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Jodie Waterhouse B.Sc. (Hons)

**EARLY ADVERSITY, EARLY PSYCHOSIS AND MEDIATING  
FACTORS**

**Section A:** Advances in our understanding of the childhood adversity and psychosis relationship: A systematic review of the literature from 2011-2014

Word Count: 7971 Words

**Section B:** Early adversity, first-episode psychosis and the mediating role of maladaptive schemas, social support and dissociation

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SALOMONS  
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## Summary of the portfolio

This thesis examines the relationship between childhood adversity and psychosis. It comprises of two sections.

**Section A** is a systematic literature review and includes literature published between October 2011 and March 2014. The review aims to offer an update of the evidence base following the publication of a comprehensive, quantitative meta-analysis in 2012. The review explores not only the direct relationship between childhood adversity and psychosis, but also considers recent research exploring psychological mechanisms within that relationship.

**Section B** is an empirical paper and reports the findings from a quantitative study. The cross-sectional study explored the prevalence of childhood adversity, specifically abuse, neglect and insecure attachment, in clients with first-episode psychosis. In line with recommendations for future research, the study also explored the mechanisms within the relationship between childhood adversity and psychosis through investigation of the mediating and moderating role of dissociation, early maladaptive schemas and social support. The results and implications of this study are discussed.

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Jodie Waterhouse B.Sc. (Hons).

**Major Research Project**

**Section A: Systematic Literature Review**

Advances in our understanding of the childhood adversity and psychosis relationship:

A systematic review exploring literature from 2011-2014

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September 2014

**SALOMONS**

**CANTERBURY CHRIST CHURCH UNIVERSITY**

## **Abstract**

### **Introduction**

A body of research has explored the relationship between childhood adversity and psychosis. A quantitative meta-analysis highlighted that little was known about the specific mechanisms that make this relationship more or less likely to occur.

### **Method**

This systematic review aimed to critique literature published between 2011 and 2014. Electronic databases were used to conduct systematic searches of the published literature. Quality assessments of the literature were conducted using guidance from the Critical Appraisal Skills Programme (CASP) and in light of this, only papers published in peer-reviewed journals or in press were included.

### **Results**

Fourteen papers were deemed high quality and included in the review. The review critiqued the literature investigating the type or frequency of adversity, parental loss, bullying and a range of mediating variables on psychosis development.

### **Discussion**

The discussion made recommendations for future research, which included exploration of how multi-victimisation and timing of the adverse experience impacted the development of psychosis. The authors acknowledged the value of mediation analyses and recommended that a range of variables could be investigated using this approach. There was an acknowledgement that much of the research exploring adversity and psychosis is cross-sectional.

**Key words:** abuse, psychosis, adversity, schema, dissociation

## **Introduction**

Difficulties in childhood are thought to contribute to the development of a range of mental health difficulties in adolescence and beyond. Links have been found between childhood traumas and most mental health difficulties including depression, anxiety disorders, personality disorder, post-traumatic stress disorder (PTSD) and substance use (e.g. Kessler et al., 2010; Springer, Sheridan, Kuo, & Carnes, 2007). Since the 1980's, research teams have investigated how difficulties across the lifespan contribute to schizophrenia or psychosis, and within this begun exploration of childhood adversity in those with psychosis. Although controversial amongst some clinicians who favoured the biomedical understanding of schizophrenia and psychosis, our understanding has expanded to consider psychosis from a biopsychosocial perspective; this being publicised through the work of Richard Bentall (2004; 2009), Mary Boyle, (2002) and Max Birchwood (2003).

## **Definitions and theoretical underpinning**

### **Psychosis**

Psychosis is a term, which encapsulates a set of symptoms or experiences which include hallucinations, delusions, paranoia, thought disorder, catatonia and negative symptoms, including flat affect, alogia and avolition (American Psychiatric Association, 2000). Those experiencing psychosis may “perceive or interpret events differently from those around them” (MIND, 2013) and the symptoms may be grouped together to form one of many psychotic disorders including schizophrenia, bipolar disorder, depression with psychotic features, schizoaffective disorder and experiences of post-traumatic stress. Formal diagnosis of these disorders is made using the DSM-V (American Psychiatric Association, 2013) and the ICD-10 (World Health Organisation, 2010).

Until February 2014, clinical guidance from the National Institute for Health and Care Excellence (NICE) did not exist for psychosis specifically, instead the 2009 guidance focused on the „Treatment and Management of Schizophrenia“ (NICE, 2009). The 2014 update (NICE, 2014), includes psychosis and in particular, a chapter on the early detection of psychosis. This recognition that we need information about the early signs of psychosis, supports the theory that it exists on a continuum from normal sub-threshold experiences to more clinical, abnormal symptoms. The threshold for defining when particular experiences can be defined as problematic is variable and there is evidence that some lower level anomalous experiences may be experienced by a large proportion of the general population (Hanssen, Bak, Bijl, Vollebergh, & van Os, 2005; Johns & van Os, 2001; Nuevo et al., 2012). The move away from a diagnosis-based guidance to symptom or experience based guidance supports the body of research which explores attenuated psychotic symptoms within the general population and also upon individual symptoms rather than psychosis as a categorical concept (van Os, Hanssen, Bijl & Ravelli, 2000).

### **Who is affected by psychosis?**

Kirkbride et al. (2012) conducted a systematic review for the Department of Health (DH) that explored the incidence and prevalence of schizophrenia and other psychotic disorders in England. The review examined 5262 studies conducted between 1950 and 2009 and included 147 papers meeting the inclusion criteria. Psychotic disorders generally had a pooled incidence of 32 cases per 100,000. In relation to gender, males were more likely than females to have psychotic symptoms before the age of 45, although the prevalence rates across genders were more even after this age. With reference to ethnicity, Black Afro-Caribbean groups were more likely to experience psychosis than other groups. The prevalence of psychotic disorders at any one time proved difficult to determine due to the vast range of methodologies and definitions of prevalence. The authors concluded that 4 out of

1000 people experience psychotic symptoms at any one time. It was interesting to note that the prevalence has not increased over the past 60 years. This was a rigorous review paper, clearly stating its inclusion and exclusion criteria and was conducted by a team of researchers with multi-disciplinary backgrounds ensuring that the investigation of prevalence took a biopsychosocial standpoint.

### **Childhood Adversity**

Childhood adversity has been defined in a variety of ways. Adversity in a psychological sense can encapsulate abusive experiences, war-experiences, neglect, bullying or loss of family members (e.g. Kessler, Davis, & Kendler, 1997; Rosenman & Rogers, 2004; Young, Abelson, Curtis, & Nesse, 1997). In this review, the focus is on childhood adversity and is defined as the specific experiences of bullying, loss of a parent and early trauma in the form of abuse and neglect that occur before the age of 18 (Varese et al., 2012).

### **Theoretical explanation of the early adversity and psychosis link**

Theory suggests that early-life experiences lead to both strengths and vulnerabilities that can be exposed during adolescence and adulthood. Insecure early-attachment and wariness developed from trauma or neglect, may lead to difficulties in forming relationships in later life (Fonagy, 2010). These difficulties may present themselves as paranoia or mistrust, or alternatively, beliefs that one is unlovable or not deserving of respect (Wearden, Peters, Berry, Barrowclough, & Liversidge, 2008). Holding negative self-beliefs may maintain or worsen the relationship difficulties and can lead to repeated patterns of engagement in damaging, unsupportive relationships (Dutton, Saunders, Starzomski, & Bartholomew, 1994; Weiss, 2006). This might in turn lead to increased vulnerability to pathological experiences including psychosis (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001). Some may

break the cycle and engage in reparative, healthy relationships leading to a reduction in psychological vulnerability and increase in resilience (Antoniou & Blom, 2006). Others may avoid relationships altogether and isolate themselves socially from others; this in itself may interact with or contribute to a psychological vulnerability, potentially leading to psychotic symptoms (Garety et al., 2001).

**Varese et al, 2012: A quantitative meta-analysis exploring the impact of childhood  
adversity on psychosis risk**

This meta-analysis was conducted by a team of nine international researchers, the majority of whom are at the forefront of the psychosis literature supporting a biopsychosocial understanding of psychosis.

The authors' rationale for conducting the review was that a body of methodologically sound studies investigating links between adversity and risk factors for psychosis and schizophrenia had been conducted. Only reviews of a narrative nature had been published and conclusions about this controversial area were inconclusive. The authors acknowledged that there was a gap in the literature for a quantitative review.

The analysis used robust guidelines (Meta-Analysis of Observational Studies in Epidemiology guidelines) when considering their methodological approach and included papers published between 1980 and 2011; rationale for this being that 1980 was the publication date of the first known paper on psychosis and childhood adversity. The authors only included papers that used large-scale robust methodologies; prospective cohort studies, large-scale cross-sectional studies, case-control studies comparing adverse events between psychotic patients and controls using dichotomous or continuous variables and case-control studies comparing the prevalence of psychotic symptoms between those

exposed and those not exposed to adverse childhood events. The definition of childhood adversity employed included childhood sexual abuse (CSA), childhood physical abuse (CPA), childhood emotional abuse (CEA), neglect, bullying and loss of a parent.

The methodology of the paper had a range of strengths. The team tried to ensure that the same sample of clients were not included in the paper multiple times by choosing one paper from each research team which most strongly fitted the definition of adversity employed. They also used a robust eligibility process, which involved two researchers checking each paper through a three-stage process followed by assessment of inter-rater reliability. The results of the meta-analysis included 41 articles from an initial search of 27898 studies; amongst others 18 case-control studies, 10 prospective and quasi-prospective studies and 8 population based cross-sectional studies were included.

The study found a significant association between adverse childhood events and psychosis (OR =2.78, 95% CI= 2.34-3.31) with the magnitude of these effects being comparable across all included designs. The same was true for specific types of adversity, which with the exception of parental death, also showed statistically significant associations with psychosis. The findings indicated that if childhood adversity were removed from the population (assuming all other factors stayed constant and that causality was assumed) the incidence of psychosis in the general population would decrease by 33%. The meta-analysis found no evidence that one type of adversity increases the psychosis risk more than others.

To assess the quality of these conclusions, the authors used Eggers Test, a test for publication and selection bias particularly of small-scale studies. The results suggested that the conclusions were not influenced by such biases. Sensitivity analyses were also conducted to investigate the impact of confounding factors; even with confounding factors controlled for the results remained significant.



The study's robustness was increased through inclusion of a range of study methodologies; this allowed authors to ascertain the direction of causality, which would not be possible with purely cross-sectional research. The study also acknowledged the impact of dose-response effects of trauma. In 9 out of 10 studies that explored this there was a positive association. Dose-response effects can be defined as relationships in which a change in the amount, intensity or duration of exposure is associated with a change in risk of a specified outcome. In the case of childhood adversity and psychosis, increased childhood adversity or that of longer duration, resulted in increased psychotic risk.

Although a robust study, some factors may have limited the findings. Small scale cross-sectional studies were excluded because they were more likely to have potential biases such as interviewing clients who were acutely unwell thus it is likely that a range of clinical populations were not represented in this analysis. Therefore, there are likely to be some publication biases within the meta-analysis. Secondly, the authors questioned the validity and reliability of retrospective accounts of traumatic experiences. However, they acknowledged that people often under rather than over report retrospective accounts of adversity (Hardt & Rutter, 2004). Varese et al. (2012) also acknowledged that there may have been other factors such as urbanicity and cannabis use which interacted with the adverse experiences to psychosis link that many studies did not control for.

As the nature of the traumatic experience does not specifically impact on the association with psychosis, the researchers recommended that it might be important to ascertain whether clients who had multiple experiences of trauma were more likely to experience psychosis in comparison to those with a single traumatic experience. There was also a suggestion that the timing of the trauma is important with regards to the development of psychosis. This could be due to the interaction of that

experience with the child's key developmental stages. One application of this may be to attachment, as having a traumatic experience, which results in a child becoming wary may inhibit their ability to attach to a caregiver at a critical period (Bowlby, 1980). In some scenarios the caregiver may have been the perpetrator of the adversity and therefore, this could also contribute to attachment difficulties. Perhaps we need to know more about the timing of the adversity in order to determine its impact on developmental processes, including attachment.

After considering the discussion of the meta-analysis there are a number of research areas that need to be explored. More research is needed to assess the reliability of retrospective trauma reports. Also, the body of research has focused on hallucinations and delusions. Further research should examine other positive symptoms and also negative symptoms to consider whether trauma is linked to psychosis generally or just specific symptoms. This would allow consideration of whether studying psychosis as a disorder is appropriate, or whether individual symptoms should be studied separately due to their differential developmental pathways. There is an acknowledgement that although adversity is a heterogeneous concept, it would be useful to differentiate between the types of adversity to explore their specific impacts. There is also further understanding needed of the specific mechanisms that underlie the adversity to psychosis relationship.

### **Rationale and Aims**

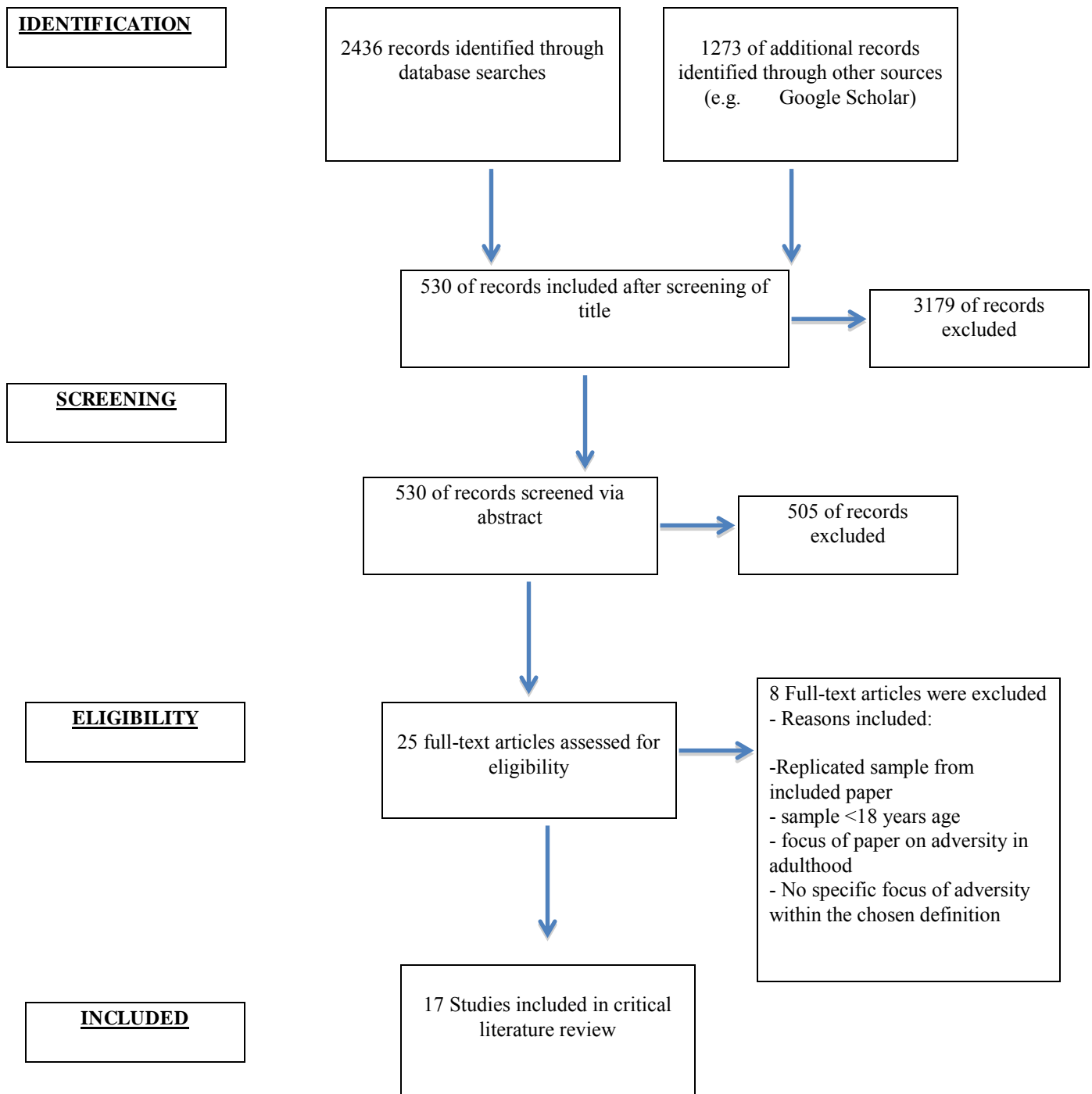
A comprehensive meta-analysis (Varese et al., 2012), discussed above, thoroughly explored the relationship between childhood adversity and psychosis including literature from January 1980 to November 2011 (Varese et al., 2012). This study was the first quantitative review investigating adversity and psychosis. The Varese et al. (2012) paper highlighted key gaps in our understanding about the specific mechanisms behind the adversity and psychosis link. As research has started to

explore these mechanisms, this systematic literature review aims to offer an updated overview of the early adversity and psychosis literature, from November 2011 to March 2014. This review will identify how helpful the meta-analysis has been in directing future research, but also identify gaps that have still not been explored to date.

### **Method**

Electronic databases (Medline, CCCU Journals, Psychinfo, Cochrane Database of systematic reviews) were used to conduct systematic searches of the literature published between November 2011 and March 2014 exploring adversity and psychosis. In addition, the same search terms were entered into Google Scholar in an attempt to reduce file draw effects, i.e. find literature that was not published in peer reviewed journals due to negative findings, or to find new papers in the process of publication. If papers of this nature were identified, contact was made with the author to ask for copies of the manuscript. The review followed guidance on how to conduct and report health related systematic reviews by PRISMA (2009) and when critiquing papers, followed the Critical Appraisal Skills Programme (CASP) appraisal tools (CASP, 2013). A full report of the search process and numbers of articles included or excluded at each stage is found in figure 1.

Figure 1: PRISMA Flowchart (2009)



As the review aims to build on the work of Varese et al. (2012) the definitions of childhood adversity used for the searches was based on those used within the meta-analysis; therefore adversity was classed as physical abuse, sexual abuse, emotional/psychological abuse, neglect, parental death and bullying. The original authors chose these as they were the most acknowledged types of traumatic experience.

After looking at the quality of research, only work which had already been published in peer-reviewed journals or was in press, were included. Papers with both clinical and non-clinical samples were included in light of the idea that psychotic symptoms can be experienced on a continuum. Papers were only included if they were published in English. When screening full papers, 10 were excluded; reasons for this included the exploration of adversity in participants above the age of 18. In total, 14 papers were deemed high quality when considering CASP guidance and are included in this review. Inclusion, exclusion criteria and search terms are listed below.

#### Inclusion Criteria

- Articles meeting CASP guidelines for high quality research
- Articles published or in press after October 2011
- Articles which measured childhood adversity or psychosis as separate variables
- Clinical and non-clinical samples were included
- Articles which use a type of adversity which fits with the Varese et al. (2012) definition employed for the review.

### Exclusion Criteria

- Research published/in press before October 2011
- Research not published in English
- Research which focused on types of adversity not covered by Varese et al. (2012)
- Research using participants below the age of 18
- Research exploring the link between adversity in adulthood and psychosis

### Search terms

psychosis + adversity + childhood

psychosis + trauma

psychosis + neglect

psychosis + bullying

psychosis + parental loss

psychosis + bereavement

psychosis + abuse

hallucinations + abuse

hallucinations + neglect

hallucinations + bullying

hallucinations + loss + parent

delusions + abuse

delusions + neglect

delusions + bullying

delusions + loss + parent

psychosis + mediation

psychosis + moderation

first episode + psychosis

### **Recent Developments in the evidence base**

This systematic review will now explore the findings of the more recent literature concerned with the adversity and psychosis link, to consider how research has advanced since the publication of the Varese et al. (2012) meta-analysis. Some critique of each paper has been included in the body of the text although summary tables of the 14 papers can be found in Appendix A. The review will conclude by considering the implications of the advanced findings and identify gaps in the literature, which might form suggestions for future research.

### **The prevalence of childhood adversity in clients with psychosis**

Many researchers and clinicians assume that people who develop psychotic symptoms have experienced some kind of adversity as a child that has contributed to their vulnerability to anomalous experiences. For example, Kennedy, Tripodi, and Pettus-Davis (2013) found that two thirds of female prisoners with psychotic symptoms had experienced childhood adversity.

Bonoldi et al. (2013) conducted a systematic review and associated meta-analysis in line with PRISMA guidance, to calculate the approximate prevalence of childhood sexual abuse (CSA), childhood emotional abuse (CEA) and childhood physical abuse (CPA) in people with a diagnosis of psychosis. This was the first review of its kind. Twenty-three studies published between 1988 and 2011 were retrieved and included 2017 patients with psychosis. Three separate meta-analyses were conducted to explore CSA, CEA and CPA as individual factors. To ensure all relevant papers were included, two independent researchers conducted separate systematic searches. The study made a range of attempts to control for demographics, publication bias and heterogeneity. The results found that childhood abuse in psychotic clients was greater than those in the general population. Bonoldi et al. (2013) identified approximate prevalence rates for CSA as 26% (CI 95% from 21.2% to 32.2%),

CPA as 38% (CI 95% from 36.2% to 42.2%) and CEA as 34% (CI 95% from 29.7% to 38.5%); it was acknowledged that higher rates had been reported in other reviews. Read, van Os, Morrison and Ross (2005), identified a weighted CSA level of 47.7% for females and 28.3% for males; this is evidence of how inclusion and exclusion criteria of reviews can impact on results. This finding was also lower than the estimates of adversity in the prison population explored by Kennedy et al. (2013). Therefore, it may be that prevalence of adversity changes with population and severity of psychotic symptoms.

### **Impact of the frequency and type of adversity on development of psychosis**

Over the review period, a range of clinical populations has been explored in relation to the childhood adversity and psychosis link. Bentall, Wickham, Shevlin, and Varese (2012) used data from the Adult Psychiatric Morbidity Survey (2007). Only data from phase one was included in the study. The study measured specific features of psychosis, hallucinations and paranoia, using the Psychosis Screening Questionnaire (PSQ; Bebbington & Nayani, 1995). The PSQ has five scales of psychosis, hypomania, thought control, paranoia, strange experiences and hallucinations. CSA was measured through selecting sections from the domestic violence and abuse aspect of the interview. CPA was assessed from interview questions about physical abuse and bullying by peers. Bullying was assessed through responses to a tick-box list of life events included in the survey. Separation experiences were assessed from the parenting section of the survey and questions about institutional care. The study controlled for sex, ethnicity, and premorbid IQ using the National Adult Reading Test (NART; Nelson & Willison, 1991). The analysis was conducted using logistic regression models and three models were investigated. The first model included CSA, victimisation (bullying and CPA) and separation experiences. The second model included the same factors as model one alongside the control variables of age, sex, ethnicity, IQ. Model three tested for dose-response relationships and included a total adversity score compiled from separate scores of CSA, victimisation and separation



experiences. The results found that all bivariate associations between symptoms and adversity, e.g. CPA and hallucinations were significant ( $p < 0.005$ ). The regression results found that CSA was associated with hallucinations even after controlling for IQ and demographic confounders. Victimization predicted paranoia and hallucinations. Separation experiences predicted paranoia; those brought up in care were 11 times more likely to experience paranoia. The model predicting dose-response found that experiences of multiple traumas increased the odds ratio and therefore the likelihood that hallucination and paranoia will develop. The study was helpful in contributing to literature about the developmental pathways of specific symptoms of psychosis such as hallucinations and delusions. If different developmental pathways exist for specific symptoms, it raises questions as to why hallucinations and delusions co-occur. A strength of this study was its use of an epidemiological community sample which avoids many selection biases.

Kennedy et al. (2013) contributed to the evidence base regarding the impact of the frequency of adversity on psychotic symptoms and further explored the dose-response hypothesis of the relationship between adversity and psychosis. The study design used a sample of female prisoners ( $n = 159$ ) from a prison in Carolina, all of whom were due for release. Participants were randomly selected from 630 potential participants and data collection occurred at four intervals from two prisons. The study employed only two validated measures, the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1999) and the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998), which was used to identify hallucinations and delusions. The authors controlled for ethnicity as they acknowledged that not only do higher numbers of African Americans experience psychosis but also higher numbers of women within this group are incarcerated (27%; West, Sabol, & Greenwood, 2010). They also assessed multicollinearity within the models employed. Statistical analysis used binary logistic regression. Results of the paper indicated prevalence of all types of adversity was high; CPA (53.9%), CSA (48.7%) although some participants had no history of

adversity (35.1%). The results from the regression models suggested that the type and frequency of victimisation were important predictors of psychosis in female prisoners. Specifically, females who experienced both CSA and CPA together (CPSA), were more likely to report psychosis than those who experiences CSA or CPA alone. Victims of CPSA were 2.4 times more likely to have reported psychotic symptoms in the past seven days than those who experienced only one of those forms of adversity and a one-unit increase on the CTQ, predicted a 3.2% increase in psychotic symptoms. Both of these findings provide support for a dose-response relationship between adversity and psychosis.

The Kennedy et al. (2013) paper used a sample that was not representative of all ethnic groups and the general population, with an over-representation of African-Caribbean participants and an under-representation of Hispanic populations. However it is acknowledged that within the population with psychosis, the African-Caribbean population are over-represented (Arnold et al., 2001; Castle, Wessely, Der, & Murray, 1991). This study was also part of a larger study and therefore a reduced sample of the prison population was eligible for inclusion in this research. It is therefore possible that this sample is not representative of the prison population as a whole. A further limitation of this paper comes from the use of the CTQ which is a common measure used to assess childhood adversity. The CTQ is able to measure multi-victimisation, however does not record the timing of the victimisation, which is an important factor that remains unexplored in the literature.

Much of the literature exploring childhood adversity and psychosis has used a cross-sectional design, which makes identification of causality difficult. Rossler, Hengartner, Ajdacic-Gross, Haker, and Angst (2014), based in Zurich, conducted a 30-year prospective community study. The aim was to examine the childhood adversity and psychosis relationship from both an intra-individual and inter-individual stance. Participants were assessed between 1978 (aged approximately 20) and 2008 (aged approximately 50); seven face-to-face interviews were completed in this timeframe. The study

examined two psychosis syndromes using the list 90 (SCL-R 90: Schmitz et al., 2000; n =335); „schizotypal“ and „schizophrenia nuclear“. Childhood adversity was measured using the structured psychopathological interview rating of the social consequences of psychological disturbance for epidemiology (Angst, Dobler-Mikola, & Binder, 1984); this was used from 1986 onwards as a retrospective assessment of trauma. The results found a significant relationship between schizotypy symptoms and total adversities, reflecting inter-individual mean differences, indicating a dose-response relationship of a moderate level. Rossler et al. (2014) concluded that adversity alone was not sufficient to lead to the development of psychosis. Psychosis is a rare mental-health condition and therefore, it is difficult to study this population longitudinally; Rossler et al.'s (2014) study was helpful in showing that even sub-clinical symptoms of psychosis were sensitive to a relationship with adversity. This prospective study was the first of its kind. Despite its strengths, the small cohort of participants and number of interviews in a 30-year period mean that there are chances of a type II error being made. A type-II error occurs when one falsely rejects a research hypothesis; for example one believes that there was no effect in the population when in reality there was (Field, 2013).

The evidence from these three papers support the theory that childhood adversity and psychosis are related and that this relationship develops through dose and response; i.e. as one experiences more adversity in childhood, one would be expected to develop more severe psychotic symptoms in adulthood.

### **Parental loss and psychosis**

The Varese et al. (2012) meta-analysis did not find an association between psychosis and parental loss. Abel et al. (2013) conducted a population based cohort study in Sweden using a sample of children born between 1973 and 1985 (n = 1151883). They explored parental loss directly and also from a slightly different angle; the impact of bereavement stress in the mother on the development of

psychosis in her offspring in later life. This paper acknowledges that loss of family members places stress on the parent/s that may in turn impact the quality of attachments formed in those early stages of childhood. Analyses were conducted using logistic regression. The study found that 33% of participants (n= 321249) were exposed to a close death in the family before the age of 13. Of those exposed, 0.4% developed non-affective psychosis and 0.17% developed affective psychosis. There was no evidence of increased risk of psychosis due to maternal bereavement stress at preconception or during any trimester of pregnancy. Exposure to a death in the family below age 13 was associated with increased risks for psychosis; this was pronounced when the death was in the nuclear family.

Abel et al. (2013) developed the literature on bereavement and psychosis through consideration of death in the broader family and also in terms of the cause of death. However they make the assumption that stress or grief would happen immediately after the bereavement, which does not allow for the role of defensive processes including dissociation, denial or repression of difficult feelings that can delay the expression of such stress. The authors acknowledge that bereavement, particularly in the close family does impact on the development of psychosis. However it is likely that this is mediated by other factors or mechanisms that impact on an individuals' resilience to adversity. Therefore a suggestion is made that future papers should explore the impact of bereavement on resilience and in turn think about how this may impact on the development of psychosis.

### **Bullying and psychosis**

The final type of adversity covered within the Varese et al. (2012) paper was childhood bullying. An association was found between this and psychosis in the meta-analysis. Approximately 11% of school children are thought to be bullied on a regular basis (Craig & Harel, 2004). Therefore,

if bullying contributes to a vulnerability to psychosis then interventions to stop or reduce the impact of bullying could reduce rates of adult psychosis.

Van Dam et al. (2012) conducted a systematic review and meta-analysis that explored the association between childhood bullying and psychosis. The review included four clinical and ten general population studies published between 1806 and 2011. The review excluded papers that investigated bullying as a confounding variable or when bullying was not analysed as a separate variable. Results from non-clinical studies found consistent evidence that school bullying is related to the development of non-clinical psychotic symptoms. The severity of symptoms increases as frequency, severity and duration of bullying increases. The meta-analysis of 7 population studies (OR = 2.7, 95% CI 2.1 - 3.6) provided consistent evidence for a causal relationship. No unequivocal conclusions could be drawn from the clinical studies, however van Dam et al. (2012) acknowledged that heterogeneity within methodological approaches may have impacted results. The study supported the dose-response relationship between childhood adversity and sub-clinical psychosis. As findings in clinical studies were non-conclusive, van Dam and colleagues recommended that more clinical studies are conducted which explore the dose-response effect of childhood bullying on psychosis development. The ideal study would be longitudinal and follow those who were and were not bullied through to adulthood to assess whether symptoms of psychosis developed.

Trotta et al. (2013) explored experiences of bullying in those with first episode psychosis. Participants were recruited from inpatient units in South London. The cross-sectional paper aimed to explore whether bullying was more prevalent in clients who presented with first-episode psychosis in comparison to community controls. Large samples of clinical (n= 222) and non-clinical (n=215) participants were included, aged 16-65 years. Sub-clinical psychotic symptoms in controls were measured using the PSQ; controls were excluded if they met the criteria for psychosis. Bullying was

measured using the Brief Life Events Schedule (Bebbington et al. 2004); this asks participants to tick life-events they have experienced from a list of ten. The team controlled for demographic factors and found no significant differences in demographic factors between the two groups. Results found that clinical participants were twice as likely to report bullying when compared to controls; this relationship held when other life events were adjusted for (adj OR = 2.28, 95% CI 1.49-3.49,  $p < 0.001$ ). Controls who reported bullying were twice as likely to report at least one sub-clinical symptom as those who did not.

In conclusion, although there are mixed results about the impact of bullying on the development of psychosis, it appears that the dose-response relationship between bullying and the development of psychosis is important. Further research is required using clinical samples to expand these findings.

### **Do specific types of childhood adversity relate to specific psychotic symptoms?**

It is clear that childhood adversity has an impact on psychosis development generally; however, researchers have begun to investigate whether specific experiences may relate to specific symptoms.

Heins et al. (2011) explored childhood adversity and psychotic symptoms across the symptoms severity scale from schizotypy to long-term psychosis in a Dutch, cross-sectional study. Three groups of participants were included; a clinical sample ( $n=272$ ), a sibling sample ( $n=258$ ) and a control group ( $n=227$ ). Childhood adversity was measured using the CTQ, psychosis using the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein & Opler, 1987) and in the sibling sample and controls, sub-clinical psychosis was measured using the Structured Interview for Schizotypy: revised (SIS-R; Kendler et al., 1991). Analysis used multilevel logistic regression and

models were estimated between groups. Total childhood adversity scores and psychosis were associated in the case-control group, case-sibling group and sibling-control group. In the clinical group, an association between total CTQ score and positive symptoms and general psychopathology was found although there was no significant relationship for negative symptoms. In the sibling group, childhood trauma was not associated with either the positive or the negative schizotypy dimensions. In the healthy group, there was a positive association with the positive schizotypy dimension. For all groups, dose-response effects were found. This study supported the clinical validity of retrospective reporting of adversity, as the sibling group reported higher rates of adversity than the control group, thus validating the reports of adversity by the clinical group.

Heins et al. (2011) attempted to overcome methodological difficulties identified previously through use of a clinical sample alongside a sibling group as they perceived it to control for factors such as differences in early nurturing, living conditions and meeting of basic needs. However, theoretically we would not necessarily expect two children brought up within one family to have identical early experiences. Feinberg, Neiderhiser, Simmens, Reiss, and Hetherington, (2000) suggest that when one child in a family is targeted by abusive and neglectful behaviours this can have a protective effect on siblings in a concept called the „sibling barricade“ and therefore, despite living in the same environment, it does not mean experiences happen in parallel.

Murphy, Shevlin, Adamson, and Houston, (2013) used a sample (n = 8580) from the National Survey of Psychiatric Morbidity (2000) to investigate links between CSA and psychosis with the mediating effect of social contact. CSA was measured using the key life events section of the survey. Psychosis was measured using the PSQ. To measure social contact, researchers asked how many friends had the participant spoken to over the past week. Background variables of age, sex, education, living arrangement and substance use were controlled for. Results showed that CSA significantly

impacted scores on the PSQ, however there was no indirect, mediation effect of social contact; this was measured using the Preacher and Hayes (2008) mediation model. Limitations of this study were its cross-sectional design and retrospective recall of childhood adversity. The measures employed in the study for sexual abuse were crude and used discrete responses of „yes“ and „no“. This means that there may be a lack of consistency in the definition of CSA, in that some participants may have felt they did not experience CSA, although another tool with more items may record this e.g. CTQ.

### **Retrospective reporting of childhood trauma**

Research exploring the childhood adversity and psychosis link has relied upon retrospective reports of abuse and researchers generally have acknowledged that this may be a limitation. Fisher et al. (2011) acknowledged that the majority of research exploring the relationship relied upon retrospective reporting and questioned whether these accounts were influenced by current psychopathology. Fisher et al. (2011) used a sample from the Aetiology and Ethnicity of Schizophrenia and Other psychoses (AESOP) epidemiological study to explore both the reliability and the validity of self-reported, retrospective accounts of childhood adversity. The study investigated the similarity of abuse ratings gathered from two measures of childhood adversity (concurrent validity), the reliability of abuse reports in independent clinical notes (convergent validity), the stability of abuse reporting of psychotic patients over a period of time (test-retest reliability) and to assess whether current symptoms of psychopathology had any impact on recall. The measures used were the Childhood Experience of Care and Abuse Questionnaire (CECA.Q; Bifulco, Bernazzani, Moran & Jacobs, 2005), a self-report measure measuring childhood adversity below the age of 17, and the Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979). Clinical case-notes from the first two months of treatment were also used. Researchers screened the case-notes for mention of adverse experiences below the age of 16; the researchers were blind to the scores on the CECA.Q for CSA and CPA. To assess mood and symptom severity, the Schedule for Clinical Assessment of



Neuropsychiatry (SCAN; World Health Organisation, 2010) was incorporated. The content of psychotic symptoms was drawn from clinical records and the SCAN scores. The team controlled for gender, ethnicity, age and diagnostic distribution finding no significant differences. The main statistical analyses employed were correlations and between group analyses.

The first hypothesis explored the concurrent validity of the CECA.Q and the PBI (n = 84). The maternal and paternal antipathy and neglect subscales from the CEQA.Q were comparable to the PBI subscales. The second hypothesis investigated the convergent validity of self-report measurements and case notes (n = 60). There was a significant agreement between researchers on presence of CSA or CPA ( $k = 0.815$ ,  $P < 0.05$ ). Hypothesis three investigated test-retest reliability of scores on the CEQA.C at baseline and again, 7 years later. Significant levels of agreement between the responses was found; 13.6% of clients who did not report sexual abuse at baseline did so at follow up and 21.7% of clients that did not disclose parental neglect later disclosed at follow up. Alternatively some clients reported adversity at baseline but not at follow up; the highest rate of this being 28.6% for neglect. Physical abuse was said to show moderate reporting consistency between initial test and re-test 7 years later. Fisher et al. (2011) initially questioned the impact of current psychopathology on reports of adversity. They found no significant difference between those that did and did not report a history of antipathy, neglect, sexual abuse and physical abuse and therefore, histories of childhood adversity obtained retrospectively, showed reasonable reliability and comparability.

Fisher et al. (2011) conclude that retrospective accounts of adversity are stable over time, not influenced by current psychopathology and that there is convergent validity across case-notes and self-report measures. They also acknowledge that adversity is more likely to be under-reported rather than over-reported in retrospective accounts. However, the study uses a biased, small epidemiological

sample from two UK regions and therefore may be open to sampling biases, reduced power and limited generalizability. To strengthen its findings, it could be replicated with larger sample sizes and using formal disclosure information from social services or the police. However, the reliability of disclosures from children happening at the time of the abuse are questionable for a number of reasons including fear of the perpetrator, feelings of guilt or simply not knowing that the acts of others were inappropriate.

### **Mechanisms within the adversity to psychosis relationship**

Following the Varese et al. (2012) recommendations for future work, attention has now turned to the mechanisms that increase or decrease the likelihood of a person with experiences of childhood adversity developing a psychotic illness. This is important as evidence investigating the prevalence of childhood adversity in psychotic clients shows that not all clients with psychosis have experienced adversity and likewise, not all those who experience adversity develop psychosis. The recent literature has indicated a number of mechanisms that may influence this relationship.

### **Mediation Analyses to explore the mechanisms in the relationship**

A mediation model is a statistical technique which aims to identify the specific mechanisms or processes that may influence an observed relationship between an independent variable (IV), in this case childhood adversity and a dependent variable (DV), in this case psychosis, via the inclusion of a third variable. The third variable would offer further explanation of the relationship between the IV and the DV and is known as a mediator variable. Varese et al. (2012) recommended that further exploration should look at specific mechanisms influencing the adversity to psychosis relationship and mediation offers a valid approach to explore this empirically.

### **Schemas as a mediating variable**

A „Schema“ is a cognitive framework, or building block, which allows us to organise information about the world around us (Schmidt, 1975). Schemas on the whole are helpful however, can at times become unhelpful and damaging. Young (1990, 1999) hypothesised that some schemas that develop from adverse experiences in childhood are maladaptive and can cause mental distress. Young developed a theory identifying 18 early maladaptive schemas (EMS) and defined EMS “as broad, pervasive themes or patterns comprised of memories, emotions, cognitions and bodily sensations regarding oneself and one’s relationships with others. These are developed during childhood or adolescence and become elaborated throughout one’s lifetime; they are dysfunctional to a degree” (Young et al, 2003, p7). Between 2011 and 2014, one methodologically strong paper has explored the role of schemas as a mechanism in the relationship between adversity and psychosis.

Fisher, Appiah-Kusi, and Grant (2012) explored anxiety and schemas as mediating variables between childhood maltreatment and paranoia specifically. Students (N=212) from a UK university were asked to complete the CTQ, the Beck Anxiety Inventory (BAI; Beck & Steer, 1990) and the Brief Core Schema Scale (BCSS; Fowler et al. 2006). Results showed that a third of the sample reported paranoia (33%). Elevated rates of paranoia were associated with reports of CEA (50.9% present) and CPA (55.6% present). The mediating variables were also linked to paranoia. The mediation analysis found mixed results and the mediators accounted for 45% of the association between emotional abuse and paranoia. Only 26% of the association between CPA and paranoia was accounted for by the mediator. Neither analysis reached clinical significance. This study was cross-sectional and conducted on a self-selecting, non-clinical student population; therefore biases in the design may have impacted the results. One difficulty with the use of the BCSS is that it does not provide individual scores for specific schemas as in Young’s EMS theory, rather a total score about the self and others is calculated.

This study has not provided conclusive evidence that schemas are important as mediating factors in the development of psychosis. The use of the BCSS means results are limited in that we are lacking information about the role of specific EMS in the relationship between childhood adversity and psychosis. Measures such as the Young Schema Questionnaire-Short Form (Young & Brown, 2001) allow generation of a total schema score, but also allow for separate schemas to be highlighted allowing investigation of specific schemas. In linking to Garety et al.'s (2001) cognitive model of psychosis, negative self beliefs can maintain or worsen psychotic symptoms and therefore, there are theoretical reasons as to why negative schemas could be important. Further study of the role of maladaptive schemas in psychosis using a measure that allows study of specific schemas is a key area for future research.

### **Dissociation as a mediating variable**

Varese et al. (2012) made recommendations that future research explores the mechanisms within the adversity and psychosis relationship. Goodwin (1985) hypothesised that dissociation develops as a defence against pain, trauma or stress. It is considered to be a defensive mechanism developed in childhood to protect the self against harmful or damaging experiences (Hetzel & McCanne, 2005). Correlational studies with non-clinical samples have found relationships between dissociation and psychosis (Moskowitz, Barker-Collo, & Ellson, 2005). Theoretically it is possible that dissociation is a mediator between childhood adversity and psychosis. Adversities in childhood may lead to dissociation developing to protect the child against the traumatic experiences. Having dissociation as a defence mechanism means that stress might be avoided rather than processed. Having high levels of unprocessed stress could expose underlying vulnerabilities or act directly as a stressor to trigger a psychotic episode.

Perona-Garcelan and colleagues (2012), explored dissociation as a mediator between early trauma and positive psychotic symptoms. The Spanish clinical sample (N = 71) involved participants being treated for psychosis within the community. To measure adversity, the Davidson Trauma Scale (Davidson et al., 1997) was used, a good measure as it assessed the age at which the adversity occurred and frequency. Psychosis was measured using the PANSS and dissociation, using the Dissociative Experiences Scale – second edition (DES-II; Carlson & Putnam, 1993). Two mediation analyses were conducted; one used DES-II total score as a mediator and the other used the DES-II subscales of depersonalisation, absorption and amnesia. Of the 71 patients in the sample, 45.1% reported trauma; 54.9% did not. All correlational analyses between sub-scales and total scores were significant. The mediation was conducted using Preacher and Hayes (2008) mediation model. Dissociation did mediate the relationship between adversity and hallucinations but not delusions. None of the DES-II subscales mediated delusions, however depersonalisation mediated hallucinations.

Sellwood, Evans, Reid, Preston, and Palmier-Claus (2012) explored the relationship between childhood adversity and psychosis and the mediating role of dissociation, but also self-concept clarity (SCC). SCC is defined as a measure of integration of the self. The cross-sectional study used a clinical group recruited from an early-intervention service (n = 29) and a non-clinical group (n = 31). The measures used were the CTQ, DES-II and the Self-Clarity Concept Scale (SCCS, Campbell et al. 1996). The dissociation scores were higher ( $v = 204.00$ ,  $z = -3.63$ ,  $p < 0.001$ ) and SCC scores were lower in the clinical than non-clinical groups. Rates of childhood trauma were also higher in the clinical group. The dissociation and SCC scores also mediated the link between trauma and psychosis suggesting that the indirect link between trauma and psychosis via dissociation or SCC is more important than the direct association. Sample size and cross-sectional design mean that this result

should be treated cautiously, however as exploratory research it does offer some support for dissociation as a mediator between adversity and psychosis.

Braehler et al. (2013) conducted a Canadian study across the severity and duration of psychotic symptoms. The study included three groups; early-intervention patients (n= 62), chronic psychotic patients (n= 43) and non-psychotic community controls (n=66). The study used the CTQ to measure adversity, the DES-II to measure dissociation and symptoms of psychosis were categorised using the Structured Clinical Interview for DSM-IV (SCID, First, Spitzer, Gibbon, & Williams, 1995). Controls were excluded if psychiatric disorder was found. Multivariate analyses of covariance were used to test associations between adversity and dissociation by group. Dissociation was highest in those with chronic psychosis. CEA was the strongest predictor of dissociation and it was most severe in those with CEA experiences. Higher levels of dissociation were associated with trauma severity across the groups. This study did not conduct a mediation analysis but offers support that those with psychosis experience higher levels of dissociation than the general population. Once again, this study was cross-sectional and causality cannot be determined.

In conclusion, the literature suggests that dissociation is a common experience in those with psychosis. Dissociation may mediate the relationship between childhood adversity and psychosis, as well as possibly mediating the relationship between childhood adversity and specific symptoms (hallucinations).

### **Discussion**

The aims of this review were to critique and update the Varese et al. (2012) paper, consider its recommendations and identify research gaps through a systematic critique of recent literature.

### **Directions for future research**

The literature linking adversity to psychosis is convincing and this review has shown that even over a two and a half year period, a number of papers have explored the specific mechanisms which may mediate this relationship. There are still many questions that remain about this relationship and this review makes recommendations for work which could further our understanding.

In a recent updated chapter by John Read (2013) he acknowledges that in 2004 in his original chapter, there were 37 unanswered questions about links between adversity and psychosis and that many of these questions remain unanswered. Important questions remain about whether psychosis should be studied as a whole entity or whether a symptom focused approach is more useful. Little work has explored negative symptoms in relation to adversity and this is important to explore.

A further area for research is that of multi-victimisation in psychosis and Varese et al. (2012) suggest that being exposed to one type of adverse experience can open a person to other types. Studies have started to investigate the impact of a dose-response relationship in psychosis but our understanding of this could be further developed. Additionally, psychologists in particular, could explore the impact of the timing of the adversity. This would be particularly important to consider in relation to attachment.

This review critiqued six studies that have used mediation to explore the indirect relationship between adversity and psychosis. Although some mediating relationships have been discovered there are likely to be different developmental pathways to psychosis and therefore, multiple mediating variables impacting this relationship, many of which have not been discovered to date. This review

highlighted early, maladaptive schemas and dissociation as two mediating factors of interest. Both are highly prevalent in psychotic populations and further research into this with clinical samples and specifically through exploration of individual maladaptive schemas could help us unpack these relationships. Research into a wider range of potential mediators/moderators including substance use, social support or circumstances such as urbanicity would add to the literature base.

### **Limitations of the current research base**

Much of the work discussed in this review is cross-sectional in nature, which makes it difficult to draw firm conclusions about causality. This is likely to be a continued difficulty in this research area as some suggest that prospective longitudinal studies (Fisher et al., 2013) are not clinically and economically viable with this client group.

### **Conclusion**

In conclusion, there have been a number of advances in the literature exploring the relationship between childhood adversity and psychosis since 2011. There is now increased understanding of some of the mechanisms which may impact this relationship and a body of evidence that suggests that a dose-response relationship exists between these two factors. With this in mind, as researchers and clinicians, we need more information about the frequency, timing and severity of the adverse experiences. Further research is needed to explore the whole range of symptoms of psychosis and explore mediating relationships in more depth and within clinical populations.



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**Major Research Project**

**Section B: Empirical Paper**

Early adversity, first-episode psychosis and the mediating role of maladaptive  
schemas, social support and dissociation

Word count: 7967

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**SALOMONS**

**CANTERBURY CHRIST CHURCH UNIVERSITY**

### **Abstract**

**Objectives.** The study aimed to investigate childhood adversity in a sample of clients with first-episode psychosis. The mediating impact of dissociation and early maladaptive schemas and moderating effect of social support were investigated.

**Methods.** The study (N = 42) assessed childhood adversity through the variables of parental bonding, childhood abuse and neglect alongside the psychological constructs of maladaptive schemas and dissociation. Social support was assessed in regards to the size of a person's network alongside their level of satisfaction gained from that support. Correlational, mediation and moderation analyses were used.

**Results.** There were high levels of childhood adversity within this sample. Dissociation did not mediate the relationship between childhood adversity and psychosis. Some early maladaptive schemas concerned with unrelenting standards and insufficient self-control mediated the relationship between adversity and psychosis, in particular hallucinations. Social support, in terms of both quality and quantity was an important moderator between childhood adversity and psychosis.

**Conclusions.** The study supports the notion that childhood adversity is a risk factor for psychosis and highlights some evidence about specific mediating and moderating mechanisms.

**Key Words:** psychosis, adversity, schema, dissociation, social support

## **Introduction**

Researchers have established childhood adversity as a risk factor in the development of the majority of mental health difficulties, including psychosis (e.g. Kessler et al., 2010; Springer, Sheridan, Kuo, & Carnes, 2007) and in particular positive psychotic symptoms (Hammersley et al., 2003; Morrison, Frame, & Larkin, 2003). A range of experiences have been explored under the umbrella of childhood adversity. Examples include abuse of a physical, sexual and emotional nature (e.g. Bebbington et al., 2011), neglect (e.g. Heins et al., 2011), loss of a parent (e.g. Morgan et al., 2007), bullying (e.g. Kelleher et al., 2008) and parental divorce (e.g. Kessler et al., 2010).

### **Early Adversity and psychosis**

Psychosis occurs a person starts to “perceive or interpret events differently from those around them” (MIND, 2013) and describes a set of experiences including hallucinations, delusions, paranoia, thought disorder, alogia and avoition (American Psychiatric Association, 2000). Psychosis has been associated with adversity in both adulthood (Kilcommons & Morrison, 2005; Shevlin, Houston, Dorahy, & Adamson, 2008) and in childhood (Morgan & Fisher, 2007; Read, van Os, Morrison, & Ross, 2005). The prevalence of psychosis is approximately 4 in1000, a figure which has not changed over the last 60 years (Kirkbride et al., 2012).

### **Meta-analysis of the relationship between childhood adversity and psychosis**

A 2012 meta-analysis (Varese et al., 2012) was the first quantitative review of robust studies exploring the link between childhood adversity and psychosis. The specific types of adversity included in the review were childhood sexual abuse (CSA), childhood physical abuse (CPA), childhood emotional abuse (CEA), neglect, parental death and bullying. The analysis included 41



studies with specific methodologies; prospective cohort studies, large-scale cross-sectional studies and case-control studies.

The study found a significant association between childhood adversity and psychosis (OR = 2.78, 95% CI 2.34 -3.31) with the effects being independent of study design. All types of adversity, excluding parental death, had statistically significant associations with psychosis. The findings indicate that if childhood adversities were removed from the population whilst other factors were controlled, psychosis incidence would reduce by 33%. The meta-analysis did not find evidence to support the theory that one particular type of adversity increased the risk of psychosis more than others. Dose-response effects can be defined as relationships in which a change in the amount, intensity, or duration of exposure is associated with a change in risk of a specified outcome. Varese and colleagues assessed the impact of dose-response relationships and found a positive relationship in 9 out of 10 studies. Therefore, it seems that the duration, frequency and multiple exposure to different types of adversity may expose someone to more severe and prolonged psychotic experiences.

A number of research recommendations were made based on the meta-analysis. The dose-response effect indicates it is important to assess multi-victimisation and timing of adversity exposure. Secondly, there were recommendations to investigate negative psychotic symptoms. Thirdly, the authors highlighted the need for more knowledge about the mechanisms within the adversity and psychosis relationship as this would further our understanding of how the concepts interact.

### **The prevalence of childhood adversity in those with psychosis**

Within the population who have experienced psychotic symptoms, there are likely to be many with adverse experiences in childhood. Bonoldi et al. (2013) conducted a systematic review and

meta-analysis to calculate the approximate prevalence of CSA, CEA and CPA in psychotic patients. Twenty-three studies published between 1998 and 2011 were included. Results indicated that childhood abuse was more prevalent in psychotic clients than the general population (Kessler et al., 2010). The research team set prevalence rates at 26% for CSA, 30% for CPA and 34% for CEA; other studies have found higher levels. Read, van Os, Morrison & Ross (2005) identified a weighted CSA of 47.7% for females and 28.3% for males.

### **Insecure attachment as a form of childhood adversity**

The Varese et al. (2012) paper included a range of childhood adversities. As these adversities happen in childhood, they may impact the quality of the relationship with the primary caregiver (Putnam, 2006; Osofsky, 2004). Theoretically speaking, traumatic childhood experiences could result in a child being wary of others. This may inhibit their ability to form attachments particularly in the critical period if the adversity happens in early life (Bowlby, 1980). Alternatively, the caregiver may have been the perpetrator of the adversity and this would also be likely to cause attachment difficulties.

Many studies have found evidence to support the relationship between insecure attachment and psychosis (Berry, Barrowclough, & Wearden, 2007; Read & Gumley, 2008). Some studies have found insecure attachment to be important in predicting paranoia but not hallucinations (Pickering, Simpson, & Bentall, 2008). It may be that attachment links to specific developmental pathways of psychosis. This indicates that it would be useful to explore parental bonding patterns in those with psychotic symptoms.

### **Specific mechanisms in the relationship between childhood adversity and psychosis**

In a recent review of the area, Fisher (2013) acknowledged that we are now confident that a link between early life adversity and psychosis exists. However, as we cannot always intervene at the point of adversity, it is also important to explore the specific psychological mechanisms that increase the likelihood of psychosis developing. The 2012 meta-analysis makes recommendations that future studies should differentiate between positive and negative symptoms and explore the role of mediating and moderating variables within the early adversity-psychosis link. It is probable that there are a number of mediating variables that affect this relationship.

#### **Mediation and moderation analyses**

A mediation model is a statistical technique which aims to identify the specific mechanisms or processes that influence the relationship between an independent variable (IV) and a dependant variable (DV) via the inclusion of a third variable (Field, 2009). A moderation model is causal and postulates „when“ or „for whom“ an IV most strongly, or least strongly, causes a DV (Wu & Zumbo, 2007).

#### **Schemas as a mediating variable**

A „schema“ is a cognitive framework or building block, which organises information about the world around us. Schemas are often helpful as they allow us to organise rules for living and predict behaviour and outcome in a range of situations (Young, Klosko, & Weishaar, 2003). Young (1990, 1999) hypothesised however that some schemas that develop from adverse experiences in childhood, are maladaptive and can cause mental distress (Young et al., 2013). Young developed the theory of Early Maladaptive Schema (EMS; appendix T). Fisher, Appiah-Kusi, and Grant (2012)

explored both anxiety and schemas as mediating variables between childhood adversity and paranoia in a student sample. They found that schemas did not mediate the relationship between paranoia and maltreatment. The study used the Brief Core Schema Scale (Fowler et al., 2006), which gives a total score for presence of negative schemas; this means that information about the mediating impact of specific EMS cannot be determined. It therefore seems important to explore the mediating effects of specific EMS between childhood adversity and psychosis within a clinical population.

### **Dissociation as a mediating variable**

Goodwin (1985) hypothesised that Dissociation develops as a defence against pain, trauma or stress. Spiegel and Cardena (1991) describe dissociation as a separation of mental processes, which are normally integrated. Correlational studies have shown a relationship between psychosis and dissociation in a non-clinical population (Moskowitz, Barker-Collo, & Ellson, 2005). Therefore, given Varese et al. (2012) recommendations about exploring the mechanisms between childhood adversity and psychosis, dissociation is theoretically a possible mediator. Adverse childhood experiences could lead to dissociation developing as a way of defending against the adversity. As dissociation means that stressful experiences are avoided rather than processed, high levels of unprocessed stress may expose underlying vulnerabilities or directly act as a stressor to trigger a psychotic episode.

Three recent papers have explored the role of dissociation in the relationship between childhood adversity and psychosis. Two studies found dissociation to be a mediating mechanism (Perona-Garcelan et al., 2012; Sellwood, Evans, Reid, Preston, & Palmier-Claus, 2012). Both studies were cross-sectional and used clinical samples. Braehler et al. (2013) compared dissociative experiences across three groups; early intervention patients, chronic psychotic patients and non-

psychotic community controls. All samples experienced dissociative symptoms. Those with chronic psychosis experienced the highest levels and more dissociation was associated with the severity of traumatic experiences. Given this evidence, future research could explore this relationship through further mediation analysis and exploration of dissociation prevalence in clinical samples.

### **The role of social support in the prevention and development of psychosis**

Many acknowledge the stress-vulnerability hypothesis, in that stressful events can interact with an underlying vulnerability to lead to a psychotic episode (Nuechterlein & Dawson, 1984). Having a supportive social network can alleviate stress (Cohen & Wills, 1985; Sarason, Sarason & Pearce, 1990). Psychosis literature suggests that higher levels of social support are correlated with lower severity of psychotic symptoms and better stress-coping strategies (Macdonald, Pica, McDonald, Hayes & Baglioni Jr, 2008; Norman et al., 2005). It may be that higher social support works in a preventative form meaning that psychotic experiences do not reach threshold for a first episode.

Another consideration of social support is through cognitive theories of psychosis (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001) that suggest that psychosis and social isolation are often related as paranoia increases wariness of others. When people are in contact with their social network, they have opportunities to „check out“ their attributions of anomalous experiences with others and this can help identify faulty attributions (Garety et al., 2001). It may be that quantity and quality of social support acts as a moderating variable between childhood adversity and psychosis; a study of this kind has yet to be conducted.

## **Aims and rationale for the current study**

Given the evidence, this study investigated the influence of mediating and moderating variables on the relationship between childhood adversity and psychosis. The mediating variables of dissociation and schemas were explored. The study aimed to further existing knowledge of schemas by using a measure that allowed for specific measurement of EMSs. The moderating influence of social support was also explored to assess its impact on severity of psychotic symptoms.

Exploration of the prevalence of childhood adversity within the sample and exploratory analysis of multi-victimisation was conducted. As recommended by Varese et al. (2012), the range of psychotic symptoms, including negative symptoms, were investigated.

## **Research Hypotheses**

### Relational hypotheses

- 1) The higher the levels of insecure attachment, the higher the levels of childhood trauma and neglect
  
- 2) The higher the levels of insecure attachment and childhood trauma and neglect, the higher the levels of EMS, dissociation and the lower the levels of social support
  
- 3) The higher the levels of psychosis, the higher the levels of EMS and dissociation and the lower the levels of social support

### Exploratory Hypotheses

- 4) Psychotic symptoms of a higher severity will be present in those with experiences of multi-victimisation. Those who experienced only one type of childhood trauma will have lower severity of psychotic symptoms

### Mediating and moderating hypotheses

- 5) Dissociation will mediate the relationship between childhood abuse and neglect and positive symptoms of psychosis. Dissociation will mediate the relationship between childhood abuse and neglect and hallucinations specifically
- 6) EMS will mediate the relationship between childhood adversity and psychosis
- 7) Size of social support network and quality of social support will moderate the relationship between childhood abuse and neglect, and psychosis.

## **Method**

### **Design**

The study used was a within-group cross-sectional design involving data collection from clients with first-episode psychosis. The data collection was completed over an 11-month period.

### **Participants**

Forty-two participants were recruited from an acute, secure inpatient unit, which formed part of an Early Intervention Service (EIS); the ethnicity of the sample is shown in Table 1. The average age of participants was 23.31 years (SD = 4.420) and 61.9% were male, 38.1% female. The criteria for

admission to the unit were that clients be 18-35 years of age and experiencing psychotic symptoms of a first episode, or those within the first three years of the first episode. The service was based within an inner city psychiatric hospital.

### **Inclusion Criteria**

Participants were invited to participate if they were admitted for psychotic symptoms, were aged 18 or over and were able to give informed consent. If English was not a client's first language, a decision was made about whether the client was able to comprehend the questionnaires with the support of an interpreter. Appendix B summarises the recruitment process.

### **Exclusion Criteria**

Participants who had not experienced psychotic symptoms or were unable to give informed consent. Clients with language difficulties who would be unable to complete the questionnaires with the aid of an interpreter were excluded. Clients with diagnosed learning disabilities were excluded.

Table 1: Ethnicity of sample

	<b>Percentage of sample %</b>
Asian Bangladeshi	2.4
Black African	26.2
Black British African	9.5
Black British Caribbean	9.5
Black Caribbean	14.3
Mixed Other	7.1
Mixed White	4.8
Mixed White and Black Caribbean	2.4
White British	19.0
White Other	4.8
Total	100.0



## **Ethical Considerations**

The research was reviewed by the Bloomsbury NHS National Research Ethics service through a full Research and Ethics Committee meeting (Appendix O) and IRAS application. The research was also explored at a university peer review panel and consultation sessions with service users were held to help choose appropriate questionnaires and procedure.

Due to the acute nature of the clients seen on the wards, capacity assessments were conducted by the project supervisor prior to clients being approached for their participation. As the questionnaires asked participants to indicate childhood experiences of abuse or neglect and participants were aged 18-35, a procedure was developed to handover disclosures of abuse to the staff team. Rationale for this was that as participants were young, it is possible that perpetrators could pose a risk to others. The procedure involved firstly discussing with the participant the need for the information to be passed over to the staff team. Once the participant had agreed for this to happen, a discussion was conducted with the consultant psychiatrist working on the ward in which a handover of the information was given. The consultant then approached the participant directly to gather more information in order to make a decision about where the information should be held. A note was added to the electronic records system to record brief details of the disclosure and to keep a record of the handover to the team.

## **Procedure**

The process of obtaining consent was considered carefully. Prior to the researcher visiting the ward, the site supervisor selected participants who were deemed to have capacity. These Participants were approached by the researcher and given an information sheet (Appendix M). Participants were given time to consider their participation and if agreed, were offered an interview slot at a mutually convenient time where the researcher gained informed consent (Appendix N), answered any

questions and worked through the questionnaires with the participant. All clients were encouraged to take a break halfway through the meeting. A private room on the ward was used to ensure participants felt safe when thinking about their life experiences.

Once the questionnaires had been administered, participants were offered a debrief from the ward psychologist or staff nurse. This was to ensure that participants were not reliving difficult memories that may have been triggered by some of the questionnaires. The full sequence of the measures alongside justification for the sequence is explained below.

## **Materials and Measures**

In total, six questionnaires were used to assess parental bonding, childhood trauma, dissociation, EMS, social support and psychosis at one point in time. The questionnaires were administered in the order presented below.

This sequence was chosen so that the participants could think about their experiences in a lifespan order. The childhood trauma questionnaire was not the first questionnaire completed, as some of the questions could be perceived as distressing. It was important that participants had some time to build rapport with the researcher before being asked to disclose experiences of abuse.

### **Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979)**

The Parental Bonding Instrument (PBI) is a retrospective measure of parenting style and attachment (Appendix C). It has two scales; one which assesses overprotection, and another care. The instrument has 25 questions and is completed separately for the mother and father; the end result

being that each parent will be categorised as having one of four parenting styles; affectionate constraint (high care, high protection), affectionless control (low care, high protection), optimal parenting (high care, low protection), neglectful parenting (low care, low protection). In 2005, Wilhelm, Niven, Parker and Hadzi-Pavlovic explored the use of the PBI over a 20-year period and found it to be stable in its use and predictive value.

#### Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1999)

The CTQ, (Bernstein & Fink, 1998; Appendix D), is a self-report scale assessing childhood neglect and abuse. The retrospective scale has 28 items. The scale assesses five categories of childhood trauma; physical, sexual and emotional abuse and physical and emotional neglect. The validity and reliability of the scale was thoroughly validated using responses from 2000 participants of both a clinical and general population (Bernstein & Fink, 1999). Reliability was assessed by Bernstein et al. (1994) who discovered that the CTQ had strong test-retest reliability in a sample of clients in an addiction setting, over a 2-6 month period. When considering internal consistency, this was also high, with a cronbach alpha of 0.79-0.94.

#### Dissociative Experiences Scale (2<sup>nd</sup> Edition) (DES-II- Bernstein & Putnam, 1986)

The DES-II (Appendix E) is a 28-item self-report scale. Respondents are asked to rate on a 0-100 scale, the percentage of the time they are affected by 28 dissociative experiences. The DES-II allows the researcher to give an overall score of dissociation, but also allows three sub-scales to be assessed based on three key features of dissociation; depersonalisation, amnesia and absorption/imagination. The DES-II is said to have good test-retest and good split-half reliability. Item-scale score correlations were all significant, indicating good internal consistency and construct validity.

#### Young Schema Questionnaire: Short Form (YSQ-SF- Young, 2001)

The YSQ-SF (Young, 2001) is a 75-item tool (Appendix F) that identifies 15 of the 18 EMS identified in Young's (1990) schema therapy model; a brief summary of each schema can be found in appendix U. The short-form was developed as a research tool and a range of studies have used this as a research measure; it was therefore used to aid comparability with others papers exploring EMS in mental health. A study by Stopa, Thorne, Waters, and Preston (2001), found an overlap between the short and long questionnaires when predicting schemas and a moderate indication of psychopathology.

#### The Social Support Questionnaire: Short Form (SSQ – (Sarason, Sarason, Shearin, & Pierce, 1987)

The SSQ is a brief tool to explore the size of and satisfaction with a person's social network (Appendix G). The measure asks specifically, how many people (up to 9 as to maximum score) would be there to offer support in 6 different scenarios. Respondents are asked to give the names or the number of people and are then asked to rate their satisfaction with that support on a 6-point Likert scale from very satisfied to very dissatisfied. Furukawa, Harai, Hirai, Kitamura and Takahashi (1999) found the measure to have internal consistency reliability, factor validity, and construct validity amongst psychiatric as well as normal populations.

#### Positive and Negative syndrome scale (PANSS; Kay, Fiszbein & Opler, 1987)

The PANSS (Kay et al., 1987) (Appendix H) is a measure of current psychotic symptomology. In total, there are 30 items that are divided into three groups of questions positive symptoms, negative symptoms and general psychopathology. Additionally, studies have used the measure to assess severity of individual symptoms such as hallucinations and delusions. The measure

was chosen due to high levels of inter-rater reliability (0.8) and high levels of criterion-related validity and construct validity (Kay, Opler, & Lindenmayer, 1988).

### **Power calculations and sample size**

When considering power analyses in order to estimate the sample size, Cohen's (1990) recommendations that the alpha be set at 5% and power at 80% were adhered to; Cohen's F-squared large effect size (0.35) was used. A priori power analyses were conducted using the G\*Power 3 programme and guidance for regression and correlation power analyses (Faul, Erdfelder, Buchner, & Lang, 2009). A sample of 31 was required for a large effect size and 80% power. For the mediating hypotheses, as bootstrapping, a form of resampling was employed, there were no recommendations about sample size to consider (Hayes, 2009).

## **Results**

### **Data Analysis**

The analysis was conducted using IBM SPSS (version 21). Parametric assumptions were assessed prior to analysis (Appendix I). The Shapiro-Wilk test, skewness, kurtosis and box plots were examined to assess normality. Results indicated that many variables were not normally distributed and did not meet assumption for parametric analysis; even following variable transformation, some variables remained skewed. Therefore, non-parametric statistical tests were employed for non-parametric data.

For the relational hypotheses, Kendall's tau coefficients ( $\tau$ ) were calculated for non-parametric data. There was justification to use this over Spearman's rho due to it being more accurate in smaller samples and one can more accurately generalise from a population (Field, 2009). Due to directional

hypotheses being predicted, correlations were one-tailed. For the exploratory hypotheses that required between-group comparison the Mann-Whitney-U test was used as the data were non-parametric.

Due to the non-parametric nature of some variables, bootstrapping was incorporated to account for non-normal distribution when considering mediation. Preacher and Hayes (2008) developed a plug-in for SPSS entitled PROCESS, which allowed for exploration of bootstrapped mediation models. Bootstrapping has been found to be superior to the Baron and Kenny (1986) mediation technique in smaller samples (Hayes & Preacher, 2013) and it was for this reason that this form of analysis was chosen in this study.

### **Internal Consistency: Cronbach's Alpha**

To assess internal consistency, cronbach alpha calculations were completed for measures employing likert scale responses in line with guidance from Gliem and Gliem (2003). Specific cronbach alpha levels are detailed in Appendix J. In line with Kline's (2000) recommendations for interpretation of the alpha, all subscales of the YSQ showed acceptable levels of internal consistency. The PBI was also found to have good internal consistency for both the mother and father forms. The CTQ overall had a good level of internal consistency ( $\alpha = .816$ ). When alpha scores for individual subscales were calculated, all showed good internal consistency bar physical neglect (. 0.402). The alpha of 0.4 would not increase even if specific subtest items were removed. Despite this, some believe that although 0.7 is a desirable level, alpha scores as low as 0.4 are still reasonable when subscales have a small number of items (European Social Survey Education Net, nd). A decision was made to proceed with this analysis in light of the fact that the total CTQ alpha was good.

## Preliminary Analysis

### a) Attachment Type and absent parental figures

The PBI allows respondents to be assigned to an attachment category that summarises their level of care and protection received from maternal and paternal caregivers. Within the sample some participants had either no contact with or had lost a parent (4 mother, 9 father).

Table 2: Childhood attachment with mother and father

Attachment Type	Attachment with Mother % of sample	Attachment with father % of sample
Affectionate Constraint	10.5	21.4
Affectionless Control	44.7	31
Optimal Parenting	18.4	23.8
Neglectful Parenting	26.3	2.4
Missing Parent	9.5	21.4

### b) Incidence of abuse and neglect

The CTQ explored childhood abuse and neglect that occurred before the age of 16. Table 3 shows the percentage of participants who experienced abuse and neglect at a moderate level or above.

Table 3: Levels of childhood abuse and neglect in the sample

	Severe level	Moderate level	Low level	Not present
	%	%	%	%
Emotional abuse	45.2	16.2	9.5	28.6
Physical abuse	38.1	11.9	26.2	23.8
Sexual abuse	28.6	19.0	7.1	45.2
Physical neglect	28.6	23.8	21.4	26.2
Emotional neglect	19.0	16.7	28.6	35.7

There are high levels of abuse and neglect within the sample; emotional abuse is especially prominent. There seems to be a spectrum of abusive and neglectful experiences. Sexual abuse appeared to be a more discreet phenomenon with participants experiencing a moderate or above level of abuse or none at all.

### c) Prevalence of dissociation

The average prevalence of dissociative experiences across the sample was 26.4; Carlson and Putnam (1993) suggested that the prevalence of dissociation in a sample with schizophrenia would be 15.4 (Carlson & Putnam, 1993). The level of dissociation represented by a score of 26.4 would be higher than those with a diagnosis of borderline personality disorder (19.2) but lower than those diagnosed with post-traumatic stress disorder (PTSD - 31; Carlson & Putnam, 1993).

Dissociative experiences can be categorised into three sub-types of experience. Within the sample, the absorption subscale was most prominent (41.96) with amnesia (20.23) and



depersonalisation (19.33) also above the level predicted for those with schizophrenia (Carlson & Putnam, 1993).

d) Incidence of early, maladaptive schema (EMS) and relationships between EMS

Table 4 summarises the prevalence of EMS within the sample. Within the sample, the most prevalent EMSs were mistrust/abuse, self-sacrifice and unrelenting standards.

Table 4: The Prevalence of Early Maladaptive Schema in the sample

Name of EMS	Prevalence in sample %
Emotional Deprivation (ED)	26.2
Abandonment/Instability (AB)	31.0
Mistrust/Abuse (MA)	52.4
Social Isolation/Alienation (SI)	28.6
Defectiveness/Shame (DS)	19.0
Failure (FA)	14.3
Dependence/Incompetence (DI)	9.5
Vulnerability to harm (VH)	16.7
Enmeshment (EM)	14.3
Subjugation (SB)	14.3
Self-Sacrifice (SS)	59.5
Emotional Inhibition (EI)	21.4
Unrelenting Standards (US)	57.1
Entitlement (ET)	35.7
Insufficient Self-control (US)	28.6

To assess relationships between the 15 EMS, Kendall's tau ( $\tau$ ) was used. This was due to some of the schema score variables being non-parametric. Table 5 summarises the significant relationships between the EMS. Appendix V gives the full title and definition of each EMS. Many of the EMS were positively correlated with each other; this translates to there being significant positive relationships between a number of EMS. In line with Cohen's (1988) effect sizes for correlation coefficients, the significant correlations were small (0.1) or above.

Table 5: The relationships between specific early, maladaptive schema (*Kendall's Tau  $\tau$* )

	ED	AB	MA	SI	DS	FA	DI	VH	EN	SB	SS	EI	US	ET	IS
ED															
AB															
MA		.376** .000													
SI	.292** .005	.430** .000	.490** .000												
DS	.198* .040	.306** .003	.214* .029	.375** .000											
FA		.293** .005		.310** .003	.414** .000										
DI	.211* .032	.254* .013	.259* .012	.435** .000	.509** .000	.454** .000									
VH		.451** .000	.323** .003	.426** .000	.521** .000	.471** .000	.527** .000								
EN					.310** .003	.266** .010	.331** .002	.351** .001							
SB	.198* .038	.317** .002		.216* .027	.582** .000	.360** .001	.328** .002	.489** .000	.317** .002						
SS		.295** .004		.198* .039											
EI		.238* .016		.374** .000	.438** .000	.356** .001	.393** .000	.503** .000	.334** .002	.381** .000					
US		.380** .000	.362** .001	.311** .003	.215* .029				.309 .003**						
ET		.224* .022	.244* .014	.242* .015	.233* .019			.277** .008	.241* .015	.241* .015		.203* .034	.383** .000		
IS		.243* .015	.275** .007	.250* .013	.364** .001	.256* .011	.250** .014	.373** .001	.395** .000	.395** .000		.351** .001		.309** .003	

\* Significant at the .05 level

\*\*significant at the .01 level

e) Social Network

The SSQ-SF explored quantity and quality of social relationships. The average number of people that participants believed they could rely on when in difficulty or distress was 4.9 (size of social network). The average level of satisfaction with their social network was 2.81; this converted to being „fairly dissatisfied“ with the support received in times of need. It appears that the quality of support rather than the quantity is an important factor in clients with psychosis.

f) Relationships between types of childhood adversity and neglect

There were some relationships between subtypes of childhood trauma. Physical abuse positively correlated with emotional abuse ( $\tau = .456, p < .01$ ), sexual abuse ( $\tau = .304, p < .01$ ), emotional neglect ( $\tau = .269, p < .01$ ) and physical neglect ( $\tau = .247, p < .05$ ). Emotional abuse positively correlated with sexual abuse ( $\tau = .363, p < .01$ ), emotional neglect ( $\tau = .359, p < .01$ ) and physical neglect. Sexual abuse was positively associated with physical and emotional abuse but was not correlated with emotional neglect ( $\tau = .160, p = .90$ ) or physical neglect ( $\tau = .187, .059$ ). Physical and emotional neglect were not positively correlated ( $\tau = .157, p = .082$ ).

## **Hypothesis Testing**

### Hypothesis 1: The higher the levels of insecure attachment the higher the levels of childhood trauma and neglect

This hypothesis was tested using Kendall's tau ( $\tau$ ). There was no relationship between the insecure attachment category and levels of childhood trauma. Hypothesis 1 was not supported.

Hypothesis 2: The higher the levels of insecure attachment and childhood trauma and neglect, the higher the levels of early maladaptive schemas, dissociation and the lower the levels of social support

This hypothesis was tested using Kendall's Tau ( $\tau$ ). Hypothesis 2 was partially supported.

Table 6 shows the generalised results for this analysis.

Table 6: Kendall's Tau ( $\tau$ ) correlation coefficients for hypothesis 2

	Mother Attachment Type	Father Attachment Type	Total Trauma Score	Total EMS Score	Total Dissociation Score	Size of social network
Mother Attachment type						
Father Attachment Type	$\tau = -.178$ $p = .130$					
Total Trauma Score	$\tau = -.136$ $p = .141$	$\tau = -.025$ $p = .428$				
Total EMS Score	$\tau = -.066$ $p = .130$	$\tau = -.050$ $p = .329$	$\tau = .276^{**}$ $p = 0.05$			
Total Dissociation score	$\tau = .090$ $p = .239$	$\tau = .068$ $p = .310$	$\tau = .165$ $p = .063$	$\tau = .317^{**}$ $p = .002$		
Size of social network	$\tau = -.088$ $p = .247$	$\tau = -.014$ $p = .461$	$\tau = -.061$ $p = .290$	$\tau = -.146$ $p = .091$	$\tau = -.034$ $p = .377$	
Satisfaction with social support	$\tau = .071$ $p = .247$	$\tau = .203$ $p = .082$	$\tau = -.090$ $p = .216$	$\tau = -.263^*$ $p = .010$	$\tau = -.050$ $p = .329$	$\tau = .276^{**}$ $p = .008$

\*\* . Correlation is significant at the 0.01 level (1-tailed)

\* . Correlation is significant at the 0.05 level (1-tailed)

In support, there were significant positive correlation between childhood trauma total scores and total score for EMS, between the size of and satisfaction with social support and between EMS and dissociation. There was a negative correlation between EMS and satisfaction with social support,

in that higher levels of maladaptive schema were related to lower satisfaction with social support. In line with Cohen's (1988) effect sizes for correlation coefficients, the significant correlations were of moderate (0.3) size or below.

To explore more specific relationships, subscales of each variable were also correlated.

Results are summarised below.

a) Dissociation

Dissociation was correlated with physical abuse ( $\tau = .222$ ,  $p = .022$ ) and sexual abuse ( $\tau = .201$ ,  $p = .042$ ). It was also correlated with specific EMS. The schemas of interest were defectiveness/shame ( $\tau = .210$ ,  $p = .029$ ), dependence/incompetence ( $\tau = .227$ ,  $p = .022$ ), vulnerability to harm ( $\tau = .308$ ,  $p = .003$ ), enmeshment ( $\tau = .247$ ,  $p = .013$ ), emotional inhibition ( $\tau = .340$ ,  $p = .001$ ), entitlement ( $\tau = .297$ ,  $p = .003$ ) and insufficient self-control ( $\tau = .190$ ,  $p = .041$ ).

b) Satisfaction with social support

Satisfaction with social support was negatively correlated with emotional neglect ( $\tau = -.356$ ,  $p = .001$ ). This was also correlated with specific EMS. The schemas of interest were social-isolation/alienation ( $\tau = -.220$ ,  $p = .029$ ), defectiveness/shame ( $\tau = -.299$ ,  $p = .05$ ), failure ( $\tau = -.196$ ,  $p = .046$ ), vulnerability to harm ( $\tau = .372$ ,  $p = .01$ ), enmeshment ( $\tau = -.197$ ,  $p = .046$ ), subjugation ( $\tau = -.311$ ,  $p = .004$ ), emotional inhibition ( $\tau = -.277$ ,  $p = 0.08$ ) and insufficient self-control ( $\tau = -.195$ ,  $p = 0.046$ ).

c) Size of social network

The perceived size of participants' social network was negatively correlated with physical abuse ( $\tau = -.235, p = .018$ ). It was also negatively correlated with specific schemas; defectiveness/shame ( $\tau = -.190, p = .046$ ), dependence/incompetence ( $\tau = -.193, p = .045$ ), enmeshment ( $\tau = -.279, p = 0.006$ ) and emotional inhibition ( $\tau = -.246, p = .013$ ).

Hypothesis 3: The higher the levels of psychosis, the higher the levels of EMS and dissociation and the lower the levels of social support

This hypothesis was tested using Kendall's Tau. Hypothesis 3 was partially supported.

There was a positive correlation between total EMS score and negative symptoms ( $\tau = .188, p < 0.05$ ). There was no relationship however between total EMS score and total psychotic symptoms, positive symptoms, hallucinations or delusions. There were no associations between total psychosis score, positive and negative symptoms, delusions and hallucinations and the variables of dissociation and social support. This element of the hypothesis was not supported.

To explore individual schemas, sub-scales of the YSQ-SF were correlated with psychosis scores. Some specific schemas were associated with psychosis. The enmeshment schema was positively correlated with positive symptoms ( $\tau = .195, p < 0.05$ ). Negative symptoms positively correlated with mistrust/abuse ( $\tau = .218, p < 0.05$ ), dependence/incompetence ( $\tau = .221, p < 0.05$ ) and failure ( $\tau = .232, p < 0.05$ ). Hallucinations negatively correlated with insufficient self-control ( $\tau = .240, p < 0.05$ ).

Hypothesis 4: Psychotic symptoms of a higher severity will be present in those with experiences of multi-victimisation. Those who experienced only one type of adverse experience will have lower severity of psychotic symptoms.

The sample was divided into two groups; those who had experienced one type of childhood abuse or neglect at a moderate level and those who experienced multiple types of abuse and neglect at a moderate level. This variable was tested through an independent sample Mann-Whitney U Test.

There was no difference in severity of psychotic symptoms between groups. Hypothesis 5 was not supported.

Hypothesis 5: Dissociation will mediate the relationship between childhood abuse and neglect, and positive symptoms of psychosis. Dissociation will mediate the relationship between childhood abuse and neglect, and hallucinations specifically.

Hypothesis 5 was not supported. The Hayes (2008) PROCESS plug-in was used to calculate a bootstrapped mediation analysis using 5000 samples alongside bias-corrected and accelerated confidence intervals (CIs) of 95%. An indirect (mediation) effect is found if the CIs do not include zero. For all analyses, zero was found in the confidence intervals and therefore, it was concluded that dissociation did not mediate the relationship between childhood abuse and neglect and psychosis; analyses were conducted for all subscales of the CTQ and the PANSS.



Hypothesis 6: Early Maladaptive Schemas will mediate the relationship between childhood abuse and neglect, and psychosis

This analysis was supported in a small number of relationships. In total 450 bootstrapped mediation analyses were conducted using the Hayes (2008) PROCESS tool. Bootstrapping allows for multiple comparisons to be conducted and reduces the likelihood of type-1 errors being made. The calculations accounted for total scores on the CTQ, PANSS and YSQ-SF alongside analyses of each measure separate subscales. Due to the large number of analyses, only significant mediations have been reported. Appendix L contains diagrammatic representations of the mediation calculations.

- a) Unrelenting Standards EMS mediated the relationship between CTQ total score and PANSS total score

There was a significant indirect effect of the total CTQ score on total PANSS score through the „unrelenting standards“ EMS score ( $b = .0567$ , BCa CI .0014, .2375). This represents a relatively small effect ( $\kappa \text{ sq.} = .0787$ , 95% BCa CI .0092, .2416).

- b) Insufficient self-control EMS mediated the relationship between CTQ total score and hallucinations

There was a significant indirect effect of the total CTQ score on PANSS hallucinations score through the „insufficient self-control“ EMS score ( $b = .0096$ , BCa CI .0009, .0254). This represents a relatively small effect ( $\kappa \text{ sq.} = .0970$ , 95% BCa CI .0152, .2411).

- c) Insufficient self-control EMS mediated the relationship between CTQ emotional abuse score and hallucinations

There was a significant indirect effect of the CTQ emotional abuse score on the PANSS hallucinations score through the „insufficient self-control“ EMS score ( $b = .0262$ , BCa CI  $.0036, .0774$ ). This represents a relatively small effect ( $\kappa \text{ sq.} = .0886$ , 95% BCa CI  $.0161, .2292$ ).

- d) Insufficient self-control EMS mediated the relationship between CTQ physical abuse score and hallucinations

There was a significant indirect effect of the CTQ physical abuse score on PANSS hallucinations score through the „insufficient self-control“ EMS score ( $b = .0317$ , BCa CI  $(.0001, .0904)$ ). This represents a relatively small effect ( $\kappa \text{ sq.} = .0989$ , 95% BCa CI  $(.0110, .2678)$ ).

Hypothesis 7: Size of social support network and quality of social support will moderate the relationship between childhood abuse and neglect, and psychosis

Bootstrapped Moderation analysis was conducted using the Hayes (2008) PROCESS tool; 5000 samples were used. This hypothesis was supported for a number of variables. Only significant moderated effects are reported due to the large number of analyses attempted.

Table 7 summarises the significant results for the moderating effect of satisfaction with social support. Table 8 summarises the significant results for the moderating effect of social support network size.

Table 7: Significant moderating effects of satisfaction with social support

<b>Which variables are moderated by</b>				
<b>satisfaction with social support</b>	<b>Effect</b>	<b>SE</b>	<b>t- value</b>	<b>p - value</b>
	<b>(b)</b>			
CTQ Emotional Abuse Score & PANSS Total score	.4943	.2143	2.3068	.0266
CTQ Physical Neglect Score & PANSS Delusions	.0157	.0075	2.0976	.0426

Satisfaction with social support significantly moderates, that it makes it more or less likely, the relationship between emotional abuse and psychosis and also, physical neglect and delusions.

Appendix K contains specific information about the moderation effects at high, medium and low levels of the moderating variable, satisfaction with social support.

Table 8: Significant moderation effect of size of the social support network

<b>Which variables are moderated by size of social support network</b>	<b>Effect</b>	<b>SE</b>	<b>t- value</b>	<b>p - value</b>
CTQ sexual abuse score & PANSS hallucinations score	.0075	.0030	2.4647	.0183
CTQ Emotional Neglect Score & PANSS Total score	.0771	.0282	2.7351	.0094
CTQ Emotional Neglect Score & PANSS positive symptoms score	.0366	.0098	3.7449	.0006
CTQ Physical Neglect score & PANSS Delusions score	.0180	.0064	2.8237	.0075

The size of the social network significantly moderates, that is makes it more or less likely, the relationship between sexual abuse and hallucinations, emotional neglect and psychosis total score, emotional neglect and positive symptoms of psychosis and physical neglect and delusions. Appendix K contains specific information about the moderation effects at high, medium and low levels of the moderating variable, size of the social support network.

## Discussion

### Childhood Adversity and Psychosis

As predicted, there were high levels of childhood adversity within this clinical sample. The prevalence of moderate or above CSA was 47.6%, CPA was 50% and moderate or above CEA was 61.9%. These were above the level predicted by Bonoldi et al. (2013). Due to gaps in the literature, investigation into the prevalence of neglect was exploratory. Physical neglect at a moderate level was prevalent in over half (52.4%) of participants and emotional neglect in 35%.

The literature suggested that insecure attachment was related to psychosis and in particular, delusions (e.g. Berry et al., 2008). The Varese et al. (2012) meta-analysis suggested that loss of a parent did not increase psychotic risk. It is interesting therefore, that within this study, 9.5% of participants had no contact with their mother from a young age and 21.4% had no contact with or had lost their father. „Affectionless control“, characterised by high levels of overprotection and low care was the most common maternal attachment type (44.7%). Paternal attachment types were more varied. When considering both maternal and paternal attachment types, optimal parenting was found in less than a quarter of the sample (18.4% and 23.8%).

### Dissociation, EMS and social support

Braelher et al. (2013) found that levels of dissociation increase as psychotic symptoms become more chronic. In this sample, despite the psychotic symptoms being in the early stages, levels of dissociation were high. According to Carlson and Putnam's (1993) perception of dissociation across psychiatric diagnoses, the levels seen in this sample were above that expected for those with a

formal diagnosis of schizophrenia. This is not surprising given the high prevalence of moderate childhood trauma within the sample.

Young's EMS were investigated and were both prevalent and inter-related. The most prevalent EMSs were mistrust/abuse (MA), self-sacrifice (SS) and unrelenting standards (US). The MA schema is unsurprising considering the paranoia and wariness seen within psychotic presentations, but also reflecting on how this may have developed from traumatic childhood experiences. Both US and SS relate theoretically to stress and specifically ways of placing internal pressure on the self. An alternative hypothesis for the presence of US, may be that adverse experiences leave one feeling that they were to blame. The US develop to prevent reoccurrence of this abuse. As the US schema is a cognitive vulnerability, events that indicate that one is failing to meet these standards act as the trigger to a potential psychotic episode. This is particularly important as a persons internal critical voice telling them to act in a certain way or succeed, fits with the hypothesis that auditory hallucinations maybe a misattribution of ones own internal dialogue (Allen, Freeman, Johns, & McGuire, 2006).

Participants did have social networks but their level of satisfaction with this support was low. Linking to the „self-sacrifice“ EMS, discussed above, it may be that those with psychosis have social support in terms of presence, however, are dissatisfied with that support as they find it difficult to ask for help. Likewise, people within their social network do not know how to support the person experiencing psychosis due to a lack of information for example.

### **The role of mediating and moderating variables**

This study did not find dissociation to be a mediator between childhood adversity and psychosis. This was contradictory to findings from two recent papers that did find a mediating effect

(Perona-Garcelan et al., 2012; Sellwood et al., 2012). Both studies used the same measure of dissociation as the current study. Braelher et al. (2013) found that dissociation worsens with chronicity of psychotic symptoms. It is possible therefore, that the reason for the relationship between psychosis and dissociation is linked to the traumatic experience of having psychosis and being admitted to hospital. It may be that it is the post-admission PTSD that leads to the development of dissociative symptoms. If another hospital admission occurs then dissociation is experienced as a coping mechanism for that difficult event; this would explain why levels of dissociation are higher in those with chronic psychosis.

Fisher et al. (2012) found schemas to mediate the relationship between childhood adversity and psychosis however did not investigate the role of specific EMS. Of the 15 EMS explored, only two had a mediating effect. The findings, which place the „unrelenting standards“ schema and „insufficient self control“ schema as mediators between childhood adversity and psychosis, are important.

One of the most important findings from this study was that size and satisfaction with social support may moderate the relationship between childhood adversity and psychosis. Perceiving ones social network to be supportive reduces the potency of stressful life triggers, which interact with the vulnerability to psychosis (Halsband, 2002; Gispen-de Weid & Jansen, 2002). In specific relation to psychosis, having good quality, social relationships suggests that one is more likely to confide in and use the relationship to „check out“ anomalous experiences or negative beliefs.

### **Methodological Considerations**

Although the sample reached Cohen's recommended (1990) level of power (0.8), the effect size was small and therefore, a larger sample would allow for more valid conclusions to be drawn.

This is also true of the cross-sectional design that cannot determine causality (Field, 2009). Fisher (2013) acknowledges that improved designs including prospective longitudinal studies are not clinically or economically viable with this client group and therefore, the question remains as to whether cross-sectional designs but on a larger scale, are the most effective within this client group.

This study was the first to explore the mediating role of individual schemas and also explored social support and dissociation. It would have been useful in hindsight to have a non-clinical control group so that comparisons could be made between those with early psychotic symptoms and those without, in regards to the prevalence of dissociation, EMS and quantity and quality of the social support network.

Retrospective trauma accounts were relied upon in this study; this has been the case in the majority of research exploring the relationship between childhood adversity and psychosis. A recent paper from Fisher et al. (2011) found significant levels of agreement between formal case notes and retrospective accounts of trauma. They also concluded that on retrospective account, clients are likely to under rather than over-report their experiences. Consequently, it is possible that levels of trauma reported within this sample are an underestimate of the levels of childhood adversity within this psychotic population.

Despite limitations, the study had a number of strengths. The study used a wide range of variables, allowing new insights into a range of mechanisms in the childhood adversity and psychosis relationship. The study recruited from a specialist unit for those with first-episode psychosis and consequently, it is likely that those recruited had well diagnosed psychotic symptoms.



## **Clinical Implications**

There was a high level of childhood adversity within this sample of clients with first-episode psychosis. There is an argument therefore for offering psychological interventions to young people when they disclose abusive experiences to prevent later-life mental health difficulties such as psychosis (Beiser, Erickson, Fleming, & Iacono, 1993). Most importantly however, we need to assess childhood adversity as part of a clinical assessment to ensure these factors can be taken into account in the formulation and treatment plans. Updated NICE guidelines (2014) for psychosis acknowledge that reliving, a cognitive-behavioural trauma intervention, has good efficacy for those with psychosis. This suggests that elements of trauma work could be incorporated into the treatment model for psychosis.

The findings related to social support are important, as it appears that although those with psychosis did have a social network, their lack of satisfaction with that support could be improved through clinical intervention. Psychosocial interventions could support clients to ask for support or guide them to find the type of support that is most helpful for them and thus more satisfactory.

## **Directions for future research**

There is a need to further investigate the mechanisms involved in the relationship between childhood adversity and psychosis. This study offered some support for the role of some EMS and social support as mediators and moderators between childhood adversity and psychosis. Further research into different mediating variables, for example overgeneral autobiographical memory, would increase our understanding. Due to the small sample size and cross-sectional nature of this study and many other studies exploring this relationship, longitudinal studies or larger scale cross-sectional work exploring mediating factors in psychosis is needed.

Previous research suggests that the timing of childhood adversity is important within the psychosis relationship. Many measures for adversity, e.g. CTQ, do not allow for assessment of timing and frequency and therefore do not capture this information. Having this information would allow exploration of how the timing of abuse interacts with child developmental stages. It is possible that this interaction is a mechanism in the childhood and adversity relationship.

This study investigated social support as a moderating factor. Both size of and satisfaction with social support appear to be important especially when a person has experiences of adversity. Future research could expand these findings using larger samples and explore this across severity of psychotic symptoms.

### **Conclusion**

In conclusion, this study adds to the literature supporting the relationship between childhood adversity and psychosis. It has provided preliminary explorations of the role of specific, early maladaptive schemas as mechanisms between early adversity and early psychosis. The study was the first to explore social support as a moderator between childhood adversity and psychosis and it seems this is important in increasing or reducing psychotic symptoms. As a preliminary study, future research should expand these findings in larger samples using research designs that allow for causal relationships to be determined.

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**Major Research Project**  
**Section C: Appendices**

**September 2014**

**SALOMONS**  
**CANTERBURY CHRIST CHURCH UNIVERSITY**

**Appendix A: Table of included tables**

Key to abbreviations in table below

PSQ – Psychosis Screening Questionnaire  
 CTQ – Childhood Trauma Questionnaire  
 SCCS – Self-Clarity Concept Scale  
 SCL-R90 – Symptom Checklist -90  
 PANSS – Positive and Negative Syndrome Scale  
 BDI – Beck Depression Inventory  
 BAI – Beck Anxiety Inventory  
 BCSS – Brief Core Schema Scale  
 CECA-Q – Childhood Experience of Care and Abuse Questionnaire  
 PBI – Parental Bonding Instrument  
 SCAN – Schedule for Clinical Assessment of Neuropsychiatry  
 CPA – Childhood Physical Abuse  
 CSA – Childhood Sexual Abuse  
 CEA – Childhood Emotional Abuse

<u>AUTHORS AND DATE</u>	<u>METHOD</u>	<u>MEASURES AND VARIABLES</u>	<u>SAMPLE</u>	<u>FINDINGS: ADVERSITY &amp; PSYCHOSIS LINKS</u>	<u>CRITIQUE OF THE PAPER</u>
Abel, Jorgensen, Magnussen, Wicks, Susser, Hallkvist & Dalman (2014)	- Cohort study - Logistic regression (95% intervals). - Controlled for sex, maternal and paternal age, parental education level.	- Exposure in the mother to bereavement stress both at preconception and during the pre-natal period. This was in both the nuclear family and extended to the broader family.	Children born between 1973-1985 (n=1151883) Excluded those who died before age of 20.	33% were exposed to a death in the family. 0.4% developed non-affective psychosis, 0.17% developed affective psychosis. 1) No evidence of excessive risk when the maternal bereavement stress is present preconception or in any trimester 2) Exposure to a death in the family <13 years was associated with	Should have considered the longer term impact of the death of a parent, e.g. financial implications longer term. Social factors may have been affected long term by the death.



increased risks – larger effects the earlier in childhood this happened.  
 3) More suicides in nuclear that the extended family. Risk was higher when a death of this kind happened in the nuclear family in early childhood between birth and three years (affective psychosis).

<p>Bentall, Wickham, Shevlin &amp; Varese, (2012)</p>	<p>-Used data from the Adult Psychiatric Morbidity Survey (2007). Phase one data.</p> <ul style="list-style-type: none"> <li>- Used Logistic Regression Model</li> <li>- 3 Models: 1) CSA, Victimization and Separation experiences</li> <li>- 2) As above but with control variables,</li> <li>- 3) dose response: total adversity score, CSA, victimisation and separation experiences.</li> </ul>	<p>PSQ – to measure paranoia and hallucinations.</p> <p>Sexual abuse: sections selected from the DV and abuse elements of the interview</p> <p>Physical abuse: Questions about physical abuse and bullying by peers</p> <p>Bullying: Questions from a tick box list of life events</p> <p>Separation experiences: Questions from parenting section of the survey.</p>	<p>Population study</p>	<ul style="list-style-type: none"> <li>- All bivariate associations between symptoms and adversity e.g. CPA and hallucinations, were significant (p&lt;.005).</li> <li>- Logistic regression: CSA was associated with hallucinations even after controlling for IQ and demographic confounders. Rape especially strong. Those raped before age of 16, were 6x more likely to report hallucinations in the past 6 months.</li> <li>- Victimization – CPA predicted paranoia and hallucinations. Bullying non-significant</li> <li>- Separation experiences: separation experiences and paranoia lead to increased risk (in care 11x more likely to experience paranoia).</li> </ul>	<p>- Controlled for sex, ethnicity, education, NART for pre-morbid IQ.</p>
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<p>Bonoldi, Simeone, Rocchetti, Codjoe, Rossi, Gambi, Balottin, Caverzasi, Politi &amp; Fusar-Poli (2013)</p>	<p>-Extensive literature review and meta-analysis of 23 studies. Followed PRISMA guidance. Conducted 3 meta-analyses : CSA, CPA, CEA. - Used Bornstein et al. 2005 Comprehensive Meta-analysis software – used in Cochrane review - Used an objective rating system for coding based on Paulson &amp; Bazemore, 2010).</p>	<p>23 studies - N – 2017 - Mean age: 36.61</p>	<p>Meta-analyses carry limitations of the studies included: e.g. retrospective accounts of childhood adversity, -High heterogeneity across samples - As did not include case-control prospective studies, cannot determine causal impact of childhood adversity on psychosis development</p>
<p>Braehler, Valiquette, Holowka, Malla, Joober, Ciampi, Pawliuk &amp; King (2013)</p>	<p>- Analysis used multivariate analyses of covariance to test the association between childhood trauma and dissociation by group - Cross-sectional design</p>	<p>-CTQ -DES-II Canadian study, used 3 samples -1<sup>st</sup> episode clients (n = 62) -Chronic Psychosis ( n = 43) -Non clinical controls (n=66)</p>	<p>-Highest levels of dissociation in clients with chronic psychosis. -Emotional abuse was the strongest predictor and more severe trauma led to more severe psychosis  - Rates of moderate trauma (at least one type) 1<sup>st</sup> episode group: 50.8%, chronic psychosis: 53.5%, community control (High for control group)  - Multivariate analysis: even when controlling for group effects, the more severe the trauma, the more severe the dissociative symptoms.</p> <p>Control participants screened by trained research assistants to ensure severe confounding mental disorder not found (SCID) -all measures self-report -cross-sectional design</p>

Fisher, Appiah-Kusi & Grant, (2012)	Cross-sectional study exploring the mediating effects of negative schemas, anxiety and depression between childhood trauma and paranoia.	<ul style="list-style-type: none"> <li>- CTQ</li> <li>- PSQ</li> <li>- BDI</li> <li>- BAI</li> <li>- BCSS</li> </ul>	N = 212 Non-clinical convenience student sample	<p>1/3 of the sample reported paranoia. CPA (present in 55.6%) and CEA (present in 50.9%) linked to paranoia.</p> <p>- Mediation effects were not significant</p>	<ul style="list-style-type: none"> <li>- self-selecting non-clinical sample</li> <li>- Cross-sectional study therefore no causal relationships can be determined.</li> </ul>
Fisher, Craig, Fearon, Morgan, Dazzan, Lappin, Hutchinson, Doody, Jones, McGuffin, Murray, Leff and Morgan (2011)	<p>-Between groups and comparison based design. Used data from AESOP epidemiological case control study.</p> <p>- Analysis: Correlational and between groups analysis</p>	<p><b>-CECA.Q</b> <b>-PBI</b> <b>-Symptoms severity + mood:</b> assessed through Schedule for Clinical Assessment of Neuropsychiatry (SCAN: WHO). <b>-Psychotic symptom content:</b> clinical records and SCAN score</p>	<p>-Drawn from AESOP study - 16-64 years -different samples for different analysis</p>	<ul style="list-style-type: none"> <li>- <b>Validity of PBI vs CECA.Q</b> (n=84). Maternal and paternal antipathy and neglect comparable to PBI scales. Highly significant correlation (p&lt;0.001)</li> <li>- <b>Convergent validity between self-report and case notes</b> (n=60). Significant agreement between researchers on presence of CSA or CPA. Significant agreement between CSA and CPA using CEPA.C and case notes. CSA (.526 – fair level of agreement) CPA .394 – Just short of fair consistency.</li> <li>- <b>Test-retest self-reports</b> (n = 30). CECA.Q score at baseline and again at 7 year follow-up. Significant levels of agreement between baseline and at follow up.</li> </ul>	<ul style="list-style-type: none"> <li>- Only used one measure of childhood adversity – the CECA.Q. Many papers use the CTQ – therefore are the results comparable cross measurements ?</li> </ul>

- **Psychopathology on abuse reports**

(N = 157). No significant difference in level of psychopathology between those who did and did not report a history of antipathy, neglect, sexual abuse, physical abuse. Conclusions made that histories of adversity collected over time are reliable and comparable: Conclusions: Retrospective reports are:

- a) reliable over time
- b) current psychopathology does not influence reporting
- c) antipathy and neglect stable across measures

Heins, Simons, Lataster, Pfeifer, Versmissen, Lardinois, Marcelis, Delespaul, Krabbendam, van Os & Myin-Germeys (2011)	<ul style="list-style-type: none"> <li>- 3 Groups. A) patients with a diagnosis of non-affective psychotic disorder B) a sibling group C) Healthy comparison group (general population).</li> <li>- Multilevel logistic regression models were estimated between groups.</li> </ul>	<ul style="list-style-type: none"> <li>- CTQ</li> <li>- PANSS</li> <li>- Sub-clinical psychosis measured through the Structured interview for schizotypy (revised).</li> </ul>	Patient group (n = 272) Sibling group (n = 258) Control group (n = 227).	Trauma and psychosis was associated in the case-control, case-sibling and sibling-control models.  There was evidence of a dose-response relationship across types of trauma.	Robust study
Kennedy, Tripodi & Pettus-Davis	Random sampling in prison population.  <ul style="list-style-type: none"> <li>- Binary Logistic regression models</li> </ul>	Battery of self-report measures  <ul style="list-style-type: none"> <li>- CTQ</li> <li>- Mini International Neuropsychiatric Interview MINI</li> </ul>	N=159 Female prisoners in North Carolina -Soon to be released from prison	-Those who experienced multi-victimisation were 2.4 times more likely to report current symptoms of psychosis -one-unit increase in psychosis like 3.2% increase current psychotic symptoms	-Reliance on retrospective accounts of trauma - As this was part of a larger study, there was a reduced sample available and therefore

(Feb 2013)		(Psychosis)	- 80% Response rate	-Supports the dose response hypothesis in that multi-victimisation predicts psychosis in a prison population	potential sampling biases
Persona-Garcelon, Carracoso-Lopez, Garcia-Montes, Ductor-Recuerda, Lopez Jiminez, Vallina-Fernandez, Perez-Alvarez & Gomez-Gomez (2012)	<ul style="list-style-type: none"> <li>- mediation analyses x 2</li> <li>- a) mediation dissociation and panss total score</li> <li>- b) subscales of dissociation as mediators</li> </ul> <p>Used Preacher &amp; Hayes (2008) bootstrap macro to estimate mediator significance.</p>	<ul style="list-style-type: none"> <li>- Trauma: list of traumatic experiences</li> <li>- DES –II</li> <li>- PANSS</li> </ul>	N = 71 – diagnosis of psychosis.	<ul style="list-style-type: none"> <li>-45.1% reported trauma, 54.9% did not.</li> <li>-correlations between all subscales of the DES-II, PANSS, Hal &amp; Del.</li> </ul> <p>Mediation: indirect effect of dissociation was significant in the relationship between trauma and hallucinations but not delusions.</p>	
Rosler, Hengartner, Ajdacic, Haker & Angst (2014)	<ul style="list-style-type: none"> <li>-30 Year prospective community study.</li> <li>-aimed to examine childhood adversity with intra-individual and inter-individual factors.</li> <li>-Examined two psychosis syndromes</li> <li>- used structural equation modelling and general linear modelling.</li> <li>-face to face interviews were conducted with participants in 1979, 1981, 1986, 1988, 1993, 1999 and 2008</li> </ul>	<p>SCL-90R</p> <p>Structured Psychopathological Interview and rating of the social consequences of psychological disturbance for epidemiology (SPIKE)</p>	N = 335 (Between ages 20 -50 years of age)	<ul style="list-style-type: none"> <li>There was a significant relationship between symptoms and total adversity (dose-response)</li> <li>The type of adversity suggested that the severity of symptoms may decrease with age.</li> <li>Adversity is not a necessary or sufficient factor in the development of psychosis.</li> </ul>	<ul style="list-style-type: none"> <li>Good study as provided support that even sub-clinical psychotic symptoms, were sensitive to assessment of childhood adversity.</li> <li>This was the first LT prospective study of its kind.</li> </ul>
Sellwood, Evans, Reid, Preston & Palmier-Claus (2012)	<ul style="list-style-type: none"> <li>Cross-sectional study</li> <li>- 2 groups (clinical/non-clinical)</li> <li>- Used non-parametric stats and mediation analysis from Preacher and Hayes</li> </ul>	<ul style="list-style-type: none"> <li>-CTQ</li> <li>-DES-II</li> <li>-SCSS</li> </ul>	Clinical (n =29) non-clinical (n= 33)	<ul style="list-style-type: none"> <li>DES-II scores higher in the clinical group (<math>v=204.00</math>, <math>z =-.363</math>, <math>p &lt; .001</math>)</li> <li>Dissociation mediated the relationship between trauma and psychosis</li> <li>-Emotional abuse was most</li> </ul>	<ul style="list-style-type: none"> <li>- cross-sectional</li> <li>- multivariate analysis even when controlling for group effects, the more</li> </ul>

				important indicator of dissociation	severe the trauma, the more severe the dissociation
					- Unusual findings in that there were no differences between community controls in clinical and non-clinical groups
Trotta, Di Forta, Mondelli, Dazzan, Pariante, David, Mule, Ferraro, Formica, Murray & Fisher (2013)	- Cross-sectional. - 2 groups ( 1 = first-episode, 2 = geographically matched controls).	- Data from the gene and psychosis study. Explored bullying exposure, psychotic symptoms, cannabis use, conduct disorder - PSQ – used to control for psychosis in healthy control group. - Brief life events schedule (bullying)	1 <sup>st</sup> episode psychosis (n = 222)  Control group (n = 215)	The psychosis group was twice as likely to report bullying when compared to controls. The controls reporting bullying were twice as likely to report at least one psychosis-like symptom. Females were more likely to have been bullied and the impact of this was stronger (OR = 3.07 vs. 1.99). Gender did not moderate between bullying and psychosis.	- Small sample size.
Van Dam, van der Ven, Velthorst, Selten, Morgan & de Haan (2012)	- Literature review and meta-analysis (7 population studies). - Papers included from 1806-2011.			Non-clinical studies show consistent evidence that school bullying is related to the development of non-clinical psychotic symptoms. Increased frequency, severity and duration are important.	There is a need for studies to explore dose-response factors. There is a suggestion that we need to follow bullied and non-bullied children

-Meta-analysis results (OR =2.7, 95% CI 2.1-3.6) – Consistent with a causal relationship between these. The clinical studies had no unequivocal conclusions. longitudinally to adulthood to assess if a psychotic disorder develops. From this, strong conclusions about causality could be drawn.

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**Appendix B: Participant recruitment process**

Data collection period: April 2013 – February 2014 (11 months)

	<b><u>Number</u></b>
<b>Number of clients approached to participate in research</b>	124
<b>Number of clients who agreed to participate</b>	55
<b>Number of clients who completed the questionnaires</b>	42
<b>Total number of times attended ward for data collection</b>	27

**Participant completion rate:** 33.9% of clients asked, completed the research

**Appendix C: Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979)**

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**Appendix D: Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) and cut off points**

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Cut off points for trauma severity on the CTQ

	<b>None (or minimal)</b>	<b>Low (to moderate)</b>	<b>Moderate (to severe)</b>	<b>Severe (to extreme)</b>
<b>Emotional Abuse</b>	5-8	9-12	13-15	>16
<b>Physical Abuse</b>	5-7	8-9	10-12	>13
<b>Sexual Abuse</b>	5	6-7	8-12	>13
<b>Emotional Neglect</b>	5-9	10-14	15-17	>18
<b>Physical Neglect</b>	5-7	8-9	10-12	>13

**Appendix E: Dissociative Experiences Scale (DES-II; Bernstein & Putnam, 1986)**

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**Appendix F: Young Schema Questionnaire- Short Form (YSQ-SF; Young, 1998)**

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**Appendix G: Social Support Questionnaire – Short Form (SSQ-SR; Sarason, Sarason, Shearin & Pearce, 1987)**

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**Appendix H: Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein and Opler, 1987)**

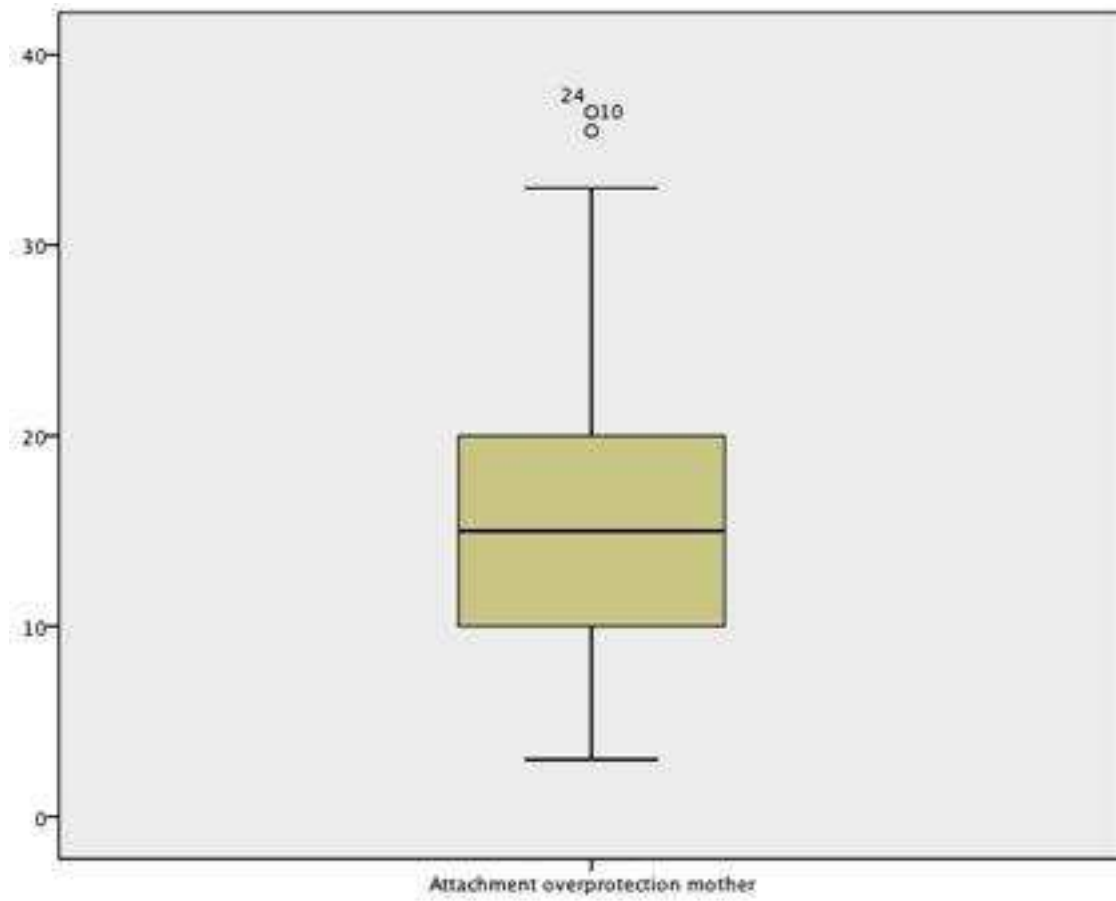
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**Appendix I: Assumptions of parametric data**

<b>Variable name</b>	<b>Skewness Z-value (Statistic / std error)</b>	<b>Kurtosis Z-value (Statistic / std error)</b>	<b>Shapiro -Wilk Statistic</b>	<b>Shapiro -Wilk P value (should be above 0.05)</b>
Attachment Care - mother	-0.905	-0.699	.960	.299
Attachment Care - father	-1.556	-0.158	.949	.144
Attachment protection - mother	1.973	1.436	.939	.079
Attachment protection - father	1.466	0.675	.970	.528
CTQ – Total Trauma score	0.877	-0.815	.957	.113
CTQ – Emotional Abuse	-1.26	1.895	.926	.009
CTQ – Physical Abuse	4.008	3.442	.868	.000
	0.983	-0.642	.964	.206
CTQ – Sexual Abuse	3.315	0.755	.777	.000
	1.833	-1.476	.797	.000
CTQ – Emotional Neglect	1.658	-0.955	.921	.007
CTQ – Physical Neglect	1.238	-0.459	.952	.075
DES-II – Amnesia score	3.082	1.347	.863	.000
DES-II – Depersonalisation	2.373	-0.200	.887	-0.001
DES-II – Absorption score	0.0219	-1.444	.959	.135
DES-II – Total score	0.912	-1.531	.938	0.025
SCHEMA - ED	1.104	1.155	.947	0.051
SCHEMA - AB	0.556	-1.686	.936	0.021
SCHEMA - MA	1.003	-1.509	.926	.009
SCHEMA - SI	1.312	-1.243	.928	0.011
SCHEMA - DS	2.658	0.201	.881	.0000
	1.123	-1.200	.935	.019
SCHEMA - FA	1.704	.916	.913	.004
SCHEMA - DI	1.778	.234	.918	0.005
SCHEMA - VH	1.814	-.699	.904	.002
SCHEMA - EM	1.534	-1.309	.903	.002
SCHEMA - SB	.921	-1.052	.965	.228
SCHEMA - SS	-1.753	-0.900	.917	0.005
SCHEMA - EI	1.233	-.851	.958	.127
SCHEMA -US	1.584	-1.130	.916	.005
SCHEMA - ET	.389	-1.372	.958	.121
SCHEMA - IS	1.137	-0.908	.957	.111
SSQ- Total number	3.904	1.845	.822	.0000
SSQ – Satisfaction with value	-4.756	3.579	.755	.0000
PANSS – Total score	1.942	9.210	.857	0.0000
PANSS – Psychopathology score	5.715	6.627	.763	.00000
	3.649	16.928	.774	.0000
PANSS – Negative score	6.789	13.616	.784	.0000
	0.777	1.4211	.949	.057
PANSS – Positive score	-0.644	.308	.985	.847
PANSS - Hallucinations	-1.263	-1.471	.880	.0000
PANSS - Delusions	-2.523	-0.561	.823	.00000
	2.457	-.621	.826	.000

Example box plot for normality.

All box plots were not included at the discretion of the author due to the large number of plots that would need to be included due to variety of subscales within the project. The table above summarises the tests of normality, skewness and kurtosis.



**Appendix J: Cronbach's Alpha levels of internal consistency**

Emotional Deprivation $\alpha$ .923
Abandonment/Instability $\alpha$ .852
Mistrust/Abuse $\alpha$ .860
Social Isolation/Alienation $\alpha$ .914
Defectiveness/Shame $\alpha$ .864
Failure $\alpha$ .910
Dependance/Incompetence $\alpha$ .904
Vulnerability to harm $\alpha$ .734
Enmeshment $\alpha$ .827
Subjugation $\alpha$ .871
Self-Sacrifice $\alpha$ .776
Emotional Inhibition $\alpha$ .835
Unrelenting Standards $\alpha$ . 861
Entitlement $\alpha$ . 863
Insufficient Self-control $\alpha$ .848
Father Care $\alpha$ .867
Father Protection $\alpha$ .848
Mother Care $\alpha$ . 832
Mother Protection $\alpha$ . 830
Emotional Abuse $\alpha$ .878
Physical Abuse $\alpha$ .806
Sexual Abuse $\alpha$ .891
Emotional Neglect $\alpha$ . 802
Physical Neglect $\alpha$ . 0.402
CTQ total = .816

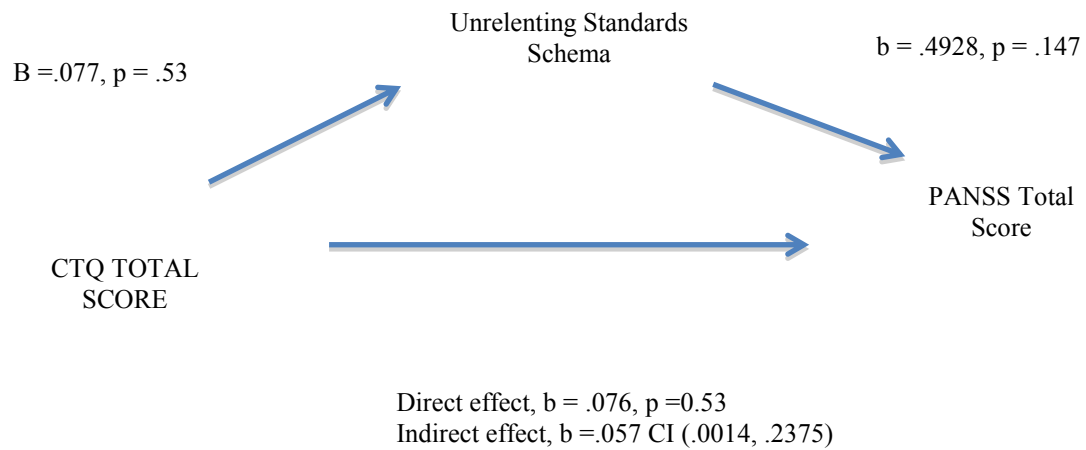
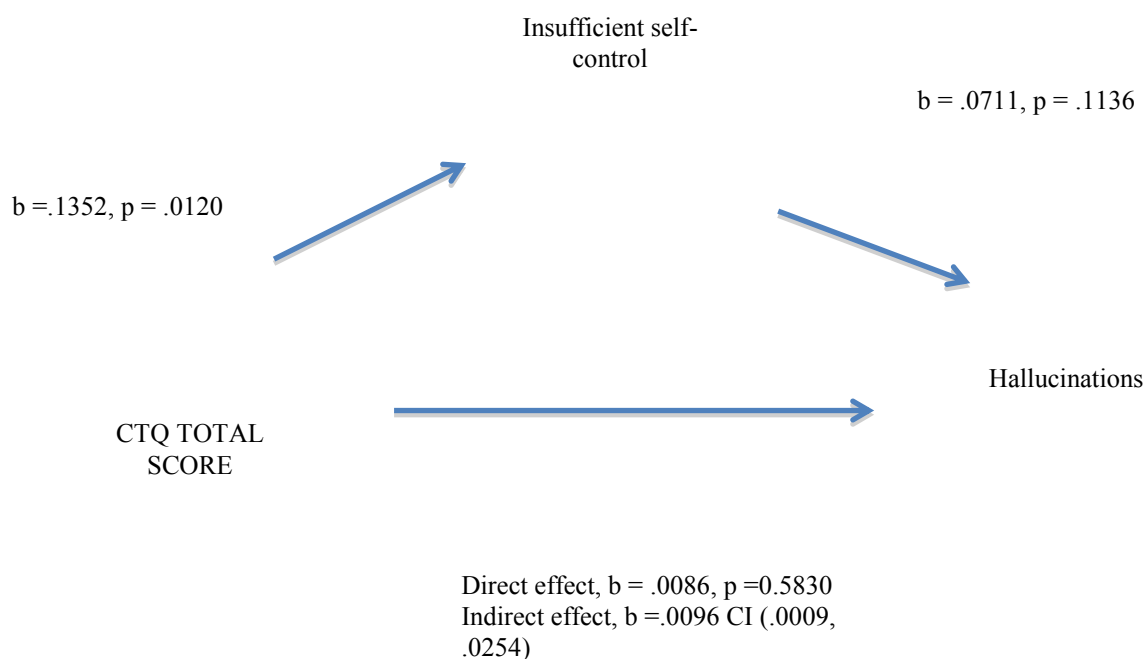
**Appendix K: Moderation effects at low, medium and high levels**

The moderating effect of satisfaction with social support at different levels

Which variables are moderated by satisfaction with social support	Moderating effect of satisfaction with social support	Effect	SE	t- value	p - value
CTQ Emotional Abuse Score & PANSS Total score	Low satisfaction with social support	-5.4986	2.3791	-2.3113	.0263
	Mean satisfaction with social support	-1.2319	1.8039	-.6829	.4988
	High satisfaction with social support	2.1360	2.4874	.8587	.3959
CTQ Physical Neglect Score & Delusions	Low satisfaction with social support	-.1611	.0726	-2.2178	.0326
	Mean satisfaction with social support	-.0254	.0664	-.3828	.7040
	High satisfaction with social support	.0817	.0981	.8326	.4103

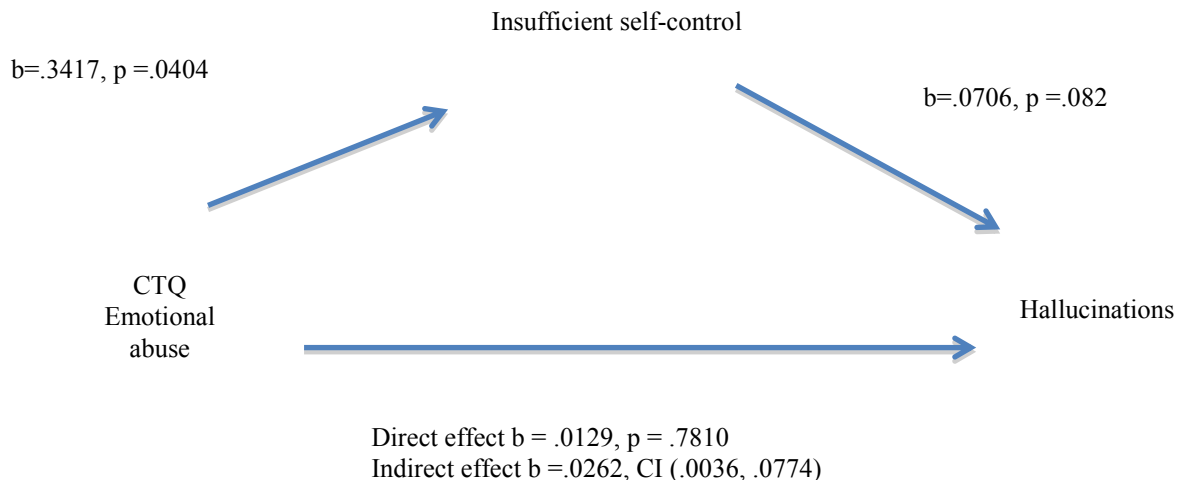
The moderating effect of size of social network at different levels

<b>Which variables are moderated by perception of social support</b>	<b>Moderating effect of size of with social support at low, medium and high levels</b>	<b>Effect</b>	<b>SE</b>	<b>t- value</b>	<b>p - value</b>
CTQ sexual abuse score & PANSS hallucinations score	Low perception of social support	-.0836	.0832	-1.0053	.3211
	Mean perception of social support	.0303	.0486	.6228	.5371
	High perception of social support	.1442	.0456	3.1591	.0031
CTQ Emotional Neglect Score & PANSS Total score	Low perception of social support	-1.2706	.6033	-2.1061	.0419
	Mean perception of social support	-.0957	.3689	-.2594	.7967
	High perception of social support	1.0791	.5266	2.0492	.0474
CTQ Emotional Neglect Score & PANSS positive symptoms score	Low perception of social support	-.4439	.2260	-1.9639	.0569
	Mean perception of social support	.1138	.1781	.6388	.5268
	High perception of social support	.6714	.2381	2.8198	.0076
CTQ Physical Neglect score & PANSS Delusions score	Low perception of social support	-.2780	.0813	-3.4210	.00015
	Mean perception of social support	-.0030	.0648	-.0459	.9637
	High perception of social support	.2721	.1441	1.8874	.0668

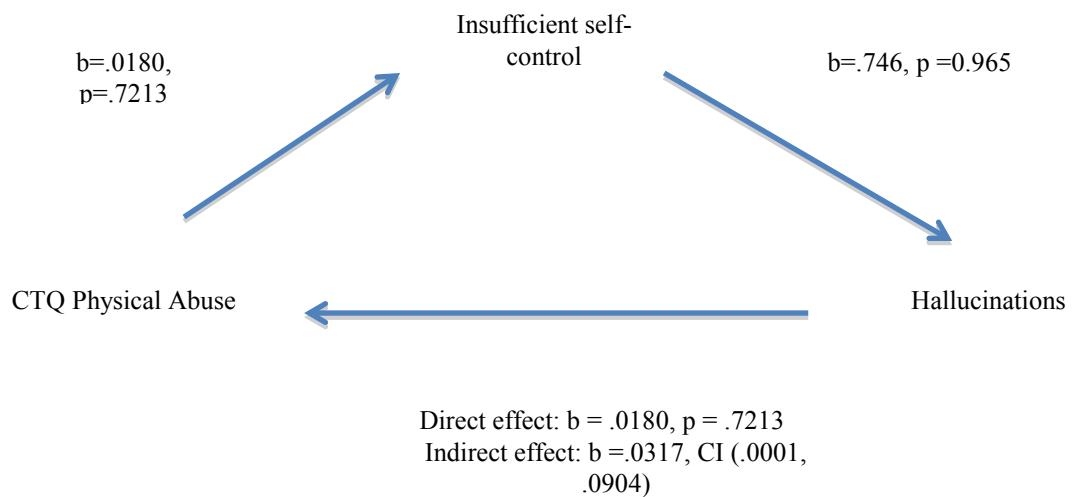
**Appendix L: Significant mediation diagrams**1) Unrelenting Standards EMS mediated the relationship between CTQ total score and PANSStotal score2) Insufficient self-control EMS mediated the relationship between CTQ total score andhallucinations



3) Insufficient self-control EMS mediated the relationship between CTQ emotional abuse score and hallucinations



4) Insufficient self-control EMS mediated the relationship between CTQ physical abuse score and hallucinations



## **Appendix M: Participant Information Sheet**



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Salomons Campus at Tunbridge Wells

### **PATIENT INFORMATION SHEET**

#### **Unusual experiences (early-psychosis) and early life events and intervening factors**

You are being invited to take part in a research study undertaken by Jodie Waterhouse, Trainee Clinical Psychologist. Before you decide whether or not to take part, it is important that you understand why the research is being done and what it will involve for you. Please take time to read the following information carefully. I will be available to answer any questions that you may have about the study. Please ask if anything is not clear.

Part 1 will tell you about the purpose of the study and what will happen if you take part.

Part 2 gives you more details information about the conduct of the study

#### **PART 1**

##### **What is the purpose of the study?**

The study aims to explore historical and current reasons why people may have distressing or unusual experiences. The recovery rate from psychosis is better when it is spotted sooner and not left untreated for too long. I hope to get more information about why some people with difficult experiences in childhood may develop unusual and distressing symptoms and why some may not.

##### **Why have I been invited?**

You have been invited as you are deemed well enough to participate in the study; anyone admitted to the \*\*\* unit or \*\*\*\* community team who is well enough to take part will be offered the chance to read this information and decide if they would like to participate. The study needs to focus on the past and present life experiences of people who are experiencing psychotic experiences for the first time. It is likely that approximately 40 people will be asked to participate in the study over the course of the 11-month study period.

##### **Do I have to take part?**

It is completely up to you whether you decide to take part or not. If you do decide you would like to take part you will be given this information sheet to take away and will be asked to sign a consent form. Even if you decide to take part and sign the form, you can withdraw



From the study at any time without giving a reason. Withdrawing from the study will not affect the standard of care you receive in any way.

### **What will happen to me if I take part?**

If you decide to take part, I will ask you to complete a range of questionnaires asking about your early and current life experiences. I will ask to meet with you on the ward or at the \*\*\* team community base twice for approximately 35 minutes at a time; this will be over the course of one day and you will be given a break in between the two sittings.

### **What are the disadvantages of taking part?**

The disadvantages of taking part are that it will require 35-70 minutes of your time. Some of the questionnaires may require you to think about life-events which were difficult, and although I will not push you to talk about this deeply in our meeting, it may trigger memories from the past. If this were to happen however, you would be provided support by the ward psychology team and your care co-ordinator or nursing team.

I will be required to take some information about your PANSS assessment from your electronic files. If you consent to the study, it is important that you think it is ok for me to look at your file. I will not look at unnecessary information.

### **What are the possible benefits of taking part?**

It is hoped the findings will improve the detection of early psychotic symptoms and psychological and psychosocial interventions. It would help contribute to the knowledge base about early life experience and psychosis.

### **What will I have to do?**

If you take part in the study you will be asked to complete 5 questionnaires with myself, the researcher.

This will involve sitting down twice for approximately half an hour at a time to complete the questionnaires. The questionnaires will ask about your life experiences, beliefs and friends and family. They may touch upon difficult events as an adult and a child however you will not be pushed to talk about difficult things in detail.

If any of the questionnaires make you feel distressed or uncomfortable, support will be available from a Clinical Psychologist (\*\*\*\*\*) to help you deal with these feelings.



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### **Expenses and payment**

As a 'thank you' for participating in the study, all participants will receive a £10 TESCO voucher. If you are travelling to the \*\*\*\* team community base, travel expenses of up to £10 will also be covered.

### **Will what I say in this study be kept confidential?**

All information that you discuss in our meeting will be kept confidentially and stored in a safe place. My university department requires that data is anonymous and stored on a password protected CD in the office in a locked cabinet for 10 years after the study is completed.

Everything you say will be confidential and you can withdraw your information at any time. If however you say something that suggests you may harm yourself or someone else, I will need to pass this information onto other professionals working with you.

## **PART 2**

### **What will happen if I don't want to carry on with the study?**

At any point throughout the study, you are able to and welcome to withdraw from it. This may be after signing the consent form, during completing of questionnaires or following completion at any point.

You will be given an identifying code so that you are able to withdraw your data at anytime. Please contact Jodie Waterhouse (contact details at the end of this information sheet) or Dr \*\*\*\*\* if you decide you want to leave the study. This will not have any impact on the care that you receive.

### **What if there is a problem?**

If you have a concern about any aspect of this study, you should ask to speak to the researcher or Dr \*\*\*\*\* who will do their best to answer your questions.

If you remain unhappy and wish to complain formally, you can do this by contacting Professor Paul Camic (Canterbury Christ Church University). Details can be obtained from Dr \*\*\*\*\*.



You can also contact your local Patient Advice and Liason Service (PALS) on \*\*\*\* \* or \*\*\*\* \* or [pals@\\*\\*\\*\\*](mailto:pals@****) . PALS can give you advice about services within \*\*\*\* and can offer support if you have queries of difficulties.

### **How can I take part in the study?**

**If you would like to take part in the study, please speak to Dr \*\*\*\*\* on the ward or your care-coordinator who will contact me directly and let me know you wish to take part. If you see me on the ward and wish to participate, please approach me and let me know.**

### **Who is organising/funding the study?**

My name is Jodie Waterhouse and I am a trainee Clinical Psychologist studying for my doctorate on the Salomons, Canterbury Christ Church University course. The data I hope to collect will form the basis of my major research project. The research is funded by Canterbury Christ Church University and Surrey and Borders Partnership NHS Foundation Trust.

### **What will happen to the results of the research study?**

The results of the study will form the basis for my Clinical Psychology doctorate major research project. The results will be published in my final thesis and it is hoped they will be published in a journal. If you would like a copy of the published material or a brief summary of the findings, please email me on [jw537@canterbury.ac.uk](mailto:jw537@canterbury.ac.uk) or let me know when we meet.

No identifiable information will be contained in the write up of the findings.

### **Who has reviewed the study?**

The study has been discussed in a service-user forum, peer reviewed at Canterbury Christ Church University and with \*\*\*\*\* research and development panels within the \*\*\*\*\*

All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by Bloomsbury Research Ethics Committee.



In line with ethical recommendations, you will be given a copy of this information sheet and a signed consent form to keep.

### **Further Information**

If you would like further information about the study or have any questions throughout the research process, please email me on [jw537@canterbury.ac.uk](mailto:jw537@canterbury.ac.uk). I will be visiting the unit regularly so also feel free to approach me when I am on the unit. I can provide information about any of the following for example:

1. General information about the research.
2. Specific information about this research project.
3. Advice as to whether you should participate.
4. Who you should approach if unhappy with the study.

Dr\*\*\*\*\* can also be contacted to answer any of the above.

### **Thank you!**

**Thanks for taking the time to read this and considering taking part in the research – it is hugely appreciated.**

**Jodie Waterhouse  
Trainee Clinical Psychologist  
Email: [jw537@canterbury.ac.uk](mailto:jw537@canterbury.ac.uk)**

February 2013 Version 5

**Appendix N: Research Consent Form**

- Forms were double sided

Informed Consent Form

Title of study: [Unusual experiences \(early-psychosis\) and early life events and intervening factors](#)

Researcher: **Jodie Waterhouse**

Supervisors: **Dr Nicky Reynolds & Professor Tony Lavender**

*Please initial the boxes to consent to the statements below:-*

- I have understood the details of the research as explained to me by the researcher, and confirm that I have consented to act as a participant. I also confirm that I have read and understand the participant information sheet (version 5, February 2013) provided to me.
  
- I have been given contact details for the researcher in the information sheet and have been offered debriefing from both the researcher and ward staff. I have been given information of services/professionals to contact if I feel distressed following the completion of the study.
  
- I understand that my participation is entirely voluntary, the data collected during the research will not be identifiable, and I have the right to withdraw from the project at any time without any obligation to explain my reasons for doing so.
  
- I understand that the chief-investigator will need to access my electronic records to get results from my PANSS assessment. She will not look at any information that is not necessary. I give consent for this to happen.
  
- I further understand that the data I provide may be used for analysis and subsequent publication, and provide my consent that this might occur.
  
- I understand that all my answers will remain confidential. However, if I say something that signals that I may intend to cause harm to myself or someone else this information may need to be passed onto other professionals within my team.

Print name of participant: \_\_\_\_\_

Sign Name: \_\_\_\_\_

Date: \_\_\_\_\_

Name of person taking consent (print): \_\_\_\_\_

Sign Name: \_\_\_\_\_

Date: \_\_\_\_\_

Version 3. Date: 19/02/2013



**Appendix O: Ethics approval letter from REC**

- **This has been removed from the electronic copy**

**Appendix P: NHS REC – End of study form****DECLARATION OF THE END OF A STUDY**

(For all studies except clinical trials of investigational medicinal products)

*To be completed in typescript by the Chief Investigator and submitted to the Research Ethics Committee that gave a favourable opinion of the research (“the main REC”) within 90 days of the conclusion of the study or within 15 days of early termination. For questions with Yes/No options please indicate answer in bold type.*

**1. Details of Chief Investigator**

Name:	Jodie Waterhouse
Address:	Salomons, Canterbury Christ Church University, Broomhill Road, Tunbridge Wells, TN3 OTG
Telephone:	07841646057
Email:	Jw537@canterbury.ac.uk
Fax:	

**2. Details of study**

Full title of study:	Early adversity, first-episode psychosis and the mediating role of maladaptive schemas, social support and dissociation
Research sponsor:	Professor Paul Camic
Name of main REC:	Bloomsbury
Main REC reference number:	12/LO/2021

**3. Study duration**

Date study commenced:	15 <sup>th</sup> March 2013
Date study ended:	15 <sup>th</sup> March 2014
Did this study terminate prematurely?	<b>No</b> <i>If yes please complete sections 4, 5 &amp; 6, if no please go direct to section 7.</i>

**4. Circumstances of early termination**

What is the justification for this early termination?	
---	--

**5. Temporary halt**

Is this a temporary halt to the study?	Yes / No
If yes, what is the justification for temporarily halting the study? When do you expect the study to re-start?	<i>e.g. Safety, difficulties recruiting participants, trial has not commenced, other reasons.</i>

**6. Potential implications for research participants**

Are there any potential implications for research participants as a result of terminating/halting the study prematurely? Please describe the steps taken to address them.	
---	--

**7. Final report on the research**

Is a summary of the final report on the research enclosed with this form?	Yes <i>If no, please forward within 12 months of the end of the study.</i>
---	---

**8. Declaration**

Signature of Chief Investigator:	J WATERHOUSE
Print name:	Jodie Waterhouse
Date of submission:	01/04/2014

**Appendix Q: Letter to ethics committee/ R&D Team at study end**

Letter template

Dear .....,

I write to update you on the progress of my research project entitled „early adversity, first-episode psychosis and the mediating role of maladaptive schemas, social support and dissociation“. With my letter I include a summary of the study and research findings and a similar summary that has been adapted to give to service users who requested information about the results.

I recruited 42 participants in total from one site over an 11-month period. I plan to disseminate the findings in a number of ways. The paper will be submitted to a peer-reviewed journal for publication. I will also be offering feedback and teaching to staff on the unit where the data was collected as one aim of the study was to help ward psychologists educate the multi-disciplinary team about trauma and dissociation and its prevalence on the wards.

If you wish to receive a copy of the paper following publication please let me know. Please feel free to contact me with any outstanding queries related to the project.

Kind Regards,

Jodie Waterhouse

Trainee Clinical Psychologist

## **Appendix R: Summary for R & D department**

### **Early adversity, early psychosis and mediating events**

**Aim:** The study aimed to investigate childhood adversity in a sample of clients with first-episode psychosis. The mediating impact of dissociation and early maladaptive schemas, and moderating effect of social support were investigated.

**Method:** The study (N = 42) assessed childhood adversity using the Parental Bonding Instrument and the Childhood Trauma Questionnaire. Early Maladaptive Schemas were measured using the Young Schema Questionnaire (Short form), the Dissociative Experiences Scale (2<sup>nd</sup> Edition) measured Dissociation and the Social Support Questionnaire assessed the quality and size of each participant's social network. Correlational, mediation and moderation analyses were used.

**Results:** There were high levels of childhood trauma, neglect, insecure attachment and dissociation within this sample. Dissociation did not mediate the relationship between childhood adversity and psychosis. Some early maladaptive schemas concerned with unrelenting standards and insufficient self-control mediated the relationship between adversity and psychosis, in particular hallucinations. Social support, in terms of both quality and quantity was an important moderator between childhood adversity and psychosis.

**Conclusion:** The study supports the notion that childhood adversity is a risk factor for psychosis. Some evidence about specific mediating and moderating mechanisms has been highlighted, however research into this area should be extended.

**Appendix S: Sample of SPSS output from analysis**

<b>Ethnicity</b>					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Asian Bangladeshi	1	2.4	2.4	2.4
	Black African	11	26.2	26.2	28.6
	Black British	1	2.4	2.4	31.0
	Black British African	3	7.1	7.1	38.1
	Black British Caribbean	4	9.5	9.5	47.6
	Black Caribbean	6	14.3	14.3	61.9
	Mixed Other	3	7.1	7.1	69.0
	Mixed White	2	4.8	4.8	73.8
	Mixed White and Black Caribbean	1	2.4	2.4	76.2
	White British	8	19.0	19.0	95.2
	White Other	1	2.4	2.4	97.6
	White Turkish	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

<b>Gender</b>					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	female	16	38.1	38.1	38.1
	male	26	61.9	61.9	100.0
	Total	42	100.0	100.0	

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.11 \*\*\*\*\*

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

\*\*\*\*\*

Model = 1  
 Y = PANSSNEG  
 X = CTQEMOTN  
 M = SSQSATIS

Sample size  
 42

\*\*\*\*\*

Outcome: PANSSNEG

Model Summary

R	R-sq	F	df1	df2	p
.1552	.0241	.3126	3.0000	38.0000	.8161

Model

	coeff	se	t	p	LLCI	ULCI
constant	5.7303	11.0039	.5207	.6056	-16.5463	28.0068
SSQSATIS	.2628	.3386	.7760	.4425	-.4227	.9482
CTQEMOTN	.6428	.7119	.9030	.3722	-.7983	2.0840
int_1	-.0212	.0227	-.9314	.3575	-.0672	.0249

Interactions:

int\_1 CTQEMOTN X SSQSATIS

R-square increase due to interaction(s):

	R2-chng	F	df1	df2	p
int_1	.0223	.8676	1.0000	38.0000	.3575

\*\*\*\*\*

Conditional effect of X on Y at values of the moderator(s):

SSQSATIS	Effect	se	t	p	LLCI	ULCI
20.5543	.2075	.2913	.7120	.4808	-.3824	.7973
29.1864	.0246	.1950	.1262	.9003	-.3701	.4193
36.0000	-.1197	.2355	-.5084	.6141	-.5965	.3570

Values for quantitative moderators are the mean and plus/minus one SD from mean.  
Values for dichotomous moderators are the two values of the moderator.

NOTE: For at least one moderator in the conditional effects table above, one SD above the mean was replaced with the maximum because one SD above the mean is outside of the range of the data.

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

Level of confidence for all confidence intervals in output:

95.00

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

**Appendix T: Definition of Young's maladaptive schemas (15 included in YSQ-sf)**

<u>Name of Early Maladaptive Schema</u>	<u>Brief definition</u>
Emotional Deprivation	The expectation that one's desire for a normal degree of emotional support will not be met by others
Abandonment/Instability	The perceived instability and unreliability of those available for support and connection
Mistrust/Abuse	The expectation that others will hurt, abuse, humiliate, cheat, lie, manipulate or take advantage
Social Isolation/Alienation	The feeling that one is isolated from the rest of the world.
Defectiveness/Shame	The feeling that one is defective, bad, unwanted, inferior or invalid
Failure	The belief that one has failed, will inevitably fail or is fundamentally inadequate to peers in one area of achievement (e.g.school, career, sports)
Dependance/Incompetence	Belief that one is unable to handle one's everyday responsibilities in a competent manner, without considerable help from others.
Vulnerability to harm	Exaggerated fear that imminent catastrophe will strike at any time and that one will be unable to prevent it.
Enmeshment	Excessive emotional involvement and closeness with one or more significant others at the expense of full individuation or normal social development
Subjugation	Excessive surrendering of control to others because one feels coerced – submitting in order to avoid anger, retaliation or abandonment
Self-Sacrifice	Excessive focus on voluntarily meeting the needs of others in daily situations at the expense of one's own gratification.
Inhibition	Excessive inhibition of spontaneous action, feeling or communication usually to avoid disapproval by others feelings of shame or losing control of one's impulses.
Unrelenting Standards	The underlying belief that one must strive to



	meet very high internalised standards of behaviour or performance usually to avoid criticism.
Entitlement	The belief that one is superior to other people, entitled to special rights and privileges or not bound by the rules of reciprocity that guide normal social interaction.
Insufficient Self-control	Pervasive difficulty or refusal to exercise self-control and frustration tolerance to achieve one's personal goals or to restrain the excessive expression of one's emotions and impulses.

**Appendix U: R & D Approval letter**

- **This has been removed from the electronic copy**

## **Appendix V: Author Guidelines for British Journal of Clinical Psychology**

# **British Journal of Clinical Psychology**

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Edited By: Julie Henry and Mike Startup

Impact Factor: 2.333

### **Author Guidelines**

The British Journal of Clinical Psychology publishes original contributions to scientific knowledge in clinical psychology. This includes descriptive comparisons, as well as studies of the assessment, aetiology and treatment of people with a wide range of psychological problems in all age groups and settings. The level of analysis of studies ranges from biological influences on individual behaviour through to studies of psychological interventions and treatments on individuals, dyads, families and groups, to investigations of the relationships between explicitly social and psychological levels of analysis.

The following types of paper are invited:

- Papers reporting original empirical investigations
- Theoretical papers, provided that these are sufficiently related to the empirical data
- Review articles which need not be exhaustive but which should give an interpretation of the state of the research in a given field and, where appropriate, identify its clinical implications
- Brief reports and comments

#### **1. Circulation**

The circulation of the Journal is worldwide. Papers are invited and encouraged from authors throughout the world.

#### **2. Length**

Papers should normally be no more than 5000 words (excluding abstract, reference list, tables and figures), although the Editor retains discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length.

### 3. Submission and reviewing

All manuscripts must be submitted via <http://www.editorialmanager.com/bjcp/>. The Journal operates a policy of anonymous peer review. Before submitting, please read the [terms and conditions of submission](#) and the [declaration of competing interests](#).

### 4. Manuscript requirements

- Contributions must be typed in double spacing with wide margins. All sheets must be numbered.
- Manuscripts should be preceded by a title page which includes a full list of authors and their affiliations, as well as the corresponding author's contact details. A template can be downloaded from [here](#).
- Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible without reference to the text. They should be placed at the end of the manuscript with their approximate locations indicated in the text.
- Figures can be included at the end of the document or attached as separate files, carefully labelled in initial capital/lower case lettering with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate sheet. The resolution of digital images must be at least 300 dpi.
- All papers must include a structured abstract of up to 250 words under the headings: Objectives, Methods, Results, Conclusions. Articles which report original scientific research should also include a heading 'Design' before 'Methods'. The 'Methods' section for systematic reviews and theoretical papers should include, as a minimum, a description of the methods the author(s) used to access the literature they drew upon. That is, the abstract should summarize the databases that were consulted and the search terms that were used.
- All Articles must include Practitioner Points – these are 2–4 bullet points to detail the positive clinical implications of the work, with a further 2–4 bullet points outlining cautions or limitations of the study. They should be placed below the abstract, with the heading 'Practitioner Points'.
- For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full and provide DOI numbers where possible for journal articles.
- SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.
- In normal circumstances, effect size should be incorporated.
- Authors are requested to avoid the use of sexist language.
- Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright. For guidelines on editorial style, please consult the [APA Publication Manual](#) published by the American Psychological Association.

### 5. Brief reports and comments

These allow publication of research studies and theoretical, critical or review comments with an essential contribution to make. They should be limited to 2000 words, including references. The abstract should not exceed 120 words and should be structured under these headings: Objective, Method, Results, Conclusions. There should be no more than one table or figure, which should only be included if it conveys information more efficiently than the text. Title, author name and address are not included in the word limit.

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