in the context of a betrayal trauma history cannot be commented on. Moreover, regardless of this exclusion criterion, the reviewer is unaware of any research that has specifically examined the efficacy and effectiveness of interventions designed to alleviate the distress associated with negative mental health outcomes related to betrayal trauma in

particular. Nevertheless, findings from the literature reviewed here would suggest routine but sensitive assessment of betrayal trauma histories. This information could then be used to inform psychological formulations of an individual's difficulties and guide subsequent therapeutic interventions. Therefore, it may be useful for clinicians to consider the concept of betrayal trauma when working with clients who have been suffered trauma at the hands of close others. For example, it may be particularly important to consider the attachment implications of such experiences and the impact of this upon the therapeutic relationship and intervention outcomes. Indeed, Freyd (1999) has suggested that treatment for people with betrayal trauma histories should focus on creating healthy interpersonal relationships, for example, starting with the therapeutic relationship as a template before extending this to interpersonal relationships more generally. In such cases, therapeutic healing is "most fully realised in the context of what was broken in the first place – an intimate and trusting relationship" (Freyd, 1999, p. 6).

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Tables and Figures

Figure 1.

Flowchart of studies included in review

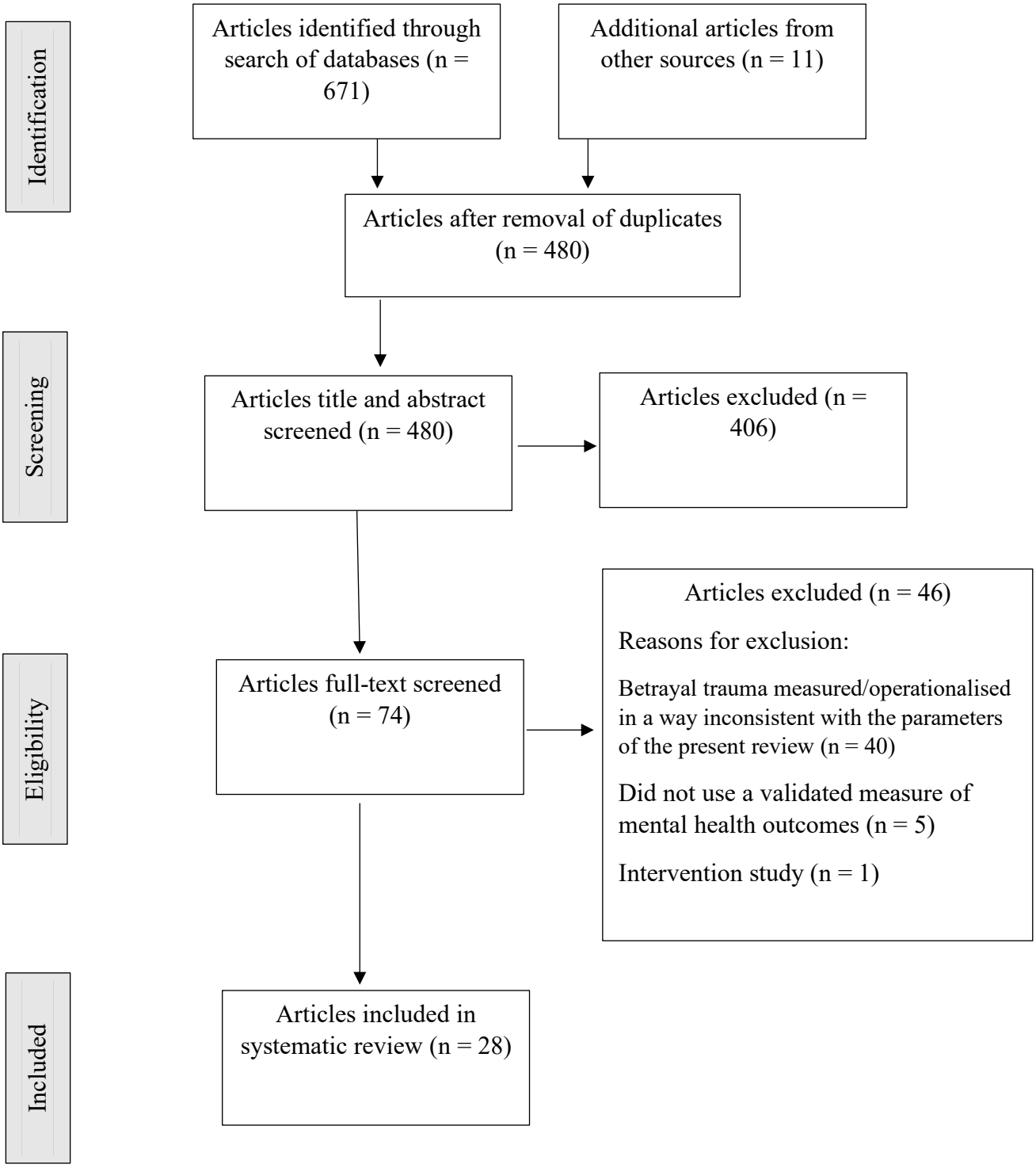

Table 1

Study characteristics table

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
DePrince and Freyd (2004), USA	Between groups; directed forgetting task	Non-clinical; students at the University of Oregon.	N = 45 <u>Low dissociation</u> *n* = 24 (DES score <10) <u>High dissociation</u> *n* =21 (DES score >20)	<u>Low dissociation</u> Female (*n* = 16) M_{age} = 19.0 years <u>High dissociation</u> Female (*n* = 14) M_{age} = 19.0 years	1. BBTS (Goldberg & Freyd, 2006)	1. DES (Bernstein & Putnam, 1986)	1. High dissociation group reported more BT history across all 3 levels: high (t= -2.7, p=<.01), medium (t= -3.2, p=<.01) and low (t= -2.8, p=<.01) than low dissociation group.	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Barlow and Cromer (2006), USA	Correlational	Non-clinical; student members of the University of Oregon HSP	N = 765	Female (*n* = 487) M_{age} = 20.8 years (*SD* = 3.75)	1. BBTS (Goldberg & Freyd, 2006)	1. DES (Bernstein & Putnam, 1986)	1. Dissociation was associated with both LBT in childhood (r=.262, p=<.01) and HBT in childhood (r=.205, p=<.01) 2. Dissociation was associated with both LBT in adulthood (r=.280, p=<.01) and HBT in adulthood (r=.183, p=<.01).	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Allard (2009), Japan, USA	Correlational	Non-clinical; undergraduate students who were Japanese nationals; included 5 Japanese universities and participants from the University of Oregon HSP	N = 79	Female (67.1%) M_{age} = 20.09 years (*SD* = 2.03)	1. J-EBBTS (Allard, 2009)	1. J-HTQ-symptom section (Mollica, Shibuya, Allden, & Nakajima, n.d.) 2. J-HSCL-25 (Mollica, Wyshak, de Marneffe, Khuon, & Lavelle, 1987)	1. Multiple regression analyses controlling for childhood MBT, showed that childhood HBT significantly predicted level of PTSD (R^2 =.10, p = <0.1) and depression (R^2=.06, p=<.05) but not anxiety (R^2=.03, n.s.). 2. Childhood MBT did not predict mental health outcomes when controlling for childhood HBT.	Mod.

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Gobin and Freyd (2009), USA	Between groups	Non-clinical; student members of the University of Oregon HSP	N = 271 Group *n*'s not provided	Female (*n* = 177) M_{age} = 19.79 years (*SD* = 3.66)	1. BBTS (Goldberg & Freyd, 2006)	1. DES (Bernstein & Putnam, 1986) 2. TSC-40 (Briere & Runtz, 1989)	1. HBT survivors (*M* = 12.93, *SD* = 10.90) reported greater levels of dissociation than individuals who did not report HBT histories (*M* = 7.86, *SD* = 6.79), (t(136.32) = 4.14, *p* = <.01, Cohen's *d* = .56) 2. HBT survivors (*M* = 30.06, *SD* = 16.69) reported more post-traumatic symptoms than individuals with no HBT histories (*M* = 21.51, *SD* = 11.23),	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							(t(143.17) = 4.49, p = <.01, Cohen's *d* = .60)	
Kaehler and Freyd (2009), USA	Correlational	Non-clinical	N = 199	Female (73%) M_{age} = 20.1 years (*SD* = 3.40)	1. BBTS (Goldberg & Freyd, 2006); N.B. authors used 7/12 items i.e. items related to first hand trauma	1. BPI (Leichsenring, 1999); N.B. authors adapted scale response type	1. Borderline personality characteristics were associated with HBT (r =.342, p = <.01) and MBT (r =.312, p = <.01) but not with LBT (r =.074, n.s.) 2. A multiple regression	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							model including BT level and gender predicted borderline traits, $R^2 = .17$, $F(4, 187) = 9.68$, $p < .001$ 3. HBT was the greatest predictor (β=.287, p = <.001), MBT was also a significant predictor (β = .228, p = <.001), LBT was not (β=.007, n.s.)	
Hulette et al. (2011), USA	Between groups	Non-clinical; community sample of families listed	N= 67 mother child dyads	Mothers	1.BBTS (Goldberg & Freyd, 2006)	1. DES (Bernstein & Putnam, 1986)	1. ANOVA revealed a significant difference in	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
		in local birth register; selective sampling for families with children aged 7-8 years with reported trauma histories	<u>Mothers</u> HBT (*n* = 52) LBT (*n* = 7) No trauma (*n* = 7) <u>Children</u> HBT (*n* = 21) LBT (*n* = 24) No trauma (*n* = 22)	M_{age} = 35.8 years (*SD* = 6.1) <u>Children</u> Female (*n* = 31) Age range = 7 to 8 years	2. BBTS-Parent Report (Becker-Blease, Freyd, & Pears, 2004)	2. CDC (Putnam, Helmers, & Trickett, 1993)	level of childhood dissociation between the trauma groups $F(2, 64) = 4.34$, $p = .02$, partial $\eta^2 = 0.12$. Levels of dissociation were highest in the HBT group (M = 1.59, SD = .92), followed by the LBT group (M = 1.34, SD = .90). The NT group had the lowest rates of dissociation (M = .82; SD = .80). 2. Post-hoc analysis	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							revealed significant differences between HBT and NT groups (p = .02). The HBT and LBT groups were not significantly different (p = .61). The LBT and NT groups were not significantly different (p = .12). 3. ANOVA revealed a significant difference in mothers' levels of dissociation between the trauma groups F(2, 10.44) =	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							12.61, p = .001, partial η^2 = 0.19. Levels of dissociation were highest in the HBT group (M = 2.22, SD = .60), followed by the LBT group (M = 1.63, SD = 1.04). The NT group had the lowest rates of dissociation (M = 1.36; SD = 1.04). 4. Post-hoc analysis revealed significant differences between HBT and NT groups (p = .004). The	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							HBT and LBT groups difference were marginally non-significant (p = .07). The LBT and NT groups were not significantly different (p = .70).	
Belford et al. (2012), USA	Correlational	Non-clinical; student members of the University of Oregon HSP	N=165	Female (64%) M_{age} = 19.95 years (*SD* = 1.92)	1. BBTS (Goldberg & Freyd, 2006)	1. BSL-23 (Bohus et al., 2009)	1.There was a significant association between level of BT and borderline personality symptoms as measured by BSL-23 scores (r	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							= .38, p = <.001). 2. A regression pathway included in the mediation model showed that higher levels of BT significantly predicted greater scores on the BSL-23, B = .17, t(163) = 5.21, *p* = < .001).	
Goldsmith et al. (2012), USA	Correlational	Non-clinical; university students	N=185	Female (*n* = 126) M_{age} = 19.21 years (SD=1.74)	1. BBTS (Goldberg & Freyd, 2006)	1. TSC-40 (Briere & Runtz, 1989); N.B. depression, anxiety,	1. Multiple regression analysis showed that BT level significantly predicted alexithymia (adj	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						dissociation subscales 2. TAS-20 (Parker, Michael Bagby, Taylor, Endler, & Schmitz, 1993)	R^2 = .08, F(2, 82) = 8,74, *p* = <.001). HBT significantly predicted alexithymia (β = .27, *p* = .001) but LBT did not (β = .06, *p* = .45) 2. BT level also significantly predicted anxiety (adj R^2 = .10, F(2, 82) = 11.70, *p* = <.001). HBT significantly predicted anxiety (β = .36, *p* = <.001) but LBT did not (β = - .06, *p* = .46)	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							3. BT level also significantly predicted depression (adj R^2 = .09, F(2, 82) = 10.53, *p* = <.001). HBT significantly predicted depression (β = .31, *p* = <.001) but LBT did not (β = .02, *p* = .75) 4. BT level also significantly predicted dissociation (adj R^2 = .11, F(2, 82) = 12.36, *p* = <.001). HBT significantly predicted dissociation (β =	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							.30, p = <.001) but LBT did not (β = .09, p = .26)	
Kaehler and Freyd (2012), USA	Correlational	Non-clinical; members of the Eugene-Springfield Community Sample (ESCS)	N = 749	Female (57%) M_{age} = 50.7 years (*SD* = 12.6)	1. BBTS (Goldberg & Freyd, 2006); N.B. authors used 7/12 items i.e. items related to first hand trauma	1. BPI (Leichsenring, 1999); N.B. 47/53 items used	1. Multiple regression analysis showed that level of BT significantly predicted borderline traits. High BT was the largest predictor of borderline personality characteristics, β = .20, p = < .001. Medium BT was also a predictor, β = .18, p = < .001. Low BT also significantly	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							predicted BPI scores, (β = .13, *p* = < .01)	
Kerig et al. (2012), USA	Correlational	Non-clinical; youth recruited from 2 juvenile detention centres	N = 276	Female (*n* = 68) M_{age} = 16.16 years (*SD* = 1.33)	1. BBTS (Goldberg & Freyd, 2006); N.B. adapted for youth sample i.e., relational closeness defined as someone they 'cared a lot about' 2. PTSD-RI (Steinberg, Brymer, Decker, & Pynoos, 2004); N.B. 5 items used in conjunction with BBTS	1. ICU (Essau, Sasagawa, & Frick, 2006) 2. ERNS (Orsillo, Theodore-Oklota, Luterek, & Plumb, 2007)	1. Regression pathways of a mediation model showed that BT level significantly predicted numbing of fear (a: β = - .47, SE .24) and callous-unemotional traits (c: β = .01, SE .43) 2. Further analyses revealed that the model was not moderated by gender.	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Owen et al. (2012), USA	Correlational	Non-clinical; university undergraduates	N = 86	Females (*n* = 65) M_{age} = 21.15 years (*SD* = 2.52)	1. BBTS (Goldberg & Freyd, 2006); N.B. used 5 items (IT-Close, IT-Not Close)	1. SOS-10 (Blais et al., 1999) 2. AAS (Collins & Read, 1990)	1. HBT scores were negatively correlated with psychological wellbeing (r = -.38, *p* = <.01) and positively correlated with avoidant attachment (r = .40, *p* = <.01) and anxious attachment (r = .22, *p* = <.05) 2. LBT scores were negatively correlated with psychological wellbeing (r = -.11, n.s) and positively	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							correlated with avoidant attachment (r = .14, n.s) and anxious attachment (r = .14, n.s), but were not significant	
Platt and Freyd (2012)	Correlational; state shame experimentally manipulated	Non-clinical; student members of the University of Oregon HSP	N = 306	1. Females (*n* = 202) N.B. age descriptive not provided	1. BBTS (Goldberg & Freyd, 2006)	1. SPM (Feiring & Taska, 2005)	1. Number of HBTs was significantly correlated with anxiety (*r* = .20, *p* = < .01), dissociation (*r* = .32, *p* = < .001),	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						3. TSC-40 (Briere & Runtz, 1989)	depression (r = .25, p = < .001), sleep disturbance (r = .28, p = < .001) and shame (r = .16, p = < .05) at baseline.	
							2. Number of LBTs was significantly correlated with anxiety (r = .22, p = < .01), dissociation (r = .29, p = < .001), depression (r = .26, p = < .001), sleep disturbance (r = .28, p = < .001) and shame (r =	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							.28, *p* = < .001) at baseline.	
Tang and Freyd (2012), USA	Correlational	Non-clinical; 1. university undergraduates; N.B. student members of the University of Oregon HSP 2. community sample	1. N = 1,041 2. N = 199 N.B. samples combined for analysis	1. Females (*n* = 705) Age range = 16 – 54 years 2. Females (*n* = 129) Age range = 18 – 68 years	1. BBTS (Goldberg & Freyd, 2006)	1. TSC-40 (Briere & Runtz, 1989) 2. R-CMS (Norris & Perilla, 1996)	1. Correlation analysis revealed high BT was more strongly associated with depression (r = .33, *p* = < .01), anxiety (r = .30, *p* = < .01) and PTSD symptoms (re-experiencing: r = .27, *p* = < .01; avoidance: r = .29, *p* = < .01; arousal: r = .24, *p* = < .01) than both medium BT and low BT.	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							2. These differences were statistically significant as shown by Steiger's Z statistic values	
Gamache et al. (2013), USA	Correlational	Non-clinical; university undergraduates	N = 273	Females (*n* = 188) M_{age} = 20.36 years (*SD* = 3.99)	1. BBTS (Goldberg & Freyd, 2006);	1. TSC-40 (Briere & Runtz, 1989); N.B. depression & dissociation subscales only 2. R-CMS (Norris & Perilla, 1996)	1. Multiple regression revealed level of BT significantly predicted depression (R^2 = .11, $F(3, 269)$ = 11.86, p = < .001). HBT was the strongest predictor (β = .23, p = < .001) followed by MBT (β = .15, p = < .05). Low BT did not	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							significantly predict depression (β = .05, n.s.) 2. Level of BT significantly predicted dissociation (R^2 = .11, F(3, 269) = 12.30, p = < .001). HBT was the strongest predictor (β = .21, p = < .001) followed by MBT (β = .15, p = < .05) and low BT (β = .12, p = < .05) 3. Level of BT significantly predicted PTSD symptom severity (R^2 =	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							.28, $F(3, 269) = 35.66$, $p = < .001$). HBT was the strongest predictor ($\beta = .41$, $p = < .001$) followed by MBT ($\beta = .15$, $p = < .05$) and low BT ($\beta = .13$, $p = < .05$)	
Goldsmith et al. (2013), USA	Correlational	Non-clinical; undergraduate students	N = 593	Females (58.3%) M_{age} = 21.9 years (*SD* = 5.7)	1. BBTS (Goldberg & Freyd, 2006)	1. DERS (Gratz & Roemer, 2004) 2. TSC-40 (Briere & Runtz, 1989)- depression &	1. Path analysis revealed that HBT significantly predicted emotion regulation difficulties ($\beta = .31$, $p = < .001$) and depression ($\beta = .13$, $p = <$	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						anxiety subscales	.001) but not anxiety.	
						3. IES (Horowitz, Wilner, & Alvarez, 1979)	2. LBT predicted anxiety only (β = .17, *p* = < .001). 3. HBT also predicted intrusions (β = .11, *p* = .001) and avoidance (β = .13, *p* = .001). 4. LBT did not predict intrusion or avoidance.	
Klest et al. (2013), USA	Correlational	Non-clinical; community sample from the HPH cohort	N = 833	Females (53%) M_{age} = 55.05 years (*SD* = 2.00)	1. BBTS (Goldberg & Freyd, 2006)	1. TSC-40 (Briere & Runtz, 1989); N.B. sexual functioning and self-harm	1. Multiple regression revealed that HBT significantly predicted PTSD	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						items removed. 2. PCL-C (Weathers, Litz, Herman, Huska, & Keane, 1994)	(R^2 = .44, Semi-partial *r* = .11, F(6,754) = 29.61, *p* = < .01), dissociation (R^2 = .44, Semi-partial *r* = .13, F(6,754) = 29.54, *p* = < .001), depression (R^2 = .42, Semi-partial *r* = .16, F(6,754) = 27.01, *p* = < .001) and anxiety (R^2 = .44, Semi-partial *r* = .12, F(6,754) = 30.45, *p* = < .001). 2. LBT significantly	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							predicted PTSD (R^2 = .44, Semi-partial *r* = .11, F(6,754) = 29.61, *p* = < .01) and dissociation (R^2 = .44, Semi-partial *r* = .10, F(6,754) = 29.54, *p* = < .01) only.	
Gomez et al. (2014), USA	Correlational	Non-clinical; university undergraduates	1. N = 397; N.B. same as Gómez, Becker-Blease, and Freyd (2015) 2. N = 199; N.B. same as	1. Female (70%) M_{age} = 19.68 years (*SD* = 2.17) 2. Female (73%)	1. BBTS (Goldberg & Freyd, 2006); N.B. MBT & HBT < 12 years, 13-17 years, > 17 years	1. CES (Goldberg, 1999) 2. TSC-40 (Elliott & Briere, 1992)-dissociation subscale	1. Multiple regression analyses revealed BT explained variance in dissociation, r^2 = .03, *F*(4, 363) 2.98, *p* = .05. HBT was a significant predictor of	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
			Kaehler and Freyd (2009) 3. N = 566	M_{age} = 20.1 years (*SD* = 3.40) 3. Female (62%) M_{age} = 19.96 years (*SD* = 8.87)	2. BBTS (Goldberg & Freyd, 2006) 3. BBTS (Goldberg & Freyd, 2006); N.B. HBT/MBT CSA < 13 years, adolescent/adult HBT/MBT SA ≥ 13 years	3. CIDI (WHO, 1990)-Beliefs & experiences module	dissociation (β = .20, *p* = < .01). MBT (β = - .05, *ns*) did not significantly predict dissociation. 2. Multiple regression analyses revealed BT level explained variance in hallucinations, r^2 = .06, *F*(5, 186) = 3.52, *p* = .01. HBT (β = .15, *p* = < .05) & MBT (β = .18, *p* = < .05) both significantly predicted hallucinations.	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							LBT did not significantly predict hallucinations (β = .09, *ns*). 3. Multiple logistic regression analysis revealed that when controlling for age, gender and other abuse types, only HBT CSA significantly predicted tactile hallucinations (Wald (1) = 8.43, *p* = < .01). Adolescent/adult HBT SA did not predict tactile hallucinations. Neither MBT	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							CSA or adolescent/adult MBT SA significantly predicted tactile hallucinations. 4. Logistic regression analyses revealed that when controlling for age, gender and other abuse types, HBT CSA (Wald (1) = 6.27, p = < .01) and MBT CSA (Wald (1) = 6.06, p = < .05) significantly predicted visual hallucinations. 5. Logistic regression	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							analysis revealed that when controlling for age, gender and other abuse types, MBT CSA significantly predicted auditory hallucinations (Wald (1) = 5.51, p = < .05). HBT CSA approached significance (Wald (1) = 2.98, p = .08. The other variables did not predict auditory hallucinations.	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Mackelprang et al. (2014), USA	Correlational	Non-clinical; homeless adults	N = 94	Female (*n* = 23) Age range = 18 – 65 years	1. BBTS (Goldberg & Freyd, 2006)	1. PCL-C (Weathers et al., 1994) 2. CES-D (Radloff, 1977) 3. PSS (Cohen, Kamarck, & Mermelstein, 1983)	1. Adulthood LBT was associated with PTSD symptoms (r = .35, p = < .01), depression (r = .35, p = < .01) and stress (r = .25, p = < .05). 2. Adulthood HBT was associated with PTSD symptoms (r = .30, p = < .01), depression (r = .33, p = < .01) and stress (r = .30, p = < .01).	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Yalch and Levendosky (2014), USA	Correlational	Non-clinical; university undergraduates	N = 491	Female (72%) M_{age} = 20 years (*SD* = 3)	1. BBTS (Goldberg & Freyd, 2006)	1. IPO (Lenzenweger, Clarkin, Kernberg, & Foelsch, 2001)	1. Bayesian multiple linear regression analysis revealed that HBT predicted all 3 types of borderline personality organisation (BPO): primitive defense (β = .143, 95% HDI [.034, .254]), Identity diffusion (β = .137, 95% HDI [.024, .248]) and reality testing (β = .132, 95% HDI [.026, .238]). 2. MBT predicted reality	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							testing only (β = .183, 95% HDI [.067, .301]) only. 3. LBT predicted primitive defense (β = .113, 95% HDI [.008, .214]) only.	
Bernstein, Delker, Knight, and Freyd (2015a), USA	Correlational	Non-clinical; Student members of the University of Oregon HSP	N = 489	Female (62.6%) M_{age} = 19.92 years (*SD* = 3.31)	1. BBTS (Goldberg & Freyd, 2006)	1. HVQ (Knight & Herwitz, 2010) 2. PCL-C (Blanchard, Jones-Alexander, Buckley, &	1. Simple correlations revealed hypervigilance, PTSD and dissociation were all significantly positively correlated with each level in BT	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						Forneris, 1996)	in both childhood and adulthood (all p = < .001).	
						3. TSC-40 (Elliott & Briere, 1992); N.B. dissociation subscale only	2. Partial correlations revealed adult HBT was significantly associated with hypervigilance, controlling for dissociation, lifetime LBT, Child BT and adult MBT, r = .13, p = .01. Adult MBT, controlling for dissociation, lifetime LBT, child BT and adult HBT was	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							not, r = .05, *p* = .30 3. Partial correlations revealed child HBT, controlling for hypervigilance, lifetime LBT, adult BT and child MBT, was associated with dissociation, r = .15, *p* = .003. So was child MBT, controlling for hypervigilance, lifetime LBT, adult BT and child HBT, r -.11, *p* = .02	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Chiu et al. (2015), Taiwan	Correlational	Clinical; psychiatric inpatients	N = 89	Female (73%) M_{age} = 36.00 years (*SD* = 12)	1. BBTS (Goldberg & Freyd, 2006); N.B. Chinese version (Chiu et al., 2010)	1. DES (Bernstein & Putnam, 1986); N.B. Chinese version (Chiu et al., 2015) 2. TDS (Carlson et al., 2011); N.B. Chinese version (Chiu et al., 2015) 3. SCL-90-R (Derogatis, 1983); N.B. Chinese version (Chiu et al., 2015)	1. Both childhood BT (*r* = .45, *p* = < .001) and adulthood BT (*r* = .49, *p* = < .001) were significantly correlated with dissociation. 2. Both childhood BT (*r* = .45, *p* = < .001 and adulthood BT (*r* = .42, *p* = < .001) were significantly correlated with general psychopathology (SCL-90-R). 3. Multiple regression analyses (F(1,	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							73) = 3.01, p = < .01) revealed that high BT significantly predicted dissociation, β = .32 4. Low BT did not predict dissociation but approached significance (p = .06)	
Platt and Freyd (2015), USA	Correlational; interpersonal/non-interpersonal threat conditions	Non-clinical; student members of the University of Oregon HSP	N = 124 Group *n*'s not provided	Female (100%) M_{age} = 20.40 years (*SD* = 3.60)	1. BBTS (Goldberg & Freyd, 2006)	1. SSGS (Marschall, Sanftner, & Tangney, 1994); shame subscale	1. Correlation analyses revealed that HBT was significantly associated with baseline shame (r = .21, p = < .05) and baseline	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						2. SSD (Krüger & Mace, 2002)	dissociation (r = .22, p = < .05) but not baseline fear (r = .05, n.s.)	
						3. PANAS-X (Watson & Clark, 1999); fear subscale	2. Correlation analyses revealed that LBT was significantly associated with baseline dissociation (r = .21, p = < .05) but not baseline shame (r = .09, n.s.) or baseline fear (r = .11, n.s.)	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Bennett et al. (2016), USA	Correlational	Non-clinical; youths recruited from a juvenile detention centre	N = 845	Female (N = 220) M_{age} = 16.12 years (*SD* = 1.29)	1. BBTS (Goldberg & Freyd, 2006); N.B. adapted for youth sample i.e., relational closeness defined as someone they 'cared a lot about'	1. PTSD-RI (Steinberg et al., 2004); N.B. adolescent version. 2. DERS (Gratz & Roemer, 2004)	1. Path analysis showed that there were significant paths (p = < .05) between BT and emotion dysregulation as measured by the DERS. 2. In addition, there were significant paths (p = < .05) between non-BT and emotion dysregulation measured by the DERS 3. SEM revealed significant direct effects between both BT and	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							non-BT and PTSD symptoms across both genders.	
Haahr et al. (2016), Scandinavia	Between groups	Clinical; patients diagnosed with psychosis	N = 191 Close interpersonal trauma < 18 years *n* = 55 No close interpersonal trauma < 18 years	Female (*n* = 77) M_{age} = 27.9 years (*SD* = 9.9)	1. BBTS (Goldberg & Freyd, 2006); N.B. Norwegian/Danish translation by authors; delivered in interview format	1. PANSS (Kay, Opler, & Fiszbein, 1987) 2. GAF (Pedersen, Hagtvet, & Karterud, 2007)	1. T-tests revealed that there were no significant differences in positive or negative symptoms of psychosis or general psychological functioning between participants who had experienced close interpersonal trauma before the age of 18	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
			n = 136				and those who had not.	
Marriott et al. (2016), USA	Correlational	Non-clinical; university undergraduates	N = 124	Female (*n* = 62) M_{age} = 22.55 years (*SD* = 7.17)	1. BBTS (Goldberg & Freyd, 2006)	1. CES-D (Radloff, 1977)	1. Multiple regression analysis revealed that level of BT predicted depression severity ($F(8, 108) = 2.26$, $p = .03$, Cohen's $f^2 = .17$). High BT ($\beta = .28$, $p = .04$) had a greater predictive effect than medium BT ($\beta = .18$, $p = .11$) and low BT (REF).	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
Chiu et al. (2017), Taiwan	Between groups; case-control	Non-clinical; individuals diagnosed with interstitial cystitis/bladder pain syndrome and acute cystitis	N = 141 Interstitial cystitis/bladder pain syndrome *n* = 94 Acute cystitis (clinical controls) *n* = 47	Female (*n* = 141) M_{age} = 40.6 years (*SD* = 10)	1. BBTS (Goldberg & Freyd, 2006); N.B. Chinese version (Chiu et al., 2010)	1. BDI-II (Beck, Steer, Ball, & Ranieri, 1996); N.B. Chinese version (Lu, 2002) 2. BAI (Beck & Steer, 1990); N.B. Chinese version (Che, Lu, Chen, Chang, & Lee, 2006) 3. TDS (Carlson et al., 2011); N.B. Chinese	1. one-way ANOVA revealed significant differences in levels of depression, anxiety and dissociation between the childhood trauma by close others and childhood trauma by non-close other groups	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
						version (Chiu et al., 2015)		
Gobin and Freyd (2017), USA	Between groups	Non-clinical; student members of the University of Oregon HSP	N = 216; group *n*'s not provided	Female (n = 144; 66%) M_{age} = 20.06 years (*SD* = 2.9)	1. BBTS (Goldberg & Freyd, 2006), childhood	1. PDEQ (Marmar, Weiss, & Metzler, 1997)	1. Independent sample t-test revealed a higher rate of state dissociation among HBT survivors (*M* = 1.11, *SD* = .15) compared to participants without a history of HBT (*M* = 1.06, *SD* = .09, *t* (110.49) = -2.52, *p* = .01, Cohen's d = .40) after viewing a	Weak

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							drawing depicting abuse.	
Platt, Luoma, and Freyd (2017), USA	Correlational; dissociation induction task; measures completed pre/post task (exc. BBTS post)	Non-clinical; student members of the University of Oregon HSP	N = 127	Female (100%) M_{age} = 19.9 years (*SD* = 3.45)	1. BBTS (Goldberg & Freyd, 2006)	1. SSGS; shame subscale (Marschall et al., 1994) 2. SSD (Krüger & Mace, 2002) 3. PANAS-X; (Watson & Clark, 1999); N.B. fear subscale only	1. Correlation analysis showed that HBT was significantly associated with baseline shame (*r* = .27, *p* = < .01) and baseline dissociation (r = .23, *p* = < .05) but not baseline fear (r = .15, n.s.). 2. LBT was significantly associated with baseline shame (*r* = .34, *p* = < .001), baseline dissociation (r =	

Author, date, country of recruitment	Design	Sample type	Sample size (including group *n's* where applicable)	Participant characteristics	Relevant Measures Betrayal trauma	Mental health outcomes	Main (relevant) findings	Quality rating
							.27, p = < .05) and baseline fear (r = .41, p = .001). 3. Structural equation modelling revealed that HBT significantly predicted baseline shame (β = .22, p = < .01) but not baseline fear. LBT predicted both baseline shame (β = .23, p = < .05) and baseline fear (β = .40, p = < .001).	

Note. HBT = high betrayal trauma; MBT = medium betrayal trauma; LBT = low betrayal trauma; HSP = human subjects pool; ESCS = Eugene Springfield community sample; BBTS = brief betrayal trauma survey; DES = dissociative experiences scale; J-EBBTS = Japanese extended version of the BBTS; J-HTQ

= Japanese version of Harvard trauma questionnaire; J-HSCL-25 = Japanese version of the Hopkin's symptom checklist; TSC-40 = trauma symptom checklist-40; BPI = borderline personality inventory; CDC = child dissociative checklist; BSL-23 = borderline symptom list-23; TAS-20 = Toronto alexithymia scale-20; PTSD-RI = posttraumatic stress disorder-reaction index; ICU = the inventory of callous-unemotional traits; ERNS = emotional numbing and reactivity scale; SOS-10 = Schwartz outcome scale; AAS = adult attachment scale; SPM = shame posture measure; RCMS = revised civilian Mississippi scale; DERS = difficulties in emotion regulation scale; IES = impact of events scale; PCL-C = posttraumatic stress disorder checklist-civilian version; CIDI = composite international diagnostic interview; CES-D = centre for epidemiologic studies-depression scale; PSS = perceived stress scale; IPO = inventory of personality organisation; HVQ = hypervigilance questionnaire; TDS = traumatic dissociation scale; SCL-90 = symptom checklist-90; SSGS = state shame and guilt scale; SSD = state scale of dissociation; PANAS-X = positive and negative affect schedule-expanded form, fear subscale; PANSS = positive and negative syndrome scale; GAF = global assessment of functioning scale; BDI-II = Beck depression inventory-II; BAI = Beck anxiety inventory; PDEQ = the peritraumatic dissociative experiences questionnaire.

Table 2

Critical appraisal summary

Study	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts	Global rating
DePrince and Freyd (2004)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Barlow & Cromer (2006)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Allard (2009)	Moderate	Weak	Moderate	Moderate	Moderate	Moderate	Moderate
Gobin & Freyd (2009)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Kaehler & Freyd (2009)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Hulette, Kaehler, and Freyd (2011	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak

Study	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts	Global rating
Belford, Kaehler, and Birrell (2012)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Goldsmith, Freyd and Deprince (2012)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Kaehler & Freyd (2012)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Kerig, Bennett, and Thompson (2012)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Owen, Quirk and Manthos (2012)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Platt & Freyd (2012)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Tang & Freyd (2012)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak

Study	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts	Global rating
Gamache, Cromer, DePrince and Freyd (2013)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Goldsmith, Chesney, Heath and Barlow (2013)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Klest, Freyd and Foynes (2013)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Gomez, Kaehler and Freyd (2014)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Mackelprang et al. (2014)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Yalch and Levendosky (2014)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak

Study	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts	Global rating
Bernstein, Delker, Knight, and Freyd (2015)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Chiu et al. (2015)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Platt and Freyd (2015)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Bennett et al. (2016)	Moderate	Weak	Weak	Moderate	Moderate	Moderate	Weak
Haahr et al. (2016)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Marriott et al. (2016)	Weak	Weak	Weak	Moderate	Strong	Moderate	Weak
Chiu et al. (2017)	Moderate	Moderate	Weak	Moderate	Moderate	Moderate	Moderate

Study	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts	Global rating
Gobin and Freyd (2017)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak
Platt, Luoma and Freyd (2017)	Moderate	Weak	Weak	Moderate	Strong	Moderate	Weak

Appendix A

Guidelines for Authors: Psychological Trauma: Theory, Research, Practice and Policy

Submission

To submit to the Editorial Office of Kathy Kendall-Tackett, please submit manuscripts electronically through the Manuscript Submission Portal in Microsoft Word or Open Office format.

General correspondence may be directed to the Editor's Office.

Authors must indicate in their cover letter whether they prefer masked or unmasked peer review. If anonymous review is requested, all author's names, their affiliations, and contact information will be removed by the manuscript coordinator.
In addition to addresses and phone numbers, please supply email addresses and fax numbers for use by the editorial office and later by the production office. Most correspondence between the editorial office and authors is handled by email, so a valid email address is important to the timely flow of communication during the editorial process.
Keep a copy of the manuscript to guard against loss.

Length

Manuscripts for *Psychological Trauma: Theory, Research, Practice, and Policy* can vary in length, but may not exceed 28 double-spaced manuscript pages (including title page, abstract, manuscript body, references, and tables/figures.) Manuscripts that exceed this length may be returned without review. Authors do have the option of electronically archiving supplemental material, such as tables and figures, in order to assist them in keeping their articles to the required length. (See below.)
While *Psychological Trauma* primarily publishes original empirical studies, we are also open to reviewing high quality literature reviews and clinical, qualitative, theoretical and policy articles.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).
Review APA's Checklist for Manuscript Submission before submitting your article.
Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*.
Additional guidance on APA Style is available on the APA Style website.
If your manuscript was mask reviewed, please ensure that the final version for production includes a byline and full author note for typesetting.

Below are additional instructions regarding the preparation of tables.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Brief reports

Brief reports are articles that do not exceed 12 pages including the cover page, abstract, tables, figures, and references. A brief report is appropriate when there are preliminary findings, or findings from a small sample size, that may not be appropriate for a full research report.

Academic Writing and English Language Editing Services

Authors who feel that their manuscript may benefit from additional academic writing or language editing support prior to submission are encouraged to seek out such services at their host institutions, engage with colleagues and subject matter experts, and/or consider several vendors that offer discounts to APA authors.
Please note that APA does not endorse or take responsibility for the service providers listed. It is strictly a referral service.
Use of such service is not mandatory for publication in an APA journal. Use of one or more of these services does not guarantee selection for peer review, manuscript acceptance, or preference for publication in any APA journal.

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APA can place supplemental materials online, available via the published article in the PsycARTICLES®database. Please see Supplementing Your Article With Online Material for more details.

Abstract and Keywords

All manuscripts must include a structured abstract divided into the following sections, with headings: Objective, Method, Results, and Conclusions. The Objective should clearly communicate the novel contribution of the manuscript. In the Conclusion, please identify at least one specific implication and avoid boilerplate language such as 'Implications will be discussed.'
The abstract should be no longer than 250 words and should be followed by five keywords, or brief phrases.

Clinical Impact Statements

Authors are asked to include a short statement of no more than 100 words, written in conversational English, that summarizes the article's findings and why they are important to practice.

This new article feature allows authors greater control over how their work will be interpreted by a number of audiences (e.g., practitioners, policy makers, news media).
This text should appear in your manuscript, below the abstract, in a section titled "Clinical Impact Statement."
Please refer to the Guidance for Translational Messages page to help you write this text.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.
Examples of basic reference formats:

- **Journal Article:**

  Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin, 139,* 133–151. http://dx.doi.org/10.1037/a0028566

- **Authored Book:**

  Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach.*Cambridge, MA: MIT Press.

- **Chapter in an Edited Book:**

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Thesis Section 2: Empirical Paper

The Role of Self-disgust in the Relationship Between Childhood Trauma and Psychotic Experience

Prepared for submission to Psychosis: Psychological, Social and Integrative Approaches

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Abstract

Objective: Traumatic events in childhood have been implicated in the development of psychosis. Consequently, researchers have started to investigate the specific psychological variables involved. However, the role played by self-directed disgust, has not been examined. Given that self-disgust impacts on a range of mental health conditions, the objective of the present study was to investigate if it also plays a role in the relationship between childhood trauma and psychosis.

Method: 78 participants who reported experiencing clinical levels of psychosis were recruited using social media. The participants completed online survey measures of childhood trauma, self-disgust, experiences of psychosis, self-esteem, external shame and general disgust. The data were analysed using correlation and mediation analyses.

Results: Mediation analyses found significant indirect effects of childhood trauma on both positive and negative symptoms of psychosis via self-disgust. These effects remained despite the inclusion of self-esteem and external shame as control variables in the mediation models.

Conclusion: This study is the first to investigate the role of self-disgust in the relationship between childhood trauma and psychosis. The findings suggest that self-disgust mediates this relationship and does so over and above the related self-conscious emotions of self-esteem and external shame.

The Role of Self-disgust in the Relationship Between Childhood Trauma and Psychotic Experience

Childhood Trauma and Psychosis

Considerable evidence now links childhood trauma (sexual abuse [SA], physical abuse [PA], emotional abuse [EA] and neglect etc.) to the development in later life of psychosis. For example, in a meta-analysis of 36 studies, Varese et al. (2012) found significant associations between different types of childhood trauma and adversity (SA, PA, EA, neglect, parental death and bullying) and psychotic symptoms in adulthood. Varese et al.'s (2012) findings indicated that individuals who had experienced childhood trauma were almost three times more likely to develop psychosis than those who had not been exposed to trauma in childhood. Furthermore, there was evidence of a 'dose-response' relationship as it was found that increased exposure to childhood trauma, in terms of type or frequency, resulted in a greater likelihood that the affected individual would develop psychosis (Varese et al., 2012). A subsequent meta-analysis investigated the levels of childhood trauma among people diagnosed as *schizophrenic* compared to non-patient controls and found significantly higher levels in the former (Matheson, Shepherd, Pinchbeck, Laurens, & Carr, 2013). Consequently, evidence suggests that even conditions traditionally considered medical diseases (i.e. *schizophrenia*) are likely to have a traumagenic origin.

Several contemporary theories attempt to explain the link between trauma experienced in childhood and the later development of psychosis, for example, the 'trauma-genic neurodevelopmental' (TN) theory by John Read and colleagues (Read, Perry, Moskowitz & Connolly, 2001; Read, Fosse, Moskowitz & Perry, 2014). This theory suggests that psychosis in adulthood primarily originates from trauma-induced neuro-developmental changes to the brain in childhood and not because of a genetic predisposition (Read, Fink,

Rudegeair, Felitti, & Whitfield, 2008). Despite the usefulness of the TN model in challenging the dominant disease-based paradigm of psychosis, it is limited in its capacity to elucidate the heterogeneous pathways to psychosis that have been highlighted by contemporary research (see, for example, Bentall et al., 2014). Moreover, research investigating the psychological mechanisms associated with psychosis has revealed that different psychosis-related experiences, such as auditory verbal hallucinations (AVHs) and paranoia, involve discrete cognitive processes and, therefore, are likely to have different developmental pathways (e.g. Bentall & Fernyhough, 2008). For example, the different cognitive processes that have been highlighted by researchers in this field include: source-monitoring difficulties in AVHs (Brookwell, Bentall, & Varese, 2013) and bias towards threat-based thinking styles that focus the individual's attention on perceived environmental danger, a pattern which can lead to paranoia (Bentall et al., 2008). Moreover, the idea that different pathways to these symptoms exist has been supported by a series of research studies showing that different types of trauma lead to different types of psychosis experience (e.g., Bentall, Wickham, Shevlin, & Varese, 2012; Pickering, Simpson, & Bentall, 2008; Sitko, Bentall, Shevlin, O'Sullivan & Sellwood, 2014).

In addition to the above research on the psychological processes involved in psychosis, a more general call has been made for further elaboration of psychological processes within the biopsychosocial model of mental health difficulties (e.g. Kinderman, 2005). This coincides with increased conceptual and statistical capabilities to measure variables that mediate the relationships between phenomena (Hayes, 2013). Therefore, even though evidence for the heterogeneous trauma pathways to psychosis is strong, it remains important for research to elucidate the particular mediating variables involved. For example, not everyone who experiences a given trauma will develop symptoms of psychosis. Consequently, investigation of the psychological variables that are considered to mediate the

relationship between childhood trauma and mental health difficulties could provide insight into the various pathways leading to these outcomes. Furthermore, improved understanding of the mechanisms responsible for these relationships could support the development of more targeted psychological interventions, given changing the previous abuse is not possible.

Disgust and Self-disgust

Disgust has been categorised as a primary emotion since the emergence of Darwinian concepts regarding the evolutionary function of human emotionality (Rozin & Fallon, 1987). In this sense, the core function of disgust has been conceptualised as a type of rejection response, particularly with regard to food items, with the overall purpose being the prevention of contamination due to their ingestion (Rozin & Fallon, 1987). However, over the course of time and with further research, the conceptual boundaries of disgust have been extended. For example, contemporary views propose that it is a multifaceted emotional construct that can be triggered by a wide range of sociocultural factors (Powell, Simpson, & Overton, 2015). Subsequently, a general consensus has developed supporting the primary function of disgust to be avoidance and/or rejection of potential contaminants including, among others: body waste products (faeces, mucus and urine); unusual sexual practices; certain non-human animals and their waste products; and unsanitary environments (Miller, 1997; Rozin, Haidt, & McCauley, 1999).

Along with an increased research interest in the topic of general disgust and its role in mental health difficulties over the past few years, emotion researchers have also called for more attention to be paid to the related concept of self-disgust. In particular, self-disgust has been defined as a maladaptive disgust reaction triggered by specific aspects of the self, which are appraised as important to the individual's self-concept and are judged to be stable and not easily altered (Powell, Simpson, Overton, 2015). Indeed, this self-directed variant of disgust

was developed much more recently from empirical research but has nonetheless been investigated as a trans-diagnostic concept relevant to a range of mental health problems (Powell, Overton & Simpson, 2015). Furthermore, as a result of research investigating self-directed disgust, two distinct categories have been identified: self-disgust regarding one's own physical appearance and self-disgust related to one's character and/or behaviour (Powell et al., 2015). Therefore, it has been suggested that self-disgust is influenced by socio-cultural learning and that this causes the person affected to consider some aspect of the self as physically and/or socially disgusting (Powell et al., 2015a). While self-disgust is not inherently dysfunctional (Curtis, Danquah, & Aunger, 2009), when it is triggered by an aspect of the individual's physical characteristics, character traits, and/or behaviours, perceived as stable and enduring, then self-disgust may become chronic and maladaptive (Powell et al., 2015).

Moreover, self-disgust has been defined as a discrete emotion schema (Powell, Simpson, & Overton, 2015). Specifically, emotion schemas are cognitive-affective structures typically developed during childhood that consist of both higher-order cognitive processes and felt emotion (Izard, 2011). Crucially, the conceptualisation of self-disgust as an emotion schema leads to several important practical and theoretical considerations. For example, it has been argued by theorists that emotion schemas have a stable and enduring effect upon behaviour and information processing (Izard, 2011). Consequently, if self-disgust is accepted to represent a discrete emotion schema then its activation is likely to complicate the treatment process of any resulting psychological and/or emotional difficulties. Moreover, the phenomenological nature of self-directed disgust often includes strong physiological symptoms, such as nausea, that are likely to further complicate psychological approaches to its treatment (Powell, Overton, & Simpson, 2014).

Despite increasing evidence for the role of self-disgust in a range of mental health

conditions, researchers have called for further empirical delineation of its impact on psychological wellbeing in comparison to related self-directed emotions (Powell, Overton, et al., 2015a). For example, the association of subjective revulsion and self-disgust is one characteristic that is thought to separate it from other self-conscious emotions, such as self-hatred, self-esteem and shame (Gilbert, 2015). In terms of the present study, the role of self-esteem and shame in the development and maintenance of psychosis is considered particularly pertinent. For example, previous research has implicated negative self-esteem in the development and maintenance of psychosis-related symptoms (Bentall & Fernyhough, 2008; Kesting, Mehl, Rief, Lindenmeyer, & Lincoln, 2011) and self-esteem interventions have been shown to lead to improvements in positive symptoms (Hall & Tarrier, 2003). Similarly, shame has also been implicated in the development and maintenance of psychosis (Wood & Irons, 2016), especially the construct of external shame, that is, perceptions that others view you negatively (Matos, Pinto-Gouveia, & Gilbert, 2013; Pinto-Gouveia, Castilho, Matos, & Xavier, 2013). Therefore, in light of this, both self-esteem and external shame will be controlled for in the mediation models tested in the present study.

Trauma, Psychosis and Self-disgust

Despite increased evidence supporting the role of self-disgust in a range of mental health difficulties, the concept has yet to be explored in relation to psychosis. Nevertheless, several indications suggest that it may be theoretically and clinically useful to understand its role in the development and maintenance of psychotic experiences. For instance, as with psychosis, traumatic experiences in childhood, have been implicated in the development of a self-disgust emotion schema. For example, in cases of interpersonal trauma, such as sexual assault, the victim may start to believe that their body has been contaminated or made dirty by the perpetrator (Badour, Feldner, Babson, Blumenthal, & Dutton, 2013). This belief may

then be internalised by the individual and lead to maladaptive self-disgust. Indeed, there is some empirical evidence to support a link between reported sexual and emotional abuse in childhood and the presence of self-disgust. For example, researchers found a significant correlation (r_s (462) = .42, p < .001) between the self-disgust scale (SDS; Overton et al., 2008) and the child abuse and trauma scale (CATS; Sanders & Becker-Lausen, 1995). These types of victimisation have also been shown to increase an individual's risk to later psychosis (Varese et al. 2012). Moreover, self-disgust has been implicated in trauma-related conditions such as post-traumatic stress disorder (PTSD) (Badour & Adams, 2015). Furthermore, given that psychosis has been argued to exist on a continuum of trauma responses that includes PTSD (Morrison, Frame, & Larkin, 2003), it is reasonable to conceptualise a potential developmental pathway from exposure to trauma in childhood, development of a maladaptive self-disgust emotion schema, and later onset of psychosis. Given this, the mediating role of self-disgust in the relationship between childhood trauma and psychosis is a potentially important research topic that has yet to be explored. Therefore, the aim of the present study was to investigate the mediating role of self-disgust in the relationship between childhood trauma and psychotic experiences. Specifically, it was hypothesised that traumatic experiences in childhood would be associated with later psychosis and that the acquisition of a self-disgust cognitive-emotion schema would be a mediating factor between these two variables. The mediation model is presented in Figure 1.

[INSERT FIGURE 1]

Method

Participants

It was decided that the present study would not limit participant inclusion criteria to psychosis-related diagnostic categories as defined by the American Psychiatric Association

and World Health Organization (American Psychiatric Association, 2013; World Health Organisation, 2010). This decision was felt to be justified due to the limited reliability and validity, along with the lack of specificity in terms of aetiology, characterised by such categories (Bentall, 2014; Boyle, 2002). Therefore, the present study's sampling strategy was intended to be as broad as possible, while attempting to ensure that the participants' experiences could be considered indicative of clinical levels of psychosis. Moreover, by broadening out the inclusion criteria in terms of identifying psychotic experience, the study's sampling strategy reflects research evidence showing that psychotic phenomena are frequently experienced by individuals within the general population who have not attracted formal diagnoses (van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009). This allowed that people who had not been formally given a psychosis-related diagnosis, but had nonetheless experienced relevant symptoms, could still take part in the study if they met one or more of the inclusion criteria (see below).

The present study aimed to recruit participants who self-reported having sought help for psychosis related distress (e.g. due to auditory-verbal hallucinations, paranoia, unusual beliefs etc.), as well as those who confirmed having received a formal psychosis related diagnosis. The specific inclusion criteria were as follows: a) the person reported having a diagnosis of psychosis (e.g. schizophrenia, schizo-affective disorder and/or delusional disorder etc.); and/or b) they reported having been prescribed antipsychotic medication; and/or c) they reported having received inpatient treatment, input from a community mental health team or early intervention service for experiences related to psychosis; and/or d) they reported having received therapeutic input (e.g., attended a clinical psychology service, cognitive-behavioural therapist etc.) for experiences related to psychosis. Individuals who met one or more of the above criteria relating to psychosis were eligible to take part in the study.

A total of 78 self-selected participants completed the entire online survey measures. Participant age ranged from 18 to 74 years (M = 37.64 years, SD = 11.57). The majority of the participants were female (77%) and white (88%). The sample had a relatively high level of educational attainment (51% reported having received a degree) and the majority of participants were employed at the time of recruitment (43%). Demographic data for the final sample can be found in Table 1. In addition, Table 1 also includes the number and percentage of participants who self-reported having received a formal psychosis-related diagnosis, input from services for psychosis-related distress, or those who identified as having been prescribed antipsychotic medication.

[INSERT TABLE 1]

Measures and Covariates

Demographic and clinical characteristics questionnaire. A brief questionnaire was used to collect data on participants' sexual orientation, age, gender, nationality, ethnicity, first language, marital status, level of education, years in education, employment status, contact with services for psychosis-related difficulties, psychiatric diagnosis and current medication.

Childhood abuse and trauma scale (CATS) (Sanders & Becker-Lausen, 1995). Childhood trauma was assessed using the CATS. The CATS is a 38-item self-report measure that assesses a range of traumas experienced prior to the age of 18. The measure includes three subscales: sexual abuse (SA; 6 items), punishment (Pun; 6 items), neglect/negative home environment (Neg; 14 items). Five items are reversed scored (5, 18, 24, 22, 23). Each scale item is measured on a five-point scale including: *never* (0)*, rarely* (1)*, sometimes* (2)*, very often* (3) and *always* (4). Example items include: "Did you have traumatic sexual experiences as a child or teenager?" (SA); "Were you expected to follow a strict code of behaviour in your home?" (PUN); and "As a child, did you feel unwanted or emotionally

neglected?" (Neg). Possible scores range from 0 to 154 with higher scores indicating higher levels of childhood trauma. A total CATS score is obtained by summing each of the subscale totals. The measure shows strong internal consistency and test-retest reliability in clinical and non-clinical samples (Hocking, Simons, & Surette, 2016; Okubo et al., 2017; Sanders & Becker-Lausen, 1995). Previous research has used the measure in online samples (Hocking et al., 2016) and it has been used in samples of people with psychosis (Okubo et al., 2017). Internal consistency of the scale in the present study was strong as indicated by a Cronbach's alpha coefficient of $\alpha = .95$.

Community assessment of psychic experience (CAPE) (Stefanis et al., 2002).

Level of psychosis was measured using the CAPE. The CAPE is a 42-item self-report measure that covers three symptom dimensions: 1) positive symptoms (two items assessing auditory-verbal hallucinations and 16 items assessing delusions); 2) depressive symptoms (eight items) and negative symptoms (14 items). Each item is measured on a 4-point Likert scale to indicate the frequency of each symptom type ('never', 'sometimes', 'often' and 'nearly always'). Example items include: "Do you ever feel as if people seem to drop hints about you or say things with a double meaning?" (positive symptoms); "Do you ever feel sad?" (depressive symptoms); and "Do you ever feel that you are not a very animated person?" (negative symptoms). The CAPE provides an overall score and total score for each dimension. The present study used the positive and negative symptom dimensions only and a total score for each was calculated. The CAPE has been shown to have good psychometric properties in both clinical and non-clinical samples (Thewissen, Bentall, Lecomte, Van Os, & Myin-Germeys, 2008). It has previously been used in online samples of people with clinical levels of psychosis (Pearce et al., 2017). Internal consistency of the scale in the present study was strong for both subscales used (positive symptoms: $\alpha = .89$, negative symptoms: $\alpha = 88$).

Self-disgust scale-revised (SDS-R) (Powell, Overton, & Simpson, 2015a). Self-disgust was measured using the SDS-R. The SDS-R is a 22-item self-report measure that assesses for an individual's level of self-directed disgust. The SDS-R consists of two subscales: physical self-disgust (5 items) and behavioural self-disgust (5 items) as well as a total score relating to general self-disgust (15 items). The remaining seven items are filler items. Four of the items are reverse scored (2, 8, 11, 18). Each item is measured on a 7-point scale ('strongly disagree' [1] to 'strongly agree' [7]). Example items include: "I find myself repulsive" (physical) and "I am sickened by the way I behave" (behavioural). All 15 items are then summed to obtain a total self-disgust score with higher scores indicating greater self-disgust. The SDS-R had strong internal consistency in a non-clinical undergraduate sample (α = .92). Although the SDS-R has not previously been used in a clinical sample of people experiencing psychosis, the internal consistency in the present study was good (.82).

Covariates. Self-esteem and shame were considered as potential covariates because they have been shown to play in a role in the development and maintenance of psychosis-related experiences and their associated distress (Birchwood et al., 2007; Wood, Byrne, Burke, Enache, & Morrison, 2017). Therefore, measures of external shame and self-esteem were included in the online survey to ensure that the hypothesised role of self-disgust in the relationship between childhood trauma and later psychosis was distinct from that of external shame and self-esteem. Specifically, external shame is characterised by perceptions that others are shaming and hold a negative view of you, rather than the negative thoughts and feelings about yourself characteristic of internal shame (Wood & Irons, 2016).

General disgust was also included as a covariate in the analysis. Specifically, measures of disgust propensity (defined as an individual's tendency to react to any given situation with the emotion of disgust), and disgust sensitivity (defined as the extent to which the individual applies a negative appraisal to experiencing disgust) were used. These

constructs have been shown to increase vulnerability to emotional and psychological problems, such as fears and phobias (van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006). Moreover, research has indicated a potential role of disgust sensitivity in the development and maintenance of psychosis (Ille, Schöny, Kapfhammer, & Schienle, 2010). The constructs were included in the present study to ensure that the hypothesised role of self-disgust in the relationship between childhood trauma and psychosis was distinct from that of general disgust.

Rosenburg self-esteem scale (RSES) (Rosenberg, 1965). Level of self-esteem was measured using the RSES. The RSES is a 10-point self-report measure of global self-esteem. Items are scored on a four-point Likert scale and the response categories include: *strongly agree* (1), *agree* (2), *disagree* (3) to *strongly disagree* (4). Five items are reversed scored (1, 2, 4, 6 and 7). Example items include: "At times I think that I am no good at all" and "I certainly feel useless at times". The total score can be any value between 10 and 40, with higher scores indicating greater levels of self-esteem. The RSES has previously been used in clinical samples of people experiencing psychosis (Smith et al., 2006). It has been shown to have good internal consistency in previous research as indicated by a Cronbach's alpha coefficient of .91 (Sinclair et al., 2010). The RSES had excellent internal consistency in the present study (Cronbach's $\alpha = .93$).

Other as shamer scale (OAS) (Goss, Gilbert, & Allan, 1994). External shame was measured using the OAS. The OAS was adapted from Cook (1988) internalised shame scale to measure the psychological construct of *external shame.* The scale consists of 18 items each rated on a five-point scale according to the frequency of perceived evaluations about how others judge the self. The scale range is from zero to four and includes: *never* (0), *seldom* (1), *sometime* (2), *frequently* (3) and *almost always* (4). Example items include: "I feel other people see me as not good enough" and "Other people look for my faults". A total external

shame score is determined by summing item scores. The measure has been previously used in online survey research designs (Norberg, Wetterneck, Woods, & Conelea, 2007) and in clinical samples of people experiencing psychosis (Norberg et al., 2007). The scale had excellent internal consistency (α = .92) in the original validation study (Goss et al., 1994). Similarly, the scale's internal consistency in the present study was excellent (α = .95).

Disgust propensity and sensitivity scale-revised (DPSS-R) (van Overveld et al., 2006). General disgust (i.e., disgust propensity and disgust sensitivity) was measured using the DPSS-R. The DPSS-R is a 12-item self-report measure designed to assess the frequency of disgust experiences (described as *disgust propensity*) and the emotional impact of disgust experiences (described as *disgust sensitivity*). The scale rating is structured from one to five in terms of agreement with each item. The response categories are identical across the entire measure: *never* (1), *rarely* (2), *sometimes* (3), *often* (4) and *always* (5). Example items include: "I avoid disgusting things" (propensity) and "When I feel disgusted, I worry that I might pass out" (sensitivity). Total scores for each subscale are obtained by summing together the items of each respective subscale (disgust propensity and disgust sensitivity) and each subscale is analysed separately. Both subscales include six items each. The disgust sensitivity subscale of the DPSS-R has previously been used in clinical samples of people with psychosis and demonstrated good internal consistency (α = .77). Both the disgust propensity and disgust sensitivity subscales were used in the present study and had good internal consistency (α = .84 and .82 respectively).

Procedure

The online survey platform, Qualtrics (Qualtrics Research Core, Provo, UT) was used to develop and administer the online survey. A digital link was created and was uploaded to the social media platforms Facebook and Twitter by the principal investigator. In order to

target participants via these social media platforms, the principal investigator requested membership to Facebook group pages related to psychosis. These forums are intended to be a point of contact and communication for people experiencing psychosis, family and friends of people experiencing psychosis and others with an interest in the condition, including healthcare professionals and researchers. In cases where the Facebook groups were closed (i.e., required permission from a group administrator to join and post content to the group), the principal investigator would contact the said individual and request access. In cases where the group was open, the principal investigator posted the survey link to the group page and included a brief explanation. In terms of disseminating the link via Twitter, the principal investigator used a research account for this purpose. The process involved spontaneous tweets of the link by the principal investigator and requests for retweets from prominent individuals with a particular interest in the topic area (e.g. service-user activists, healthcare professionals, academic psychologists). The digital link directed potential participants to the participant information sheet (PIS) and study consent form. The PIS detailed what would be required of participants, outlined eligibility criteria and explained the concepts of informed consent and the right to withdraw. It also included contact details for members of the research team should potential participants have wished to learn more about the study prior to taking part. In addition, contact details for relevant members of the Lancaster University Faculty of Health and Medicine staff team were provided should potential participants have wished to discuss any complaints or other issues about the research with someone external to the research team. Upon providing their consent to take part in the study, participants were directed to the complete set of survey measures. After completing the survey, participants were offered the opportunity to be entered into a cash prize draw and to receive a summary of the study's findings once this was available. For this they were required to provide an email address and the implications of this in terms of confidentiality and anonymity were outlined

in the PIS and consent form. In addition, after completing the study measures, participants were directed to a debrief sheet. This included further details about the nature of the research and directed participants to further reading on the topics of self-disgust and psychosis should they be interested in this. It also included a list of relevant support organisations that participants could contact should they have experienced any emotional or psychological distress as a result of taking part in the study.

Statistical Analysis

Data analyses were conducted using IBM SPSS Statistics v2. Bivariate associations between the different variables were examined using correlational tests (Spearman rank order correlation). A series of mediation models were estimated to 1) investigate the indirect effect of childhood trauma on positive symptoms of psychosis via self-disgust, while controlling for self-esteem and external shame 2) to investigate the indirect effect of childhood trauma on negative symptoms of psychosis via self-disgust, while controlling for self-esteem and external shame. The mediation tool employed to conduct these analyses (PROCESS macro for SPSS: Hayes, 2013) also provided regression coefficients between each of the variables of interest in the model. Bias-corrected percentile-based confidence intervals (CIs) of 2000 bootstrap draws were used to test for statistical significance of the indirect effects.

Results

Initially, a total of 167 self-selected participants entered the Qualtrics online survey (Qualtrics Research Core, Provo, UT), 21% (n = 35) withdrew following completion of the consent form. A further 20% (n = 33) withdrew part way through the survey measures and their data were deleted as per ethics agreement for the study. In addition, 13% (n = 21) had their data deleted because they either did not meet the inclusion criteria of seeking help for

psychosis related experiences (n = 18) or were under the age of 18 (n = 3). This left a final sample of n = 78.

Participants' mean scores on the SDS-R for this study can be considered moderate (M = 60.07) given that possible scores on the scale can range from 22 to 154, with a higher score indicating greater levels of self-disgust. Furthermore, previous theoretical work has suggested an increased likelihood of self-disgust in females (see Powell, Simpson, et al., 2015), which was the case in the present study (U = 328.50, p = .02) because female participants showed higher levels of self-disgust (Mdn = 65.50) than males (Mdn = 53.50). Comparison to SDS-R scores from related previous research is unavailable given a lack of published data relevant to people who have experienced psychosis. However, a non-clinical sample of university students scored a median value of 24 on the measure (see Powell, Overton, et al., 2015a). Therefore, the SDS-R scores in the present study were relatively high, which is likely due to the sampling procedure having been designed to include individuals with clinical levels of psychosis.

In terms of childhood trauma levels, the sample mean in the present study (M = 64) suggested a moderate amount of trauma experiences among the participants. Furthermore, the minimum score in the sample was 15 and this was evidence that all participants endorsed experiencing traumatic experiences in childhood, with no participants not reporting a trauma event. Non-parametric between group analysis (Mann-Whitney U) revealed that levels of reported childhood trauma were not different between males and females (U = 435.50, p = .60).

Kolmogorov-Smirnov statistical tests for normality were conducted on the data for each measure used in the study. These revealed that the score distributions for childhood trauma (CATS; D(73) = .08, p = *.20*), self-esteem (RSES; D(77) = .06, p = *.20*), shame

(OAS; $D(75) = .07$, p = *.20*), disgust sensitivity (DPSS-R subscale; $D(76) = .08$, p = *.20*), self-disgust (SDS-R subscale; $D(76) = .10$, $p = .09$) and negative symptoms of psychosis (CAPE subscale; $D(74) = .10$, p = .07) did not deviate significantly from normality. However, the score distributions for disgust propensity (DPSS-R subscale; $D(75) = .12$, p = .02) and positive symptoms of psychosis (CAPE subscale; $D(74) = .11$, p = .03) violated the condition of normality. Furthermore, visual analysis using inspection of histograms and probability-probability plots (P-P plot) suggested that data were non-normal across a range of the measures used. Therefore, given that a proportion of the data were not normally distributed, and so violated assumptions for parametric tests (see Field, 2013), non-parametric analyses were conducted.

Missing data points were present, but satisfactorily low (< 5%), across a number of the study variables including: shame (RSES), disgust propensity and sensitivity (DPSS-R respective subscales), self-disgust (SDS-R) and self-esteem. However, childhood trauma (CATS) as well both positive and negative symptoms of psychosis (CAPE subscales) had missing data above this threshold (6.4%, 5.1% and 5.1% respectively). Consequently, Little's test was conducted and revealed the data to be missing completely at random (MCAR; $\chi^2(57) = 61.51$, p = .32). Moreover, non-parametric analysis (Fisher's exact test) found no difference in participant gender between those who completed the measures in full and those who did not (p = .51). However, further between group analyses (Mann-Whitney U) did reveal a significant difference in age ($U = 158.50$, p = .003) between those who completed the survey (*Mdn* = 36 years) and those who did not (*Mdn* = 49 years). Therefore, age was included in the initial correlations (see below) to assess for any associations with the study variables of interest.

Overall, no difference was found between participants who completed the measures in full and those who did not for any of the key study variables: childhood trauma ($U = 185.50$,

p = .76), self-esteem (*U* = 292, p = .51), shame (*U* = 247, *p* = .72), disgust propensity (*U* = 246, p = .71), disgust sensitivity (*U* = 247.50, p = .38), self-disgust (*U* = 253.50, p = .44), positive symptoms of psychosis (*U* = 216, p = .73) and negative symptoms of psychosis (*U* = 219, p = .77). This was taken as evidence that bias had not been introduced by the presence of systematic differences between study participants based on whether they completed the measures or not. Therefore, data maximisation using series mean imputation was applied to cases with missing data. Following imputation of these data points, paired sample *t*-tests were conducted to assess the impact of this upon the variables. The results of these analyses revealed a negligible difference after series mean imputation had been applied and this was taken as confirmation that the data maximisation strategy had been successful. Table 2 includes the descriptive statistics for each measure used in the study.

[INSERT TABLE 2]

Correlation Analysis

In preparation for mediation analysis, bivariate correlations were performed to investigate the relationships between level of childhood trauma, self-disgust and psychosis as well as self-esteem, shame, disgust propensity and sensitivity. Non-parametric Spearman rank order correlation co-efficient values (r_s) are shown in Table 3.

[INSERT TABLE 3]

Childhood trauma significantly correlated with all variables of interest (self-disgust and symptoms of psychosis). Positive correlations were also found between self-disgust and symptoms of psychosis (positive and negative). Furthermore, significant correlations, in the predicted direction, for psychosis were found with both self-esteem and shame. Therefore, co-variation was indicated for these variables, suggesting that this needed to be controlled. Similarly, both disgust propensity and sensitivity showed significant positive correlations

with negative symptoms of psychosis. However, neither of these variables were significantly associated with positive symptoms of psychosis. Moreover, given the present study's focus on self-disgust, and in an attempt to protect model integrity given the limited sample size (n = 78), neither disgust propensity nor sensitivity were included in further analyses. Furthermore, participant age did not significantly correlate with any of the study variables, therefore, it was also not included in further analyses.

Mediation Analyses

Initially, two unadjusted mediation models were tested. The first of these investigated the hypothesis that self-disgust would mediate the relationship between childhood trauma and positive symptoms of psychosis. The regression pathways showed that childhood trauma significantly predicted self-disgust (a: b = .38, 95% CI [.21, .55], p = < .01) and self-disgust significantly predicted positive symptoms of psychosis (b: b = .17, 95% CI [.06, .27], p = < .01). In addition, a bias corrected bootstrap confidence interval, based on 2000 samples, was calculated for the overall indirect effect via self-disgust (ab: b = .06) and was completely above zero (BC 95% CI [.03, .13]), demonstrating that the model indicated a significant mediated effect of childhood trauma on positive symptoms of psychosis. Furthermore, there was no evidence that childhood trauma predicted positive symptoms independently of self-disgust (c ¦ b = .07, 95% CI [- .02, .15], p = .14). Figure 2 displays a path diagram estimating the effect of childhood trauma on positive symptoms of psychosis through self-disgust.

[INSERT FIGURE 2]

The second unadjusted mediation model tested the hypothesis that self-disgust would mediate the relationship between childhood trauma and negative symptoms of psychosis. The regression pathways indicated that childhood trauma significantly predicted self-disgust (a: b

= .38, 95% CI [.21, .55], p = < .01) and self-disgust significantly predicted negative symptoms of psychosis (b: *b* = .22, 95% CI [.14, .29], p = < .01). Moreover, there was a significant indirect effect of childhood trauma on negative symptoms of psychosis via self-disgust (ab: *b* = .08, BC 95% CI [.04, .13]). Also, the model found no evidence that childhood trauma predicted negative symptoms independently of self-disgust (*c* ¦ *b* = .05, 95% CI [- .02, .11], p = .15). Figure 3 displays a path diagram estimating the effect of childhood trauma on negative symptoms of psychosis through self-disgust.

[INSERT FIGURE 3]

Following this, two adjusted mediation models, each controlling for self-esteem and shame, were tested. The first model investigated the hypothesis that self-disgust would mediate the relationship between childhood trauma and positive symptoms of psychosis when controlling for the effects of self-esteem and shame. The regression pathways showed that childhood trauma significantly predicted self-disgust (a: *b* = .38, 95% CI [.21, .55], p = < .001) and self-disgust significantly predicted positive symptoms of psychosis (b: .19, 95% CI [.01, .36], p = .04). A bias corrected bootstrap confidence interval, based on 2000 samples, was calculated for the overall indirect effect via self-disgust (ab: *b* = .07) and was completely above zero (BC 95% CI [.001, .16]), demonstrating that the model indicated a significant mediated effect of childhood trauma on positive symptoms of psychosis with self-esteem and shame as control variables. Moreover, childhood trauma did not predict positive symptoms of psychosis independently of self-disgust (*c* ¦ *b* = .02, 95% CI [- .08, .11], p = .71). Figure 4 displays a path diagram estimating the effect of childhood trauma on positive symptoms of psychosis through self-disgust with self-esteem and shame added to the model as control variables.

[INSERT FIGURE 4]

The second adjusted mediation model tested the hypothesis that self-disgust would mediate the relationship between childhood trauma and negative symptoms of psychosis when controlling for self-esteem and shame. The regression pathways showed that childhood trauma significantly predicted self-disgust (a: *b* = .38, 95% CI [.21, .55], p = < .001) and self-disgust significantly predicted negative symptoms of psychosis (b: *b* = .17, 95% CI [.03, .30], p = .01). In addition, there was a significant indirect effect of childhood trauma on negative symptoms of psychosis through self-disgust with self-esteem and shame added to the model as control variables (ab: *b* = .06, BC 95% CI [.01, .14]). The model also showed that childhood trauma did not predict negative symptoms of psychosis independently of self-disgust (*c* ¦ *b* = .02, 95% CI [- .05, .09], p = .55). Figure 5 displays a path diagram estimating the effect of childhood trauma on negative symptoms of psychosis through self-disgust with self-esteem and shame added to the model as control variables.

[INSERT FIGURE 5]

Discussion

Self-disgust has been defined as a discrete emotion schema relevant to a range of mental health conditions (Powell, Simpson, et al., 2015). However, the role that it plays in the development and maintenance of psychosis has not previously been considered. Therefore, the present study aimed to explore the impact of self-disgust on the relationship between childhood trauma and later onset of psychosis. In particular, the study examined the hypothesis that self-disgust would mediate this relationship and that it would do so over and above the related emotions of self-esteem and external shame.

The results described above support the study hypothesis and suggest a role of self-disgust in the development and maintenance of both positive and negative symptoms of

psychosis. However, the findings presented here are preliminary and require further research to corroborate them and differentiate the specific symptoms that may be most relevant to self-disgust. Nevertheless, they allow for provisional conclusions to be drawn about the potential pathways from childhood trauma to psychosis via self-disgust.

In terms of positive symptoms, these findings are consistent with theoretical accounts of the potential mechanisms underpinning the formation and content of the anomalous experiences, such as hallucinations (tactile, olfactory and auditory) and delusions, associated with psychosis. For example, Read et al. (2008) point to examples from empirical research that suggest a link between the content of positive symptoms associated with psychosis (e.g. hallucinations, delusions) and the specific nature of trauma events that the affected individual has been exposed to. These include, for instance, a survivor of multiple incidents of rape and sexual assault breaching their body envelope with a shower hose in order to "wash self as people are trying to put aliens into my body" (Read, Agar, Argyle, & Aderhold, 2003, p. 12). Such themes of contamination/violation by foreign objects, or similar, can be considered relevant to the law of contagion, a concept found in the general disgust literature. For example, Rachman (2006) described this as "an intense and persisting feeling of having been polluted, dirtied, or infected, or endangered as a result of contact, direct or indirect, with an item/place/person perceived to be soiled, impure, dirty, infectious, or harmful" (p. 9). Therefore, contamination fears may act as a bridge between the development of a self-disgust emotion schema and positive symptoms relating to themes of contamination. Moreover, Badour and Adams (2015) suggest that a form of mental contamination can occur for an individual after they have experienced a traumatic event, in particular sexual victimisation, which leaves them feeling dirtied by the act/perpetrator and a sense of being unable to cleanse themselves. The internalisation of such beliefs may then influence the nature of any psychosis-related experiences that the individual has, for instance, auditory-verbal

hallucinations, olfactory hallucinations and strongly held negative beliefs about themselves and others.

Furthermore, the present findings provide provisional support for proposed theoretical models that suggest self-disgust, along with other self-directed emotions (e.g., shame), could develop through negative self-appraisals at the post-traumatic stage of a trauma event and are further reinforced by trauma-related disgust prompted by fears that one's body has been contaminated (Jung & Steil, 2012). Consequently, it may be that the parts of the individual (including non-physical aspects of the person) most closely associated with the traumatic event (e.g. the genitals following rape, a character trait or behaviour for which the person is subjected to social stigma) are depersonalised and separated from the individual's sense of self. This may then increase experiences of dissociation, which initially function as a means of coping with the distress related to perceiving the self, including the physical body, as contaminated, violated or dirtied (i.e. disgusting) but become maladaptive over time. Indeed, previous research has implicated dissociation in the development and maintenance of voice hearing (Pilton, Varese, Berry, & Bucci, 2015) and paranoia (Pearce et al., 2017). Therefore, this may be one explanation for the role of self-disgust in the relationship between childhood trauma and positive symptoms of psychosis. However, levels of dissociation were not measured or controlled for in the present study and, therefore, this interpretation should only be considered tentatively at this stage.

The finding that self-disgust mediates the relationship between childhood trauma and negative symptoms of psychosis is more difficult to ground in previous research. However, a link can be made between the present findings and those related to the role of self-disgust in depressive experiences. For example, longitudinal research data has shown self-disgust to be a predictor of depression and its concomitant behavioural and cognitive characteristics, such as social withdrawal and dysfunctional thinking (Powell, Simpson, & Overton, 2013).

Therefore, given the overlap between social withdrawal and dysfunctional thinking in depression and negative symptom profiles, it may be that self-disgust has a role in the development and maintenance of these experiences in psychosis. Furthermore, social withdrawal, a key element of negative symptoms, may be underpinned by dysfunctional cognitions about the self as posing a potential contaminant risk to others. Consequently, this may lead the individual to avoid contact with significant others, and other people more generally, thus perpetuating a cycle of withdrawal and potentially further reinforcing disgust related beliefs about the self. However, such an interpretation should, as above, be approached with caution because the present study did not control for depressive symptoms and it is unclear as to what impact they may have in terms of covariance in the mediation models reported here. Moreover, it is possible that depression represents a confounding variable and may provide an alternative explanation for the findings reported here. Consequently, it is not possible to conclude with certainty that the effect of self-disgust was not, in fact, due to symptoms of depression.

In the present study, the effects of both self-esteem and external shame were controlled for in the mediation models. This reflected the need for greater conceptual clarity regarding the discrete nature of self-disgust in relation to these self-conscious emotions. Indeed, the findings described here support theoretical accounts of self-disgust that consider it to be conceptually distinct from shame (e.g. Powell, Simpson, et al., 2015). In this case, despite controlling for the effects of self-esteem and shame on the relationship between childhood trauma and symptoms of psychosis, indirect effects via self-disgust were still found. This again calls for a nuanced view of negative emotions and the need for definitional clarity when using related constructs.

Study Limitations

The present study has a number of limitations and due to these any interpretations of the findings presented here should be considered with caution. First, due to the limited sample size used in the present study, it is not possible to draw firm conclusions based on the results. This is especially the case given the novel nature of the research topic because, to the author's knowledge, the role of self-disgust in the development and maintenance of psychosis has not previously been investigated. Moreover, the limited sample size meant that the mediation models did not include other potentially relevant variables (e.g. disgust propensity and sensitivity) because of concerns about compromised model integrity if too many variables were included.

Second, given that the study employed a cross-sectional design it is not possible to assert causal relationships between the variables of interest. Also, given that the study relied upon retrospective reports of childhood trauma the findings could be subject to recall bias. However, there is reasonable evidence that people who have experienced psychosis reliably report their experiences of past trauma (Fisher et al., 2011).

A further limitation relates to the measurement of shame as a control variable in the study. For instance, it is generally accepted in the research literature that shame has two forms: internal (negative thoughts and feelings about the self) and external (perceptions that others view you negatively), which each impact upon mental wellbeing (Matos et al., 2013; Pinto-Gouveia et al., 2013; Wood & Irons, 2016). Yet, the present study only included external shame as a covariate and it may have been empirically useful to have included internal shame alongside this. However, previous research findings suggest that external shame is the most relevant to the development and maintenance of psychosis-related experiences, specifically paranoid ideation in a non-clinical sample (Matos et al., 2013;

Pinto-Gouveia et al., 2013). Therefore, although it may have been useful to have differentiated the effect of each type of shame in the present study, the analysis of data pertaining only to externalised shame is likely to have been the most relevant to the research hypothesis.

Finally, the recruitment strategy used in the present study involved self-selection to participate in the research. In this case, participants choose to enter an online survey via social media, which may have introduced bias to the study sample. For instance, research evidence has revealed differences in demographics between people who use social media and those who do not, for example, the former are more likely to be female, younger in age and from higher social-economic groups (Mellon & Prosser, 2017). Moreover, the demographic characteristics of the present sample showed that a significant majority of participants were female, had relatively high levels of education and were working and/or in further education, thus reflecting the biases outlined above. Therefore, it will be crucial for future research in this area to adopt alternative strategies of recruiting from this population (i.e. people with experiences relating to psychosis). This could be achieved by using face-to-face interviews instead of online survey methods and by recruiting participants through national health service (NHS) organisations rather than social media.

Clinical Implications

The presence of a self-disgust schema should be assessed for and considered by clinicians when developing formulations and delivering interventions to individuals who experience psychosis, especially in cases where a history of childhood trauma has been established. Moreover, learning strategies for emotion regulation is increasingly being recognised as an important aspect of interventions for clients experiencing psychosis (Clarke & Nicholls, 2018). Indeed, the ability to manage strong affect, for example, the negative

emotional experiences when a self-disgust schema is triggered, has been highlighted as an area of particular difficulty for people living with psychosis (Livingstone, Harper, & Gillanders, 2009). It is likely that this type of approach is of particular importance when a client's experiences of psychosis are linked explicitly with self-directed disgust (e.g. a sense that one has been contaminated, such as olfactory hallucinations of a repugnant smell emanating from their own body or visual hallucinations of infestation, such as insects or bugs under the skin). Given this, it is an important task for the clinician to recognise the powerful emotional and physiological aspects of self-disgust (e.g. visceral feelings of nausea and repulsion toward an aspect of self) and to provide the client with ways to manage these. For example, Gilbert (2015) has advocated the use of compassion-based approaches to emotion regulation and maladaptive schemas, for example, integrating the use of breathing techniques, mindful awareness and attentional training, cognitive restructuring and imagery techniques. Furthermore, there is empirical support for a two-session intervention involving cognitive restructuring and imagery modification to alleviate feelings of contamination in adult survivors of CSA (Jung & Steil, 2012, 2013). Furthermore, Powell, Simpson & Overton (2015b) conducted a study that represents the only demonstration to date that it is possible to reduce self-disgust using a therapeutic intervention. In this case, a self-affirmation exercise was used to elicit examples of trait kindness by participants, which subsequently led to reduced levels of self-disgust in relation to appearance. These findings suggest that self-affirming kindness may be an effective intervention for individuals high in trait self-disgust. Therefore, acknowledging the relatively stable nature of emotion schemas, such as maladaptive self-disgust, and offering targeted interventions to alleviate them, may increase the therapeutic benefits for clients experiencing mental health difficulties precipitated and maintained by such schemas.

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Tables and Figures

Table 1

Demographic characteristics of participants

		N	%
Sex	Female	60	77
	Male	18	23
Ethnicity	White Caucasian	69	88
	Other	9	12
Sexual Orientation	Heterosexual	48	62
	Homosexual	6	8
	Bisexual	16	20
	Other	8	10
Marital Status	Never Married	48	62
	Married	18	23
	Registered Civil Partnership	1	1
	Separated or Divorced	10	13
	Widowed	1	1
Level of Education	GCSEs or Less	5	7
	A Levels	7	9
	Degree Level	40	51
	Other	25	33
Employment Status	Unemployed	9	12
	Working	33	43
	Studying	4	5
	Retired	2	3
	Other	30	37
Diagnosis	Schizophrenia	9	13
	Schizoaffective Disorder	6	9
	Depression with Psychotic Features	12	17

	Delusional Disorder	1	1
	Bipolar with Psychotic Features	10	14
	Brief Psychotic Disorder	3	4
	Other (psychosis related)	30	42
Antipsychotic Medication History	Yes	61	87
	No	17	13
Inpatient History	Yes	58	74
	No	20	26
CMHT or EIT History	Yes	61	78
	No	17	22

Table 2

Descriptive characteristics

	n	*M (SD)*	95% CI	*Median*	Min.	Max.	^{z}Skewness	^{z}Kurtosis
Childhood Trauma (CATS)	73	64.48 (25.96)	[58.42, 70.54]	64	15	114	0.11	-1.70
Self-Esteem (RSES)	77	23.62 (7.13)	[22.00, 25.24]	24	11	40	- 0.64	- 0.86
Shame (OAS)	75	54.28 (15.27)	[50.77, 57.79]	53	18	83	- 0.19	- 0.50
Disgust Propensity (DPSS-R)	75	17.16 (4.37)	[16.15, 18.17]	17	6	28	- 1.34	0.31
Disgust Sensitivity (DPSS-R)	76	14.01 (5.23)	[12.82, 15.21]	14	6	28	0.88	- 1.27
Self-Disgust (SDS-R)	76	60.07 (21.12)	[55.24, 64.89]	64	21	104	- 0.41	- 0.10
Positive symptoms (CAPE)	74	37.11 (9.87)	[34.82, 39.39]	38	20	65	2.02	0.01
Negative symptoms (CAPE)	74	32.66 (8.22)	[30.76, 34.57]	32	16	56	1.68	0.37

Note. CI = Confidence Interval; CATS = Child Abuse and Trauma Scale; RSES = Rosenburg Self-Esteem Scale; OAS = Other as Shamer scale; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; SDS-R = Self-Disgust Scale-Revised; CAPE = Community Assessment of Psychic Experience.

Table 3

Correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.
1. Childhood Trauma (CATS)	-							
2. Self-esteem (RSES)	- .43**	-						
3. Shame (OAS)	.62**	- .69**	-					
4. Disgust Propensity (DPSS-R)	.22	- .42**	.28*	-				
5. Disgust Sensitivity (DPSS-R)	.20	- .49**	.39**	.67**	-			
6. Self-disgust (SDS-R)	.47**	- .82**	.67**	.45**	.40**	-		
7. Positive Symptoms (CAPE)	.35**	- .32**	.50**	.12	.17	.41**	-	

8. Negative Symptoms (CAPE)	.41**	- .59**	.63**	.37**	.36**	.63**	.45**	-

Note. * $p < .05$. ** $p < .01$. CATS = Child Abuse and Trauma Scale; RSES = Rosenburg Self-Esteem Scale; OAS = Other as Shamer scale; DPSS-R = Disgust Propensity and Sensitivity Scale-Revised; SDS-R = Self-Disgust Scale-Revised; CAPE = Community Assessment of Psychic Experience.

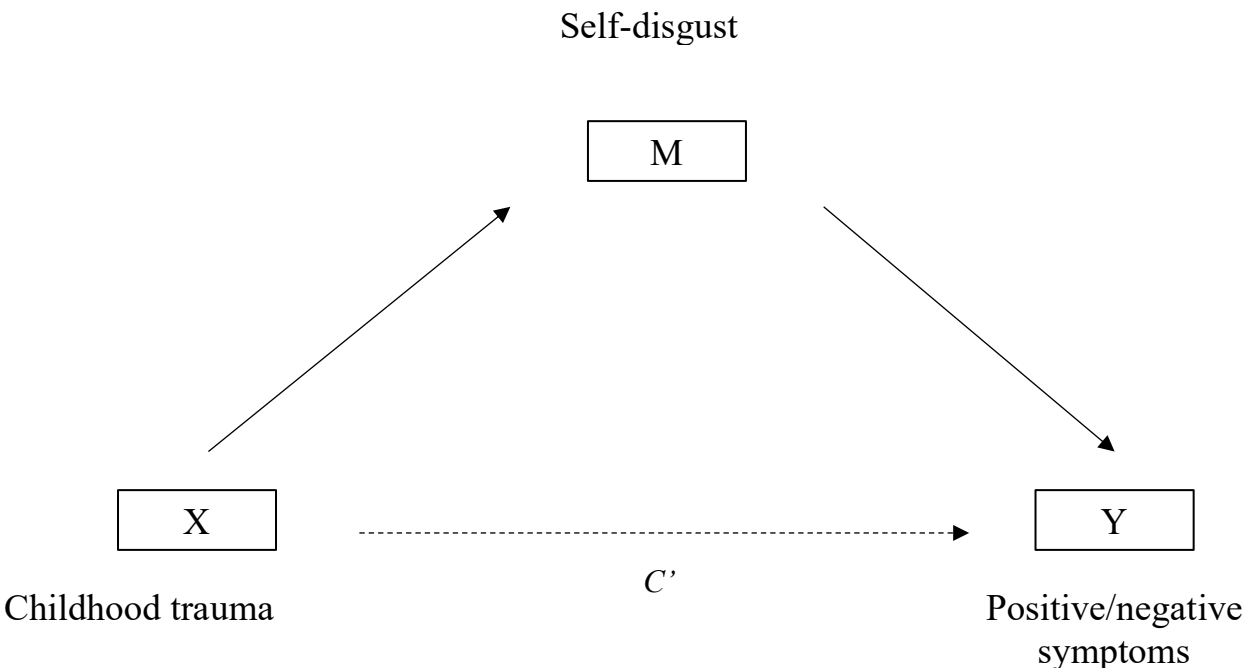

Figure 1. Path diagram of unadjusted mediation model testing if self-disgust mediates the relationship between childhood trauma and symptoms of psychosis. N.B. positive and negative symptoms will be tested in separate models but are included in the same diagram here for illustrative purposes.

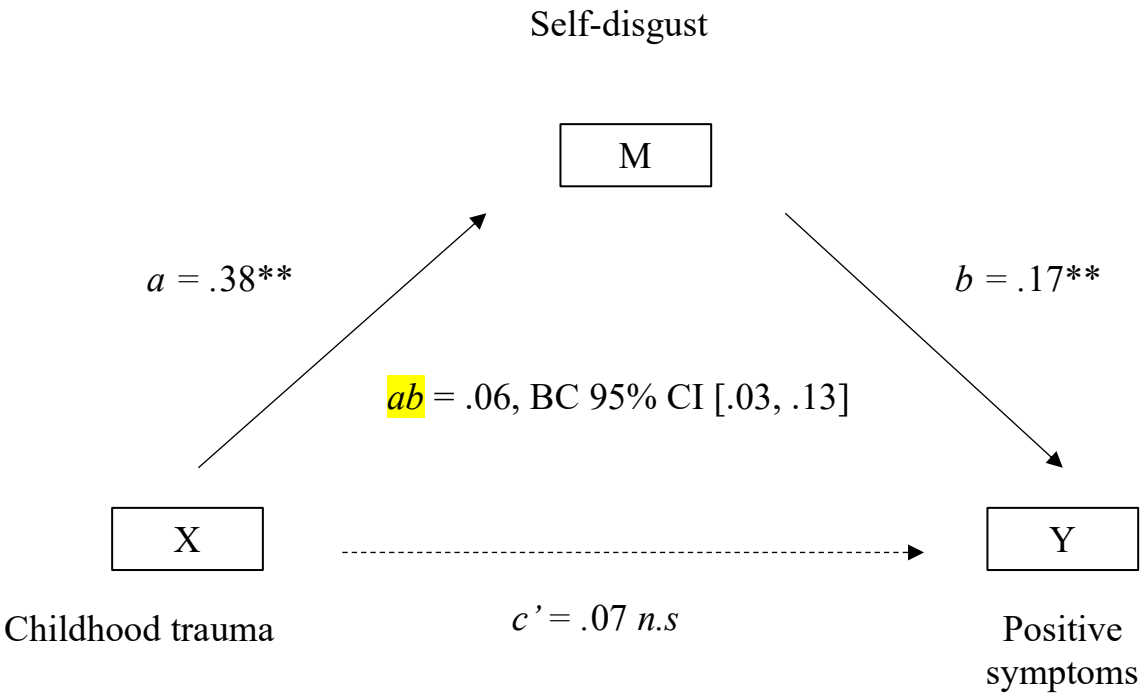

Figure 2. Path diagram of unadjusted mediation model testing if self-disgust mediates the relationship between childhood trauma and symptoms of psychosis.

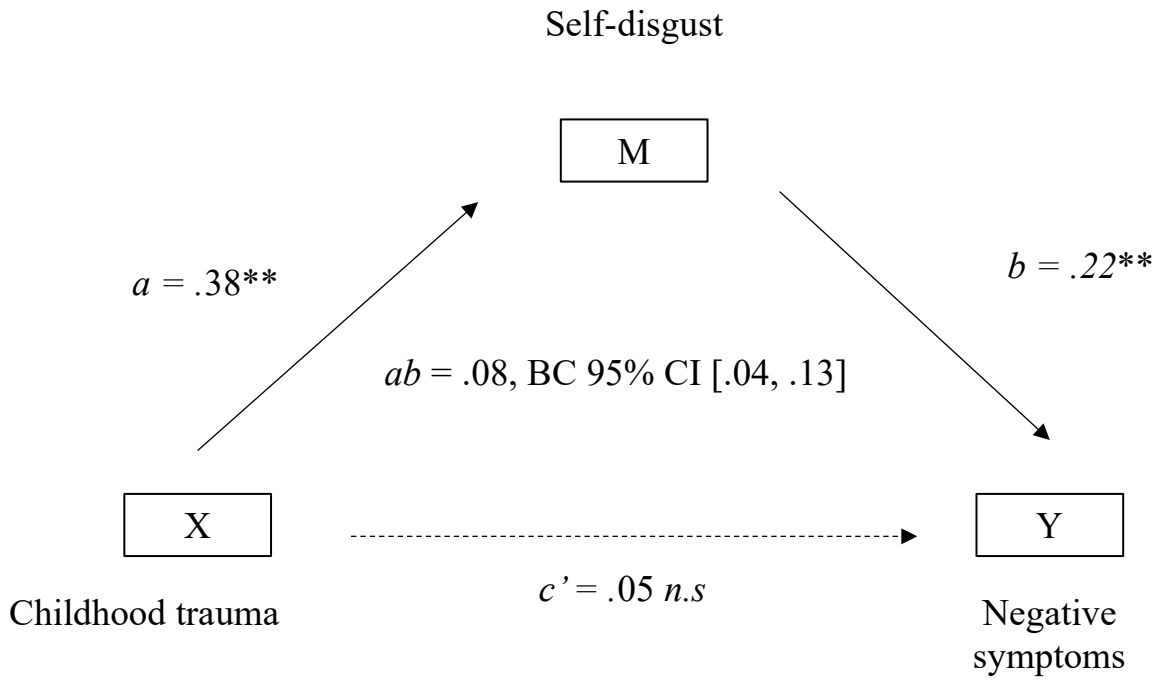

Figure 3. Path diagram of unadjusted mediation model testing if self-disgust mediates the relationship between childhood trauma and negative symptoms of psychosis.

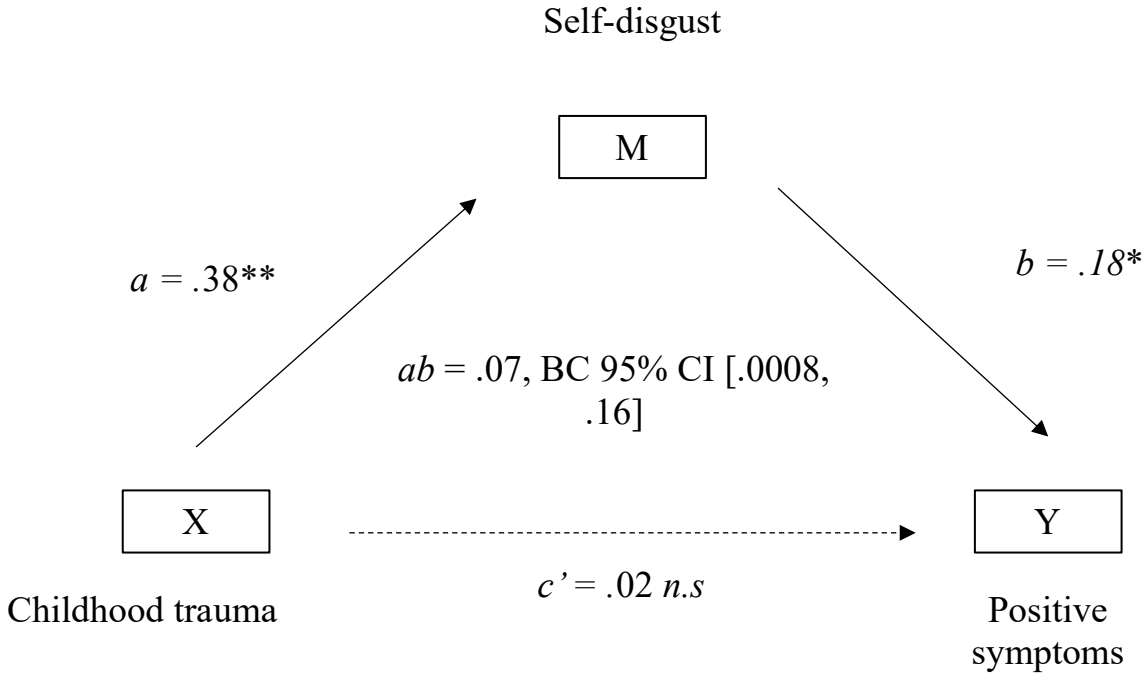

Figure 4. Path diagram of adjusted mediation model testing if self-disgust mediates the relationship between childhood trauma and positive symptoms of psychosis while controlling for self-esteem and shame (not pictured on this illustrative diagram).

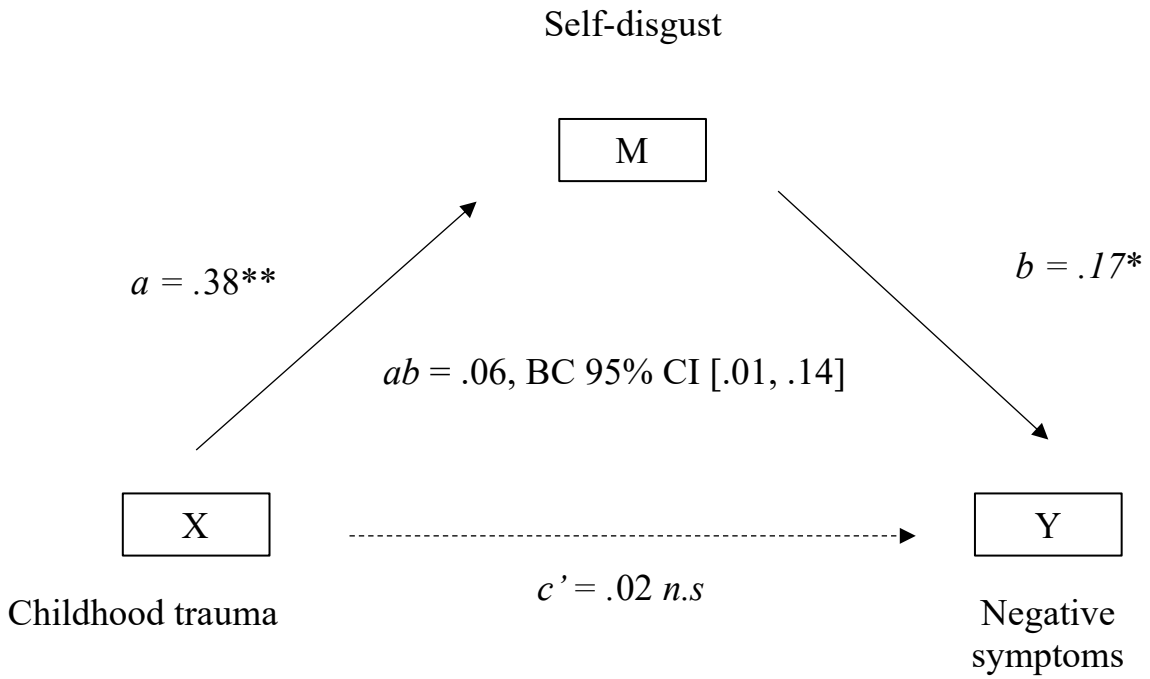

Figure 5. Path diagram of adjusted mediation model testing if self-disgust mediates the relationship between childhood trauma and negative symptoms of psychosis while controlling for self-esteem and shame (not pictured on this illustrative diagram).

Appendix A

Participant Information sheet

Participant Information Sheet

'The role of adverse childhood experiences and feelings about the self in psychosis'

Before you consent to participating in the study please read the following information. If you have any questions or queries about taking part in the study, please email the principal investigator, Ben Helliwell (b.helliwell@lancaster.ac.uk).

My name is Ben Helliwell. I am a trainee clinical psychologist and I work within the Division of Health Research at Lancaster University. I would like to invite you to take part in my research study. However, before making your decision, you need to understand why the study is being done and what it would involve. Please take time to read the following information carefully. You do not have to make the decision right away and 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, I will enter you in to a raffle where you have the chance to win a £30 Amazon voucher. For this purpose, I will require your email address and you will have the opportunity to provide this at the end of the surveys. However, participation in the prize draw is completely optional.

What is the study about?

I am doing a research project to explore the role of negative childhood experiences and feelings about the self in psychosis. Psychosis is a term sometimes used to describe a range of unusual experiences such as hearing voices or believing things that others find strange. These experiences in some individuals can cause considerable emotional and psychological distress, but some people do not find these experience distressing. Therefore, I am interested in learning more about the role of childhood events and difficult emotions in the development and maintenance of psychosis.

Why am I doing this study?

In doing this research, I hope that my study will contribute to current understandings of why people have experiences that might be labelled *psychosis*. I believe that this understanding will help us to find new ways of supporting people for whom such experiences become difficult; for example, by thinking of ways to improve psychological approaches, such as talking therapy.

Why have I been approached to take part?

I would like to recruit people who have experienced psychosis either in the past or at present. This might include experiences such as hearing voices, having unusual beliefs or experiencing paranoia, for example. As such, anyone who has experienced psychosis is eligible to take part, regardless of whether they had difficult experiences in childhood or not. Therefore, if you have experienced psychosis but did not have negative experiences during childhood, you can still take part because the study is also interested in the relationship between feelings about the self and psychosis generally.

Do I have to take part?

No. It is completely up to you to decide whether or not to take part. Participation in the study is entirely voluntary and you would be able to withdraw at any time. You do not have to give any reasons if you decide not to take part or if you decide to discontinue after beginning the online survey.

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

If you do decide to take part, you can follow the link below. This will re- direct you to the online surveys. You will then be asked to complete a set of surveys. I expect that the surveys will take around 30 minutes to complete but should certainly take no longer than 40 minutes in total.

Will my data be identifiable?

No. Any information that you provide through completion of the surveys will be completely anonymous and you will not be able to be identified by it.

If you would like to be contacted via email with a summary of the study's findings upon its completion, or if you would like to be entered into the prize draw, then you will be required to provide your email address. However, this will be kept separately from your responses to the surveys to ensure that your data is not identifiable. Nevertheless, this does mean that your participation would not be confidential but that your data will remain anonymous.

The data collected for this study will be stored securely and only the principal investigator, and two research supervisors, will have access to the data:

- The data will be stored on a computer and the computer itself will be password protected. The data will be stored securely on the Lancaster University network for up to a maximum of 15 years.
- Any personal data (e.g. email address) will be kept separately from your survey responses.
- Any contact details provided (i.e. email address) will be deleted once the study has been completed, research summary document disseminated and prize draw results finalised

Are there any risks?

Given the nature of the research topic (i.e. adverse childhood events, feelings towards the self and psychosis) it is possible that you may find the experience of taking part upsetting in some way. With this in mind, I have included a list of relevant support organisations (see below) that you may wish to contact if you feel distressed, either upon completion of the study or in the future.

Are there any benefits to taking part?

Upon completion of the surveys you will be offered the opportunity to be entered into a prize draw for the chance to win a £30 Amazon voucher. I also hope that your involvement in the study will be an experience that you find both interesting and worthwhile. Furthermore, it is an opportunity to take part in research which aims to help develop current understandings of psychosis with a view to improving services and treatment approaches in this area going forward.

Who has reviewed the project?

This study has been reviewed by the Faculty of Health and Medicine Research Ethics Committee, and approved by the University Research Ethics Committee at Lancaster University.

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

If you have any questions about the study, please contact me:

Ben Helliwell

Trainee Clinical Psychologist

Division of Health Research

Lancaster University

LA1 4YG

b.helliwell@lancaster.ac.uk

Tel: 07508 406276

Alternatively, you can contact the following individuals who are supervising the research project:

Dr Jane Simpson

Director of Education Division

of Health Research Lancaster

University

LA1 4YG

j.simpson2@lancaster.ac.uk Tel:

01524 592858

Dr Filippo Varese

Lecturer

Section of Clinical & Health Psychology School of

Psychological Sciences Manchester University

M13 9PL

filippo.varese@manchester.ac.uk Tel:

0161 306 0434

Complaints

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

Professor Bruce Hollingsworth

Head of Division of Health Research

Division of Health Research Lancaster

University

Lancaster LA1

4YG

b.hollingsworth@lancaster.ac.uk Tel:

(01524) 594154

If you wish to speak to someone outside of the Clinical Psychology Doctorate Programme or Division of Health Research, you may also contact:

Professor Roger Pickup Associate

Dean for Research Faculty of Health

and Medicine (Division of

Biomedical and Life Sciences)

Lancaster

University

Lancaster

LA1 4YG

r.pickup@lancaster.ac.uk Tel:

01524 593746

Resources in the event of distress

Should you feel distressed either as a result of taking part in this research, or in the future, the following resources may be of assistance:

Mind. Mental health charity offering information on a range of topics including: types of mental health problem, where to get help, medication and alternative treatments, advocacy.They will look for details of help and support in your own area. Contact details: 0300 123 3393 info@mind.org.uk Text: 86463.

Lines are open 9am to 6pm, Monday to Friday (except for bank holidays).

Samaritans. Samaritans are open 24 hours a day, 365 days a year, to listen to anything that is upsetting you, including intrusive thoughts and difficult thoughts of suicide and self-harm. Their national free-phone number is 116 123, or you can email jo@samaritans.org. You can also visit the website: www.samaritans.org.

SANEline. SANEline offers emotional support and information from 6pm–11pm, 365 days a year. Their national number is 0300 304 7000.

Switchboard, the LGBT+ helpline. If you identify as gay, lesbian, bisexual or transgender, Switchboard is available from 10am–11pm, 365 days a year, to listen to any problems you're having. Phone operators all identify as LGBT+. Their national number is 0300 330 0630, or you can email chris@switchboard.lgbt.

Victim Support. 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 303 0900. Available weekdays 9am to 8pm, weekends 9am to 7pm, bank holidays 9am to 5pm.

Childline. Childline is here to help anyone under 19 in the UK with any issue they're going through. Whether it's something big or small, our trained counsellors are here to support you. Childline is free, confidential and available any time, day or night. You can talk to us on the phone on 0800 1111, or for more information visit www.childline.org.uk.

Thank you for taking the time to read this information sheet

Appendix B

Participant Consent Form

'The role of adverse experiences and self-conscious emotion upon psychological wellbeing'

We are asking if you would like to take part in a research project investigating the role of feelings about yourself in the relationship between adverse experiences and psychosis.

Before you consent to participating in the study we ask that you read the participant information sheet and check the box below if you agree. If you have any questions or queries before indicating your consent to take part, please contact the principal investigator, Ben Helliwell (b.helliwell@lancaster.ac.uk).

- I confirm that I have read the information sheet and fully understand what is expected of me within this study.
- I confirm that I have had the opportunity to ask any questions and to have them answered.
- 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 any responses I enter into the survey will be withdrawn if I decide not to complete the study after starting. Therefore, I understand that incomplete data will not be included in the final analysis.
- I understand that the principal investigator, Ben Helliwell will share and discuss my data with Dr Jane Simpson and Dr Filippo Varese as members of the research team who are supervising the project.
- I understand that by providing my email address to be entered into the prize draw, or contacted by the research team that my participation will not be confidential. However, I also understand that my responses to the survey questions will remain anonymous as these will be kept separately to my email address.
- I understand that the data will be stored securely on the Lancaster University server to maintain anonymity.
- I consent to Lancaster University storing the data for up to 15 years after the study has finished.
- I understand that my data will be combined with that from other participants and will be analysed as a whole dataset, the findings from which may be published as part of the research dissemination strategy.
- **I have read and understood the information included in this consent form. I consent to take part in this study** ☐

Appendix C

Participant Debrief Sheet

Thank you for taking part in this study. I hope that you have found the process interesting. The following page aims to give you an overview of the main aims of our research.

Everybody can experience unhelpful thoughts and feelings about themselves and from time-to-time. However, for some people this can continue for long periods and may cause them increased distress. In this study, we were particularly interested in feelings of self-disgust, self-criticism and shame and the role these may play in emotional distress. Specifically, we wondered if people who had experienced adverse childhood events had more of these difficult feelings about themselves. We also wanted to know whether this can lead to higher rates of being distressed by extremely suspicious thoughts (sometimes called *paranoia*) or hearing voices that no-one else can hear and other unusual experiences (e.g. seeing, tasting, smelling or feeling things that other people do not or holding strong beliefs that others do not share, sometimes called *delusions*).

Such experiences are not necessarily a sign of mental health difficulties. In fact, research has shown that these experiences are quite common among people who have never had mental health difficulties. Indeed, such experiences can be distressing for some people but for others they can be a positive experience. Research has been attempting to identify the causes of different experiences like hearing voices or having extremely suspicious thoughts. As a result, studies have shown that for some people, such experiences may be related to stressful events, particularly in childhood. Moreover, it may be that stressful events in early life can lead people to develop unhelpful beliefs about themselves, others and the world. For example, such beliefs may include things like “I am a bad person” or “I disgust myself and other people too”. As trainee and qualified clinical psychologists we hope to help people develop more helpful beliefs about their selves, perhaps by offering talking therapies or other psychological approaches.

Now that your involvement in the study has been completed, we invite you to reflect upon your participation in the research. This is known as participant debriefing. It is an important part of the research process and helps to ensure that you are not left with unanswered questions or concerns.

There is a small risk that participation in this study may have caused you some feelings of distress, or may do so in the future. In the event that you do feel any emotional distress please consider making use of the resources provided below:

Samaritans. Samaritans are open 24 hours a day, 365 days a year, to listen to anything that is upsetting you, including intrusive thoughts and difficult thoughts of suicide and self-harm. Their national free-phone number is 116 123, or you can email jo@samaritans.org. You can also visit the website: www.samaritans.org.

SANEline. SANEline offers emotional support and information from 6pm- 11pm, 365 days a year. Their national number is 0300 304 7000.

Switchboard, the LGBT+ helpline. If you identify as gay, lesbian, bisexual or transgender, Switchboard is available from 10am-11pm, 365 days a year, to listen to any problems you're having. Phone operators all identify as LGBT+. Their national number is 0300 330 0630, or you can email chris@switchboard.lgbt.

Victim Support. 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 303 0900. Available weekdays 9am to 8pm, weekends 9am to 7pm, bank holidays 9am to 5pm.

Childline. Childline is here to help anyone under 19 in the UK with any issue they're going through. Whether it's something big or small, our trained counsellors are here to support you. Childline is free, confidential and available any time, day or night. You can talk to us on the phone on 0800 1111, or for more information visit www.childline.org.uk.

If you are interested in further reading about the role of feelings and emotions upon psychological wellbeing/psychosis (**delete as appropriate**), I have included some relevant references below (**delete references as appropriate**):

Bentall, R. P. (2003). *Madness explained: psychosis and human nature.* London: Penguin Books.

Power, M., Dalgleish, T. (2008). *Cognition and emotion: from order to disorder, 2nd ed.* London: Karnac Books.

Powell, P. A., Overton, P. G., & Simpson, J. (2015). *The revolting self: perspectives on the psychological and clinical implications of self-directed disgust*. (P. A. Powell, P. G. Overton, & J. Simpson, Eds.). London: Karnac Books.

Finally, thank you once again for your participation. It is very much appreciated. With best wishes,

Ben Helliwell

Trainee Clinical Psychologist

Division of Health Research

Lancaster University

b.helliwell@lancaster.ac.uk

Appendix D

Author Guidelines: Psychosis: Psychological, Social and Integrative approaches

Instructions for authors

Thank you for choosing to submit your paper to us. These instructions will ensure we have everything required so your paper can move through peer review, production and publication smoothly. Please take the time to read and follow them as closely as possible, as doing so will ensure your paper matches the journal's requirements. For general guidance on the publication process at Taylor & Francis please visit our Author Services website.

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All authors submitting to medicine, biomedicine, health sciences, allied and public health journals should conform to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, prepared by the International Committee of Medical Journal Editors (ICMJE).

Structure

Your paper should be compiled in the following order: title page; abstract; keywords; main text introduction, materials and methods, results, discussion; acknowledgments; declaration of interest statement; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figures; figure captions (as a list).

Word Limits

Please include a word count for your paper.

The maximum word length for an Article in this journal is 6000 words (this limit includes tables, references and figure captions).

The maximum word length for a First Person Account is 3500 words.

The maximum word length for a Brief Report is 1500 words.

The maximum word length for an Opinion Piece is 1500 words.

The maximum word length for Letters to Editor is 400 words.

The maximum word length for a Book Review is 1000 words.

Style Guidelines

Please refer to these quick style guidelines when preparing your paper, rather than any published articles or a sample copy.

Any spelling style is acceptable so long as it is consistent within the manuscript.

Please use double quotation marks, except where "a quotation is 'within' a quotation". Please note that long quotations should be indented without quotation marks.

Formatting and Templates

Papers may be submitted in Word format. Figures should be saved separately from the text. To assist you in preparing your paper, we provide formatting template(s).

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References

Please use this reference guide when preparing your paper.

An EndNote output style is also available to assist you.

Checklist: What to Include

1. **Author details.** Please ensure everyone meeting the International Committee of Medical Journal Editors (ICJME) requirements for authorship is included as an author of your paper. Please include all authors' full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page. Where available, please also include ORCiDs and social media handles (Facebook, Twitter or LinkedIn). One author will need to be identified as the corresponding author, with their email address normally displayed in the article PDF (depending on the journal) and the online article. Authors' affiliations are the affiliations where the research was conducted. If any of the named co-authors moves affiliation during the peer-review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after your paper is accepted. Read more on authorship.
2. A structured abstract abstract of no more than 200 words. Read tips on writing your abstract.
3. You can opt to include a **video abstract** with your article. Find out how these can help your work reach a wider audience, and what to think about when filming.

4. Between 5 and 6 **keywords**. Read making your article more discoverable, including information on choosing a title and search engine optimization.
5. Read making your article more discoverable, including information on choosing a title and search engine optimization.
6. **Funding details.** Please supply all details required by your funding and grant-awarding bodies as follows:
   For single agency grants
   This work was supported by the [Funding Agency] under Grant [number xxxx].
   For multiple agency grants
   This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].
7. **Disclosure statement.** This is to acknowledge any financial interest or benefit that has arisen from the direct applications of your research. Further guidance on what is a conflict of interest and how to disclose it.
8. **Data availability statement.** If there is a data set associated with the paper, please provide information about where the data supporting the results or analyses presented in the paper can be found. Where applicable, this should include the hyperlink, DOI or other persistent identifier associated with the data set(s). Templates are also available to support authors.
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Thesis Section 3: Critical Appraisal

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The present paper will describe the processes and challenges encountered during my systematic review of the betrayal trauma literature, and my empirical study investigating the role of self-conscious emotions in the relationship between childhood trauma and psychosis. First, I will provide an overview of the main findings from both the literature review and empirical paper, to ground subsequent discussion of the main points. Second, I will describe some of the issues regarding the use of social media as a means of participant recruitment. I will also consider broader issues relating to navigating the research process as a novice researcher, for example, managing a complaint procedure and a problem regarding unintended copyright breach of a questionnaire used as part of the data collection process. Finally, I will outline the challenges of operationalising psychosis in a way that is distinct from traditional biomedical conceptualisations but remains consistent with other research in this area.

The first section of the thesis, a systematic literature review, investigated the impact of betrayal trauma, BT hereafter, on a range of different mental health outcomes. Despite its status as a less researched trauma event characteristic, the role of BT in the development of emotional and psychological difficulties has been increasingly investigated by trauma researchers over recent years (Gagnon et al., 2017). Therefore, a review of the field was indicated to synthesise the evidence. The review provided preliminary evidence that BT has a role in the development and maintenance of a range of mental health outcomes. Moreover, there was evidence to suggest that this is especially the case in dissociative conditions and post-traumatic stress responses and that, to a certain extent, BT may explain the differential impact of various trauma event types upon these mental health outcomes. However, the review revealed certain methodological limitations in studies examining BT, including selection bias and lack of adequate control of potential confounder variables. Therefore, it

was concluded that more robust study designs and methodologies are needed to help clarify the results of these studies.

The second section was an empirical paper that examined the role played by self-disgust in the relationship between childhood trauma and psychosis. The research hypothesis that self-disgust would mediate this relationship was developed through consideration of the growing evidence pertaining to the trans-diagnostic role of self-disgust across a range of mental health conditions (for futher discussion, see Powell, Overton, & Simpson, 2015b). Moreover, the research study also considered the impact of self-disgust in addition to the related self-conscious emotions of self-esteem and shame. Indeed, researchers have focused on both self-esteem and shame in previous studies investigating the cognitive-emotive factors implicated in the development and maintenance of psychosis (Smith et al., 2006). Furthermore, there has been theoretical contention about the relative discreteness of self-disgust from similar constructs, such as shame and self-hatred (Gilbert, 2015). Therefore, alongside answering the primary research question regarding self-disgust, childhood trauma and psychosis, the empirical paper described here also aimed to provide support for the discrete nature of self-disgust by controlling for self-esteem and external shame in the statistical analysis.

The main findings of the research study showed that self-disgust mediates the relationship between childhood trauma and psychosis in adulthood. Indeed, when self-disgust was included as a mediator variable in the mediation analyses, traumatic experiences in childhood no longer significantly predicted later onset of psychosis. Moreover, this result was found for both positive and negative symptoms when analysed separately. Also, the mediating effect of self-disgust in the relationship between childhood trauma and psychosis remained when self-esteem and external shame were added to the analysis as control variables. These findings provide support for theoretical arguments that self-disgust

represents a type of cognitive-emotion schema that is distinct from related constructs. Furthermore, the results suggest that self-disgust is a link between exposure to trauma in childhood and later psychosis. This was a novel finding due to the lack of previous research studies investigating self-disgust in the development and maintenance of psychosis. As a result, the findings extend previous research that has found evidence for the role of self-disgust across a range of mental health outcomes, including depression (Overton, Markland, Taggart, Bagshaw, & Simpson, 2008; Powell et al., 2013), post-traumatic stress responses (Badour & Adams, 2015) and non-suicidal self-injury (Smith, Steele, Weitzman, Trueba, & Meuret, 2015). Moreover, the present findings offer directions for future research alongside important clinical implications for mental health professionals working with people who experience symptoms of psychosis that they find distressing. For example, it may be fruitful for future research studies to examine the nuances involved in this relationship, such as the differential impact of gender on the relationship between trauma, self-disgust and psychosis. Concerning clinical implications, the findings would suggest that it is crucial for clinicians to consider self-disgust as part of the assessment and formulation process and as a potential target for intervention, especially in cases of psychosis where there is historical trauma.

Reflections on Participant Recruitment Using Social Media

As part of the planning and development of the empirical study within this thesis, I decided to use online social media platforms to recruit participants. This was the result of discussions with my research and academic supervisors, who both had experience of using this method of participant recruitment. Indeed, the primary aims of any recruitment strategy are to ensure an adequate sample size, so that the study is sufficiently powered to detect effects. Moreover, it is essential to recruit a sample that is representative of the population (Patel, Doku, & Tennakoon, 2003), in this case, people who had experienced clinical levels of psychosis. Consequently, to meet these aims, it was necessary to use recruitment methods

that were time efficient due to the restricted period of recruitment available due to the nature of a doctoral thesis. Moreover, recruiting adequate sample sizes for research projects has been identified as a difficulty across research fields and without effective recruitment strategies, studies may be compromised and potentially become untenable (Gul & Ali, 2010). Indeed, drawing on my previous experience of participant recruitment through the National Health Service (NHS), I suspected that it would be difficult to achieve an adequate sample of people experiencing psychosis via this recruitment channel, precisely due to the constricted time available to complete the project.

Consequently, I selected to use social media as my participant recruitment channel. Initially, I considered how social media platforms had been used for participant recruitment over recent years. For example, I was encouraged by findings showing the use of Facebook, Twitter and targeted websites to be effective means of online participant recruitment (Khatri et al., 2015). Nevertheless, despite the positive potential of social media as a source for participant recruitment, there are limitations to this approach, for example, biases in user demographics. Specifically, users of social media are more likely to be female, younger in age, from higher socio-economic backgrounds and to be in employment or higher education (Duggan & Brenner, 2013). Indeed, demographics data for participants who took part in my study showed that the vast majority were white, female and had relatively high levels of education and were in employment or study. Therefore, the data reflected the trends found for social media users in general. However, in relation to recruiting a sample that was representative of the target population (i.e., people who experience clinical levels of psychosis), the use of social media as the sole recruitment channel in the present study was a limitation. Indeed, data from research studies in the field has revealed that the demographic commonalities across individuals who attract a diagnosis of psychosis include unemployment, being single, divorced or separated and living in urban areas (Kessler et al.,

1996). As a result, it could be argued that the sample recruited for the empirical study was not representative of the target population and that this bias may be partially explained by the use of social media as the only source of recruitment.

Overall, this experience has taught me that there are both strengths and limitations to participant recruitment of people experiencing psychosis using social media platforms. For example, one benefit is that it offers a cost-efficient means of recruitment. However, a downside is the potential barrier to recruiting a representative sample due to the relatively limited variance in demographics of social media users. Nevertheless, I believe this approach was effective for recruiting the necessary number of participants required to achieve sufficient statistical power, and that it is a feasible option for participant recruitment.

Realities of Real World Research: Learning and Developing as a Researcher

Given that the empirical study completed as part of this thesis was my first experience of online recruitment and research involving people with clinical levels of psychosis, it felt like a continual learning process. Crucially, I received helpful guidance from both my academic and research supervisors, and this helped me to navigate the challenges that I will discuss here. For example, on some occasions I was contacted directly by people who were interested in the research or had taken part. This was easily managed and would involve simply signposting the individual to the participant information sheet or answering generic questions via email. However, I experienced two incidents that were particularly challenging, and I will consider what I learnt from these situations The first involved a person sending me a private message via Facebook. The person was experiencing considerable psychological and emotional distress due to psychosis and historical self-injury. It was unclear if this person had participated in the study or not, but they had found my contact details on the study advertisement, which had been posted on a psychosis group Facebook page. To ensure that I provided an appropriate professional response to this contact I discussed it with my

supervisors and consulted the National Institute for Health Research's guidance on participant recruitment via social media (NIHR, 2017). The document acknowledges the problematic nature of responding to contacts of this type when using social media as a recruitment channel. However, the recommended approach is to offer validation to the individual and to signpost to support services, where appropriate, but not to provide clinical advice. This issue highlights the fundamental separation of the researcher and clinician roles and requires clear professional boundaries. Experiencing this first hand has helped me to develop my skills in managing the multifaceted nature of the clinical psychology role, which can often involve aspects of both researcher and clinician across different contexts.

Around a similar time that the above incident took place, a second issue arose that related to a participant complaint about my interaction with the individual on Twitter. Specifically, the individual in question had retweeted a link to my study and had also described the study as interesting. At this point, there was no information, either way, to suggest whether the individual had participated in the study because a retweet was not indicative of this. Given this, I replied to the retweet to thank the individual for helping to promote the research and followed their account, as I had routinely done with other people on Twitter who had promoted my research in this way. However, the individual in question felt this was inappropriate and a potential confidentiality breach. Following discussions with my research supervisors and after providing an email response to the individual, the situation was successfully resolved. However, it increased my awareness of the potential pitfalls of recruiting participants using non-traditional approaches such as social media.

Another issue came to light when I discovered that I had inadvertently breached copyright for the Internalised Shame Scale (ISS: Cook, 1988). I had requested that the Lancaster University Doctorate in Clinical Psychology purchase this data collection tool so that I could use it as part of my online survey. The course had accepted this request and

bought the technical manual and one set of hard copy response forms. Therefore, I believed that because the university had purchased the measure that this allowed me to use the scale online. However, this was not the case, and the copyright permissions did not extend to online use. Consequently, I had to delete the participant data that had been collected using this measure and provide an update to the Lancaster University Faculty of Health and Medicine Research Ethics Committee. The Committee replied that they were satisfied with the steps that I had taken to correct this mistake and that no further action was required. Furthermore, I do not believe that this jeopardised the scientific value of my research findings because I also collected data on external shame using the Other as Shamer Scale (OAS: Goss et al., 1994), which is arguably more conceptually relevant to self-disgust (Gilbert, 2015). Moreover, I believe that learning from experience, such as the case with copyright permissions here, is an inherent part of real-world research and that it has helped to improve my skills and knowledge as a researcher. For example, I will be more mindful of this and the other issues discussed above when conducting online research in the future.

Conceptualising Psychosis: Walking the Line

Both before and during my clinical psychology training, I was keen to understand better the perceptual disturbances and unusual experiences grouped under the term *psychosis*. Moreover, this was a significant reason why I choose to research psychosis both for my service related project (SRP) and empirical thesis paper. Specifically, I wanted the research that I conducted to examine psychosis in a way that conceptualised it using a bio-psycho-social framework rather than from a tradition psychiatric perspective. Although I do not feel that this is a particularly controversial, or indeed, unexpected perspective for a trainee clinical psychologist to adopt, during my thesis I was required to walk the line between the conceptual consensus and clarity necessary for research purposes, while attempting to integrate my understanding of psychosis beyond a biomedical perspective. Moreover, I have

been perturbed by the persistent dominance of a biomedical understanding of psychosis and related experiences that I have come across in my clinical practice. Indeed, the approach to understanding psychosis put forward by biological psychiatry and associated professions is predominantly based on the notion that psychosis is a genetically predisposed and biologically determined condition (Cooke & Kinderman, 2018). Consequently, ideas regarding recovery have traditionally centred around the pessimistic notion that treatment options are limited with the primary option being long-term psychiatric medication (Bentall, 2004). In contrast, it is my view that the thoughts, feelings and behaviours grouped under the umbrella term psychosis are contextual manifestations of human experience and are not reducible to a brain disease (e.g., *schizophrenia*) that merely needs to be diagnosed, treated and eradicated. Indeed, psychosocial alternatives to biomedical interventions are characterised by a fundamentally different approach to psychosis related experiences (Kinderman & Tai, 2007). Furthermore, if we hold that psychosis related experiences are the result of maladaptive cognitive-emotion schemas about the self, world and others (e.g., self-disgust, internalised shame), trauma-induced neurodevelopmental changes and adverse social circumstances (e.g., poverty, urbanicity), then evidence-based practice would indicate these factors as the targets for therapeutic interventions. Moreover, I would argue the desired outcome of an intervention when someone is distressed by psychosis should be improved understanding and ways of coping that are personally meaningful to the individual. Ultimately, it is in my view about enabling the individual to achieve a quality of life that they feel satisfied with. This also includes accepting that the individual may find personal meaning by viewing their experiences in the context of a psychiatric diagnosis relating to a *mental illness,* which should also be validated and worked with if this is the case. However, the emphasis for me is that multiple perspectives are honoured and understood. Conducting and interpreting research that conceptualises psychosis beyond the narrow biomedical

approach is one way that we can offer the people we work with a broader lens through which to make sense of their lived experiences of psychosis. Therefore, this is why I decided to include a broad range of experiences that would indicate a person had experienced clinical levels of psychosis when developing my study inclusion criteria.

To conclude, I believe that the research I have undertaken for my thesis supports psychological approaches, such as a traumagenic understanding of distressing emotions and mental health outcomes, particularly psychosis. Moreover, my research adds to the evidence base by providing findings that adverse experiences, such as trauma and negative emotions play a role in the development and maintenance of psychosis and the distress sometimes related to these experiences. Given this, I hope that the accumulation of such evidence will enable us to continue to develop improved interventions, and indeed mental health services, for people who require support in response to emotional and psychological distress. These services and interventions would go beyond traditionally narrow biomedical explanations of these problems and would prioritise a genuinely integrative bio-psycho-social approach. Indeed, I believe that a shift is already taking place, for example, the increased focus on trauma-informed mental health services in the UK is a sign of this welcome change (Angela, Sarah, Beth, & Angela, 2016). Furthermore, I believe that clinical psychologists have an essential role to play in these developments through both research and clinical practice.

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Thesis Section 4: Ethics Section

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Ethics Application

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

Application for Ethical Approval for Research involving direct contact with human participants

1. **Title of Project**: The Role of Self-disgust in the Relationship Between Childhood Trauma and Psychotic Experience

2. **Name of applicant/researcher**: Ben Helliwell

3. **Type of study**

☒ Includes *direct* involvement by human subjects.

☐ Involves existing documents/data only, or the evaluation of an existing project with no direct contact with human participants. Please complete the University Stage 1 Self Assessment part B. This is available on the Research Support Office website: LU Ethics. Submit this, along with all project documentation, to Diane Hopkins.

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

PG Diploma ☐ Masters dissertation ☐ PhD Thesis ☐ PhD Pall. Care ☐

PhD Pub. Health ☐ PhD Org. Health & Well Being ☐ PhD Mental Health ☐ MD ☐

DClinPsy SRP ☐ [if SRP Service Evaluation, please also indicate here: ☐] DClinPsy Thesis ☒

Applicant Information

5. **Appointment/position held by applicant and Division within FHM** Trainee Clinical Psychologist, Division of Health Research

6. **Contact information for applicant**:
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7. **Project supervisor(s), if different from applicant**: Dr Jane Simpson & Dr Filippo Varese

8. **Appointment held by supervisor(s) and institution(s) where based (if applicable)**: Dr Jane Simpson (Director of Education, Division of Health Research, Lancaster University) & Dr Filippo Varese (Lecturer, University of Manchester)

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

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BSc Psychology Lancaster University

PG Diploma Health Research Skills University of Leeds.

Dr Jane Simpson (Director of Education, Division of Health Research, Lancaster University).
BA

BSc
DclinPsy

The Project

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 (indicative maximum length 150 words):

Research has shown that childhood trauma can lead to psychosis in adulthood, a condition that can be experienced as highly distressing. However, not everyone that goes through trauma in childhood experiences psychosis. Therefore, understanding the psychological factors that determine whether or not trauma leads to psychosis in a given individual becomes an important area for research.

Furthermore, better understanding may lead to improvements in psychological approaches designed to alleviate the distress associated with psychosis.

One avenue of research has identified cognitive-emotive schemas, the ways in which a person feels towards himself or herself, others and the world, as a psychological factor that plays a role in the development and maintenance of psychosis. With this in mind, the aim of the present study is to use quantitative methods to determine if one particular cognitive-emotive schema, self-disgust, found to play a role in a range of other mental health difficulties, extends to the relationship between childhood trauma and psychosis.

11. Anticipated project dates (month and year only)

Start date: 08/2016 End date 09/2017

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

The proposed study will use both a clinical and non-clinical sample. The rationale for using both a clinical and non-clinical sample is to ensure that the findings can be generalised across the continuum of severity of psychotic experience.

The clinical sample will include individuals who report any of the following: a diagnosis of psychosis (such as schizophrenia, schizo-affective disorder, delusional disorder); having being prescribed antipsychotic medication; a history of having received inpatient treatment, input from a community mental health team or early intervention service for experiences related to psychosis; or having received therapeutic input (e.g. CBT therapist, clinical psychology service) for experiences related to psychosis. The full inclusion criteria is given below:

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

-AND/OR received antipsychotic medication for experiences related to psychosis

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

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

-AND/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.

-AND/ 18 years or older

-AND/ sufficient command of English so that the survey can be completed

The non-clinical sample will include undergraduate and postgraduate students at Lancaster University. Support for using a student sample is based upon research evidence that psychotic phenomena is experienced by individuals within the general population (van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009) and student samples in particular (Varese, Barkus & Bentall, 2011). The inclusion criteria are provided below:

-18 years or older

-Sufficient command of English so that the survey can be completed

Sampling procedure

The proposed study will not recruit from NHS services but will recruit people with a range of experiences that may attract a label of psychosis. Recruitment be via social media and websites for relevant charitable organisations (e.g. Mind, Intervoice, Hearing Voices Network). The rationale for using this broad sample is to ensure that the findings can be generalised across the continuum of severity of psychotic experience. Indeed, research evidence has shown that psychotic phenomena is experienced by individuals within the general population (van Os, Linscott, Myin- Germeys, Delespaul, & Krabbendam, 2009) and also student samples in particular (Varese, Barkus & Bentall, 2011). Therefore, the proposed study will recruit participants from two populations: a clinical sample and also the student population at Lancaster university. Specifically, individuals who identify as having experienced psychotic phenomena will be recruited.

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 complete the measures/surveys.

Participants who have experienced psychosis will also be asked to take part in the study. To ensure that participants have experienced psychosis they will be asked if they have received a diagnosis of psychosis at some point in their lives (i.e. a diagnosis on the schizophrenia spectrum such as schizophrenia, schizo-affective 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 posted on a range of mental health charity websites, including Mind, Intervoice, Hearing Voices Network, Paranoia

Network, Rethink and Time To Change. To do this, relevant representatives/officers of these charities will be sent, via email, the participant information sheet and any relevant study material they may require to review before deciding to support the study, with a request for them to advertise the study on their webpages, Facebook pages and Twitter accounts.

Sample size

The proposed study aims to recruit up to 90 participants for each sample, clinical and non-clinical. This number has been identified as being able to reliably detect significant effects as small as r = .3 (i.e. generally regarded as a small to moderate effect; Field, 2009) at the recommended power of .80 (derived from a priori power analysis using R). Furthermore, it should be noted that several of the key relationships considered (e.g. the association between childhood traumas and psychotic experience) 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 (e.g. Varese, Barkus & Bentall, 2011). Therefore, the minimum sample size to make the study feasible is 45 participants for each sample, clinical and non-clinical. However, it should also be noted that these are only estimates of the magnitude of associations between the stated variables because the particular associations here have not been investigated by previous research. Therefore, the a priori power calculation described here is an approximation and will be used as the minimum number of participants required in each sample.

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

Student sample

To recruit participants from within the student population, the researcher will contact student services about the most appropriate approach. However, based on discussions with researchers from within the health research division who have experience of recruiting students using the same methods (e.g. Davies, 2016), the probable approach will involve emails being sent via Lancaster University's student services department, including their Facebook page and Twitter account. The emails will include an invite to take part in the study, and individual admin departments (e.g. psychology) will be contacted and will be asked if they too can distribute the emails.

Clinical sample

To recruit participants from within a population of people who experience psychosis, an online advert will be posted up to a range of mental health charity websites and corresponding social media (e.g. Facebook pages, Twitter feeds), including Mind, Intervoice, Hearing Voices Network,

Paranoia Network, Rethink and Time to Change. Therefore, adverts for the study will be uploaded to the aforementioned mental health charity Facebook pages and Twitter accounts where available.

An advert for the study will also be placed on social media sites using the principal investigator's Twitter account. The advert will include links to the survey. All online 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. However, due to the nature of anonymous, online research, it is not possible to assess for capacity.

14. What procedure is proposed for obtaining consent?

At the stage when potential participants access the link to the online survey, they will first be required to have read and understood the participant information sheet. This process will provide them with 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 stage and will explain that the survey may cause distress for some participants. The information sheet will also ensure participants are aware of confidentiality and exceptions to this, for example, that this would be broken by the researcher team if they feel the person, or someone else, is at risk of being harmed.

The principal investigator's (PI) contact details including email address and a non-personal phone number will be provided in case the participant feels unsure about any aspect of the study and would like further information before participating. However, it will be explained that the researcher will only be contactable during working hours.

After reading the participant information sheet, participants will be directed to the online consent form. This will require participants to check a box included on the form as indication of their consent to take part in the study. The participants will not be able to continue past this stage without providing their consent.

Right to withdraw:

If a participant decides to withdraw after beginning the survey and recording responses, the data that they entered up to the point of withdrawal will be discarded. This will be explained to participants within the information sheet.

Participants will be made aware of their right to withdraw at any time, however, it will be made clear that all data up until the point of withdrawal will be used unless the participant explicitly requests otherwise by contacting the principal investigator to ask for their data to be deleted. This will be explained to participants in the information sheet.

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

There is a chance that participants may experience emotional discomfort as a result of taking part in the proposed study and the research team acknowledges this risk. For example, it is to be expected that a number of the participants will be experiencing psychosis at the time of participation and may already be distressed by this experience. However, 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 direct

support to any participants experiencing distress as a result of taking part in the research. However, in order to manage this risk each participant will be signposted to relevant support organisations via the PIS and debrief sheet.

Nevertheless, the sensitive nature of the research topic i.e. childhood trauma, self-disgust and psychosis is acknowledged by the research team. 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. Moreover, 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). Furthermore, questions relating to self- disgust have been used in previous research studies with no reported distress caused as a result of this (e.g. Overton et al. 2008; Powell, Simpson, Overton, 2013). However, it is intended that any distress caused as a result of participants being asked questions relevant to self-disgust will be mitigated through effective signposting to support organisations.

Given the issues described above, the research team acknowledge that there is a possibility of distress due to taking part and, therefore, will make every effort to mitigate this risk. In order to ensure wellbeing of participants, the participant debrief sheet will provide details of support organisations (e.g. Victim Support service, Mind and Childline). Furthermore, the PI's contact details will be available to participants. However, it will be made clear on the PIS that the PI will only be able to offer further information about the study and cannot provide emotional support Therefore, if the

person would like emotional support they should contact the support services detailed. Nevertheless, if participants with to know more about the study they will be advised to make contact with the PI via email, or by leaving a voice message on the mobile telephone number provided. A reply will be made as soon as possible within working hours (i.e. Monday to Friday, 9.00am-5.00pm).

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

There are no identified risks to the research team, as the proposed study would not involve direct contact with participants. Furthermore, the PI's contact details provided in the study information material will be work mobile/contact details, not the PI's personal contact details. If the PI is contacted by participants who are experiencing distress, the PI will reflect on this during supervision with the wider team (i.e. research supervisors), 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.

There may be no direct benefit to participation in this study; however, it may be that participants find it to be an interesting experience that allows them to reflect upon their own psychological wellbeing. Furthermore, participants will be asked if they wish to receive a summary of the research findings upon its completion.

Participants will be asked to provide their email if they wish to receive the summary. It is hoped that this will help participants better appreciate the value of their participation in the study and how it may help clinicians and researchers working with people experiencing psychosis.

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

Participants will be offered the opportunity to be entered into a prize draw to win a £30 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. Please include details of how the confidentiality and anonymity of participants will be ensured, and the limits to confidentiality.

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 has been selected to assess the variables relevant 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 has been given to the order that the measures will appear within the online survey. Measures will be ordered to ensure more sensitive questions are asked at the middle stage of the survey so as to allow participants the opportunity to get used to the questions before being asked about more difficult issues.

Furthermore, this will also prevent sensitive questions from being asked in the final stage of the survey. It is hoped that by doing this, any difficult material will not be at the forefront of participants' minds when ending the survey.

The data collected from the two samples will be analysed separately. Parametric or non-parametric statistics will be chosen depending on the distribution of the data, and log 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 hypothesis will be investigated using a causal meditational analysis, 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. Mediation analysis was selected as the most appropriate analysis method to answer the research questions because it allows for the direct effect of a variable/s upon the relationship between phenomena (i.e. childhood trauma and psychosis). The model that will be tested is:

1) Self-disgust (SDS) as a mediator between childhood trauma (CATS) and psychotic experience (CAPE).

N.B. Shame, self-esteem, disgust propensity and disgust sensitivity will be included in the mediation model as covariates due to the nature of shame and self-esteem as related self-conscious emotions and general disgust as a potential mediator of self-disgust development and maintenance.

Confidentiality and anonymity

Prior to completing the surveys, the participants will be asked to review the participant information sheet. This will include an outline of participant confidentiality and what this means to the individual should they choose to take part in the research. For example, any data provided by the participant will be treated as confidential. In addition, the participant information sheet will outline the concept of anonymity, including the removal of any identifiers included within the data gathered during the interview and the process of secure storage of said data.

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

The PI has requested the support and input from a representative of Mind. This person has lived experience of psychosis and will provide the researcher with advice regarding the content and conduct of the research process to ensure that it is conducted as sensitively as possible. The representative for Mind has now reviewed the PIS, debrief form and consent form and their recommendations have been incorporated into the corresponding research materials included in the appendices where agreed between the research team.

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 anonymized data collected via Qualtrics will be downloaded and stored in the PI'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 a decision is made to publish the work, data will be stored for a further five years from the date of publication. Therefore, the maximum time that the data may be stored for is 15 years.

In addition, with regard to the personal email addresses of participants who wish to have a summary of the findings sent to them, or wish to be entered into the prize draw, these will be kept securely in a password- protected file on the Lancaster University secure server. The PI will send any email correspondence to the participants from their university account. Following this, the data will then be erased. Furthermore, this personal information will be stored separately from participant survey responses so that they cannot be linked back to individual email addresses.

22. Will audio or video recording take place?

No X audio video

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

N/A

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

The final report will be submitted as the PI's thesis in partial completion of the Doctorate in Clinical Psychology programme at Lancaster University. 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 the corresponding document via email. This summary will be of the main findings of the research and will not discuss the data of individual participants. Furthermore, the research team will be unable to identify findings related to each individual participant and so providing participants with such data would not be possible in any case.

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

None identified

Signatures: Applicant: ……

Date: ……

*Project Supervisor (if applicable): ……

Date: ……

*I have reviewed this application, and discussed it with the applicant. I confirm that the project methodology is appropriate. I am happy for this application to proceed to ethical review.

Appendix A

Ethics Approval Letter

Applicant: Ben Helliwell
Supervisors: Jane Simpson and Filippo Varese
Department: Health Research
FHMREC Reference: FHMREC16119

22 June 2017

Dear Ben

Re: The Role of Self-disgust in the Relationship Between Childhood Trauma and Psychotic Experience

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

As principal investigator your responsibilities include:

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

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

Tel:- 01542 592838
Email:- fhmresearchsupport@lancaster.ac.uk

Yours sincerely,

Dr Diane Hopkins
Research Integrity and Governance Officer, Secretary to FHMREC.

Appendix B

Study Measures

Thank you for taking the time to complete this survey. If you would like to save the questions and continue at a later time point you may do so. Please remember you can discontinue the survey at any time. If you have any queries please contact the principle investigator Ben Helliwell (b.helliwell@lancaster.ac.uk or *insert research mobile number*). If you feel distressed by any of the questions, please contact one of the support services detailed in the participant information sheet.

There are 5 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 be entered 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.

Section 1 (demographics)

About You	
Gender	Male Female
Age	
Nationality: Ethnicity:	White 1. White – British 2. White – Irish 3. Any other white background Mixed:

	4. Mixed - White and Black Caribbean 5. Mixed - White and Black African 6. Mixed - White and Asian 7. Any other mixed background Asian or Asian British: 8. Asian or Asian British – Indian 9. Asian or Asian British – Pakistani 10. . Asian or Asian British – Bangladeshi 11. . Any other Asian/Asian British background Black or Black British: 12. . Black or Black British – Caribbean 13. . Black or Black British – African 14. . Any other Black/Black British background Chinese or other ethnic group: 15. . Chinese 16. . Any other (please describe) (APMS, 2007)
Sexual orientation	Which of the options best describes how you think of yourself?: 1.Heterosexual or Straight, 2. Gay or Lesbian,

	3. Bisexual, 4. Other 5. Prefer not to say (Office for National Statistics, 2009)
First Language:	English Other:
What is your legal marital or same-sex civil partnership status?	1. Never married and never registered a same-sex civil partnership 2. Married 3. Separated, but still legally married

	4. Divorced 5. Widowed 6. In a registered same-sex civil partnership 7. Separated, but still legally in a same-sex civil partnership 8. Formerly in a same-sex civil partnership which is now legally dissolved 9. Surviving partner from a same-sex civil partnership (Office for National Statistics, 2011)
How far did you get in school?	1. Degree level qualification 2. Teaching qualification or HNC/HND, BEC/TEC Higher, BTEC Higher or NVQ level 4

	3. 'A'Levels/SCE Higher or ONC/OND/BEC/TEC not higher or City & Guilds Advanced Final Level NVQ level 3 4. 'O'Level passes (Grade A-C if after 1975) or City & Guilds Craft/Ord level or GCSE (Grades A-C) or NVQ level 2 5. CSE Grades 2-5 GCE 'O'level (Grades D & E if after 1975) GCSE (Grades D, E, F, G) or NVQ level 1 6. CSE ungraded 7. Other qualifications (specify) 8. No qualifications (APMS, 2007)
Which of these activities best describes what you are doing at present? (please select one only)	1. Employee 2. Self Employed 3. Unemployed 4. Full-time education at school, college or university 5. Looking after family/home 6. Receipt of sickness or disability benefits 7. Retired 8. Other Inactive (Office for National Statistics, 2015)
Have you ever received a psychiatric diagnosis?	1. Yes 2. No

Have you ever received any of the following diagnosis [select as many as apply]?	a. No b. Schizophrenia (or "Paranoid Schizophrenia") c. Schizoaffective Disorder d. Schizophreniform e. Depression with psychotic features (depression with unusual experiences like hallucinations and delusions) f. Delusional Disorder g. Bipolar Disorder with psychotic experiences h. Brief Psychotic Disorder i. Any other disorder which included psychotic experiences j. Other Please state……
Have you ever received antipsychotic medication for any of the following? [Select as many as apply]	1 No 2 Hallucinations (hearing voices, visions) 3 Delusions (unusual and sometimes bizarre beliefs) 4 Paranoia (excessive or irrational suspiciousness and distrustfulness of others) 5 Unusual beliefs
Have you ever received mental health support or treatment for any of the following [select as many as apply]?	1. No 2. Hallucinations (hearing voices, visions) 3. Delusions (unusual and sometimes bizarre beliefs) 4. Paranoia (excessive or irrational suspiciousness and distrustfulness of others) 5. Unusual beliefs

Have you ever been a patient in hospital for mental health difficulties? IF YES: How many times? Are you currently in hospital for mental health difficulties?	1 Yes 2 No 1.Yes 2.No
Have you received input from a community mental health team or early intervention service? Are you currently receiving input from a community mental health team or early intervention service?	1 Yes 2 No 1.Yes 2.No

Section 2 (child abuse and trauma scale)

This questionnaire seeks to determine the general atmosphere of your home when you were a child or teenager and how you felt you were treated by your parents or principal caretaker. (If you were not raised by one or both of your biological parents, please respond to the questions below in terms of the person or persons who had the primary responsibility for your upbringing as a child.) Where a question asks about the behavior of both of your parents and your parents differed in their behavior, please respond in terms of the parent whose behavior was the more severe or worse

0 = never

1 = rarely

2 = sometimes

3 = very often

4 = always

To illustrate, here is a hypothetical question:

Did your parents criticize you when you were young?

If you were rarely criticized, you should circle number 1.

Please answer all the questions.		
I.	Did your parents ridicule you?	0 1 2 3 4
2.	Did you ever seek outside help or guidance because of problems in your home?	0 1 2 3 4
3.	Did your parents verbally abuse each other?	0 1 2 3 4
4.	Were you expected to follow a strict code of behavior in your home?	0 1 2 3 4
5.	When you were punished as a child or teenager, did you understand the reason you were punished?	0 1 2 3 4
6.	When you didn't follow the rules of the house, how often were you severely punished?	0 1 2 3 4
7.	As a child did you feel unwanted or emotionally neglected?	0 1 2 3 4
8.	Did your parents insult you or call you names?	0 1 2 3 4
9.	Before you were 4, did you engage in any sexual activity with an adult?	0 1 2 3 4
10.	Were your parents unhappy with each other?	0 1 2 3 4

11.	Were your parents unwilling to attend any of your school-related activities?	0 1 2 3 4
12.	As a child were you punished in unusual ways (e.g., being locked in a closet for a long time or being tied up)?	0 1 2 3 4
13.	Were there traumatic or upsetting sexual experiences when you were a child or teenager that you couldn't speak to adults about?	0 1 2 3 4
14.	Did you every think you wanted to leave your family and live with another family?	0 1 2 3 4
15.	Did you ever witness the sexual mistreatment of another family member?	
16.	Did you ever think seriously about running away from home?	0 1 2 3 4
17.	Did you witness the physical mistreatment of another family member?	0 1 2 3 4
18.	When you were punished as a child or teenager, did you feel the punishment was deserved?	0 1 2 3 4
19.	As a child or teenager, did you feel disliked by either of your parents?	0 1 2 3 4
20.	How often did your parents get really angry with you?	0 1 2 3 4
21.	As a child did you feel that your home was charged with the possibility of unpredictable physical violence?	0 1 2 3 4
22.	Did you feel comfortable bringing friends home to visit?	0 1 2 3 4
23.	Did you feel safe living at home?	0 1 2 3 4

24.	When you were punished as a child or teenager, did you feel "the punishment fit the crime"?	0 1 2 3 4
25.	Did your parents ever verbally lash out at you when you did not expect it?	0 1 2 3 4
26.	Did you have traumatic sexual experiences as a child or teenager?	0 1 2 3 4
27.	Were you lonely as a child?	0 1 2 3 4
28.	Did your parents yell at you?	0 1 2 3 4
29.	When either of your parents was intoxicated, were you ever afraid of being sexually mistreated?	0 1 2 3 4
30.	Did you every wish for a friend to share your life?	0 1 2 3 4

31.	How often were you left at home alone as a child? Did your	0 1 2 3 4
32.	parents blame you for things you didn't do?	0 1 2 3 4
33.	To what extent did either of your parents drink heavily or abuse drugs?	0 1 2 3 4
34.	Did your parents ever hit or beat you when you did not expect it?	0 1 2 3 4
35.	Did your relationship with your parents ever involve a sexual experience?	0 1 2 3 4
36.	As a child, did you have to take care of yourself before you were old enough?	0 1 2 3 4
37.	Were you physically mistreated as a child or teenager?	0 1 2 3 4
38.	Was your childhood stressful?	0 1 2 3 4

Section 3 (self-disgust scale-revised, Rosenburg self-esteem scale, internalized shame scale)

The following questionnaires are concerned with how you feel about yourself.

When responding to the statements below, please circle the appropriate number according to the following definitions: 1 = Strongly disagree; 2 = Very much disagree; 3 = Slightly disagree; 4 = Neither agree nor disagree; 5 = Slightly agree; 6 = Very much agree; 7 = Strongly agree.

	Strongly disagree						*Strongly agree*
1. I find myself repulsive	1	2	3	4	5	6	7
2. I am proud of who I am	1	2	3	4	5	6	7
3. I am sickened by the way I behave	1	2	3	4	5	6	7
4. Sometimes I feel tired	1	2	3	4	5	6	7
5. I can’t stand being me	1	2	3	4	5	6	7
6. I enjoy the company of others	1	2	3	4	5	6	7
7. I am revolting for many reasons	1	2	3	4	5	6	7
8. I consider myself attractive	1	2	3	4	5	6	7

9. People avoid me	1	2	3	4	5	6	7
10. I enjoy being outdoors	1	2	3	4	5	6	7
11. I feel good about the way I behave	1	2	3	4	5	6	7
12. I do not want to be seen	1	2	3	4	5	6	7
13. I am a sociable person	1	2	3	4	5	6	7
14. I often do things I find revolting	1	2	3	4	5	6	7
15. I avoid looking at my reflection	1	2	3	4	5	6	7
16. Sometimes I feel happy	1	2	3	4	5	6	7
17. I am an optimistic person	1	2	3	4	5	6	7
18. I behave as well as everyone else	1	2	3	4	5	6	7
19. It bothers me to look at myself	1	2	3	4	5	6	7
20. Sometimes I feel sad	1	2	3	4	5	6	7
21. I find the way I look nauseating	1	2	3	4	5	6	7
22. My behaviour repels people	1	2	3	4	5	6	7

Please record the appropriate answer for each item, depending on whether you Strongly agree, agree, disagree, or strongly disagree with it.

1 = Strongly agree
2 = Agree

3 = Disagree

4 = Strongly disagree

1. On the whole, I am satisfied with myself.	1	2	3	4
2. At times I think I am no good at all.	1	2	3	4
3. I feel that I have a number of good qualities.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I certainly feel useless at times.	1	2	3	4
7. I feel that I'm a person of worth.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4

9. All in all, I am inclined to think that I am a failure.	1	2	3	4
10. I take a positive attitude toward myself.	1	2	3	4

Below is a list of statements describing feelings or experiences that you may have. Read each statement carefully and circle the number to the right of each item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below. Try to be as honest as you can when responding. Please answer all of the items.

Never Seldom Sometimes Often Almost Always 0 1 2 3 4

	Never Seldom Sometimes Often Almost Always
1. I feel like I am never quite good enough.	0 1 2 3 4
2. I feel somehow left out.	0 1 2 3 4
3. I think that people look down on me.	0 1 2 3 4
4. All in all, I am inclined to feel that I am a success.	0 1 2 3 4
5. I scold myself and put myself down.	0 1 2 3 4
6. I feel insecure about others opinions of me.	0 1 2 3 4
7. Compared to other people, I feel like I somehow never measure up.	0 1 2 3 4
8. I see myself as being very small and insignificant.	0 1 2 3 4
9. I feel I have much to be proud of.	0 1 2 3 4
10. I feel intensely inadequate and full of self-doubt.	0 1 2 3 4
11. I feel as if I am somehow defective as a person, like there is something basically wrong with me.	0 1 2 3 4
12. When I compare myself to others, I am just not as important.	0 1 2 3 4
13. I have an overpowering dread that my faults will be revealed in front of others.	0 1 2 3 4
14. I feel I have a number of good qualities.	0 1 2 3 4
15. I see myself striving for perfection only to continually fall short.	0 1 2 3 4
16. I think others are able to see my defects.	0 1 2 3 4
17. I could beat myself over the head with a club when I make a mistake.	0 1 2 3 4

18. On the whole, I am satisfied with myself.	0	1	2	3	4
19. I would like to shrink away when I make a mistake.	0	1	2	3	4
20. I replay painful events over and over in my mind until I am overwhelmed. 0 1 2 3 4					
21. I feel I am a person of worth at least on an equal plane with others. 0 1 2 3 4					
22. At times I feel like I will break into a thousand pieces. 0 1 2 3 4					
23. I feel as if I have lost control over my body functions and my feelings. 0 1 2 3 4					
24. Sometimes I feel no bigger than a pea.	0	1	2	3	4
25. At times I feel so exposed that I wish the earth would open up and swallow me. 0 1 2 3 4					
26. I have this painful gap within me that I have not been able to fill. 0 1 2 3 4					
27. I feel empty and unfulfilled.	0	1	2	3	4
28. I take a positive attitude toward myself.	0	1	2	3	4
29. My loneliness is more like emptiness.	0	1	2	3	4
30. I feel like there is something missing.	0	1	2	3	4

Section 4 (other as shame scale)

We are also interested in how people think others see them. Below is a list of statements describing feelings or experiences about how you may feel other people see you.

Read each statement carefully and circle the number to the right of the item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below.

0 = NEVER 1 = SELDOM 2 = SOMETIME 3 = FREQUENTLY 4 = ALMOST ALWAYS

1.	I feel other people see me as not good enough.	0	1	2	3	4
2.	I think that other people look down on me	0	1	2	3	4
3.	Other people put me down a lot	0	1	2	3	4
4.	I feel insecure about others opinions of me	0	1	2	3	4
5.	Other people see me as not measuring up to them	0	1	2	3	4
6.	Other people see me as small and insignificant	0	1	2	3	4
7.	Other people see me as somehow defective as a person	0	1	2	3	4
8.	People see me as unimportant compared to others	0	1	2	3	4
9.	Other people look for my faults	0	1	2	3	4
10.	People see me as striving for perfection but being unable to reach my own standards	0	1	2	3	4
11.	I think others are able to see my defects	0	1	2	3	4
12.	Others are critical or punishing when I make a mistake	0	1	2	3	4
13.	People distance themselves from me when I make mistakes	0	1	2	3	4
14.	Other people always remember my mistakes	0	1	2	3	4
15.	Others see me as fragile	0	1	2	3	4

16.	Others see me as empty and unfulfilled	0	1	2	3	4
17.	Others think there is something missing in me	0	1	2	3	4
18.	Other people think I have lost control over my body and feelings	0	1	2	3	4

Section 5 (disgust propensity and sensitivity scale, community assessment of psychic experience)

We would now like to ask you some final questions about yourself. Please take the time to complete this final section, following the instructions provided.

Instructions: this questionnaire consists of 16 statements. Please read each statement and think how often it is true for you, then place a 'x' in the box that is closest to this.

	Never	Rarely	Sometimes	Often	Always
1 I avoid disgusting things.					
2 When I feel disgusted, I worry that I might pass out.					
3 It scares me when I feel nauseous.					
4 I feel repulsed.					
5 Disgusting things make my stomach turn.					
6 I screw up my face in disgust.					
7 When I notice that I feel nauseous, I worry about vomiting					
8 I experience disgust.					

9 It scares me when I feel faint.					
10 I find something disgusting.					
11 It embarrasses me when I feel					
12 I think feeling disgust is bad for me.					

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", you are now ready

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", you are now ready

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 ready

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