



Doctoral thesis

**The Role of Self-concept Clarity in Adult Attachment, Adverse Childhood Experiences
and Psychotic Like Experiences**

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

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Word Count Statement

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Thesis Abstract	298	-	298
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Thesis Abstract

Self-concept clarity (SCC) is defined as the “extent to which the contents of an individual's self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p.141). This thesis set out to identify and explore the role of SCC and its associations with adult attachment, adverse childhood experiences (ACEs) and the development of psychotic-like experiences (PLEs).

Section 1 describes a systematic literature review examining whether there is an association between SCC and close interpersonal relationships. Four subject databases (PsychINFO; CINAHL plus; PsychArticles; Academic Search Complete) were searched to identify relevant literature. Eight papers met the inclusion criteria, reporting on 15 studies. These explored romantic, parental and peer relationships in addition to global measures of attachment within adult and adolescent populations. There was strong evidence to support the association between SCC and close relationships, whereby high levels of SCC were associated with greater relationship quality/satisfaction.

Section 2 described a study which aimed to explore whether SCC mediated the relationship between anxious and avoidant attachment styles and PLEs, along with ACEs and PLEs. Participants from the general population were recruited via social media and completed measures via an online survey which aimed to capture data on SCC, ACEs, adult attachment and PLEs. Analyses revealed that SCC was a significant mediator of insecure attachment styles and PLEs, and ACEs and PLEs, indicating the importance in considering the role of SCC in psychological intervention for individuals who experience distress as a result of PLEs. Limitations of the study are discussed as well as considerations for future research and clinical practice.

SCC, ADULT ATTACHMENT, ACES, PLEs

Section 3 describes a critical and reflective appraisal of aspects of the whole thesis. This includes an overview of the main findings, personal reflections, and further discusses the strengths and limitations of the research.

SCC, ADULT ATTACHMENT, ACES, PLEs

Declaration

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

Gemma Hayes

6th December 2020

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SCC, ADULT ATTACHMENT, ACES, PLEs

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Chapter One: Literature Review

Self-Concept Clarity and Close Relationships: A Systematic Review

Prepared in accordance with the author guidance for:

Self and Identity

Total word count: 5445 (excluding tables, figures and reference list)

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Abstract

Self-concept clarity (SCC) is defined as the “extent to which the contents of an individual's self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p.141) and theorists suggest that relationships with close others are fundamental in the development and maintenance of SCC. The current systematic review aimed to identify, synthesis and appraise all of the available peer-reviewed literature which explores an association between SCC and close interpersonal relationships. PsychINFO, CINAHL plus, PsychArticles, Academic Search Complete were searched to identify relevant literature, from database inception to May 2020. Only studies which included a standardised measure of SCC and investigated a quantifiable relationship between the variables SCC and relationship quality, satisfaction or attachment were included. Eight papers met the inclusion criteria, reporting on 15 studies. These explored romantic, parental and peer relationships in adult and adolescent populations. There was evidence to support the association between SCC and the quality of close relationships. However, due to the methodological quality of most studies being poor and the small number of studies reviewed, more evidence is needed to establish robust conclusions. Clinical implications and directions for future research are discussed.

Keywords: Self-concept clarity (SCC), attachment, interpersonal relationships.

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Self-Concept Clarity and Close Relationships: A Systematic Review

According to Maslow's Hierarchy of Needs (Maslow, 1954), the development and maintenance of interpersonal relationships throughout our lifetime is a fundamental survival need. Close others help us to achieve a sense of love and belongingness and meet further psychological needs (e.g. recognition for our achievements) so that we can reach a full understanding of ourselves. Individuals may develop many types of relationships both dyadic in nature (i.e. romantic relationships) and via group membership. Without human relationships and with limited interaction with others, we may develop depression or loneliness, although it is the quality of our relationships with others, rather than the quantity of contacts, which plays a significant role in our psychological well-being (Hyland et al., 2019). Attachment theory (Bowlby, 1969, 1973, 1980), used extensively as the theoretical understanding of how humans form close emotional bonds with others, suggests that these bonds facilitate the development and maintenance of mental representations of the self and others' 'internal working models' which can guide future behaviour and establish a perceived sense of psychological security (Cassidy & Shaver, 2008). Attachment is therefore considered to be a life-long construct, relating to early relationships with primary caregivers who have an impact on later interpersonal relationships (Bowlby, 1973). Therefore, although the concept of attachment was originally to understand a child's bond with significant others, it has now been extended by theorists to understand adult relational attachment. For instance, Collins & Reed (1990) proposed that adult attachment includes three dimensions: Dependence (i.e. the extent to trust and depend on others), Anxiety (i.e. fear and anxious feelings in relationships), and Closeness (i.e. being comfortable with closeness and intimacy).

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Self-concept clarity (SCC), as defined by Campbell et al. (1996), is the extent to which the contents of the self-concept (beliefs about the self) are ‘clearly and confidently defined, internally consistent and temporally stable’ (p.141). SCC is believed to be a dimension of the self-concept (Carter & Bruene, 2018) which also includes self-esteem and self-efficacy. Theorists have therefore long assumed that a person’s relational attachment to another influences their individual self-concepts (Bowlby, 1982) and recent research does suggest an association between self-concept and adult attachment (Zamzur & Yahya, 2019). Self-expansion theory (Aron & Aron, 1996) proposes that we are motivated to expand our own identity by including another person’s perspectives, identities and resources in the self. In addition, social comparison theory (Festinger, 1954) suggests that people determine aspects of their self-concepts by engaging in social comparisons, comparing themselves to others to develop self-knowledge regarding their own traits, abilities, opinions, and emotions. Relationships are therefore a source of self-knowledge and potential change, and research indicates that SCC varies across the lifespan, increasing through young adulthood to mid-adulthood before declining during older adulthood (Lodi-Smith & Roberts, 2010). Research also indicates that social role transitions, in particular exiting a role, can reduce a person’s SCC, even when controlling for age, physical health, and self-esteem (Light & Visser, 2013). Therefore, while it is proposed that high SCC promotes better relationship quality, SCC change may also occur as a result of poor relationships with others or relationship dissolution. As Zamzur & Yahya (2019) therefore suggest, clinicians such as counsellors should be mindful of the importance of having a positive self-concept in order to be competent and professional within their own roles.

Campbell et al. (1996) suggests that an individual who has low SCC will have beliefs that are uncertain, unstable and inconsistent. Low SCC has been implicated in a range of

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mental health problems including anxiety (Keshet & Gilboa-Schechtman, 2016), depression (Noyman-Veksler et al., 2013), personality disorders (Roepke et al., 2011), and non-suicidal self-injury (Lear & Pepper, 2016) but seems to be particularly salient in psychosis (Evans, Reed, Preston, Palmier-Claus & Sellwood, 2015; de Sousa, Sellwood, Spray, Fernyhough & Bentall, 2016). The literature on SCC therefore demonstrates certain advantages of having high SCC for psychological well-being and that when people experience a threat to their self-concept, close interpersonal relationships are important in restoring SCC (Slotter & Gardner, 2014). Those with higher SCC are more open to expanding their self-concepts by adopting aspects of others (Emery, Walsh & Slotter, 2015) and tend to be in more committed romantic relationships (Mattingly, McIntyre, & Lewandowski, 2016). Attachment theorists also suggest that adults high on attachment anxiety desire extreme closeness with other people but fear that others will reject them, whilst adults high on attachment avoidance are hesitant to become too close to others (Hazan & Shaver, 1987). This highlights the assumption that if other people are required to help others form a sense of self, then those with insecure attachment styles may have difficulty having a clear understanding of who they are and would thereby affect relationship quality (Emery et al., 2018). Thus, it seems that SCC is strongly linked to interpersonal relationship quality and satisfaction. However, there is currently no systematic literature review to date which examines the published empirical research which either refutes or supports this hypothesis. Extensive literature has examined the role of self-esteem in romantic, peer and familial relationships suggesting that people's relationships with one another influence their self-esteem and that self-esteem is associated with relationship satisfaction (Ghaziri & Darwiche, 2018; Harris & Orth, 2019). However, while we know there is a strong correlational relationship between SCC and self-esteem (Campbell, 1990; Nezlek & Plesko, 2001) we also know that these are two separate

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constructs, for instance that a positive association only exists if people desire high self-regard (DeMarree & Rios, 2014).

Rationale and aims

The development and maintenance of SCC is clearly an important factor when considering the clinical implications it has on psychological well-being. The current review therefore aims to systematically identify, appraise and synthesise all available peer-reviewed literature that explores an association between SCC and interpersonal relationship quality and/or satisfaction. The findings from the review could enhance our understanding of causal factors underlying the development of mental health difficulties and so inform future research and clinical practice.

Method

Search Strategy

To identify relevant peer-reviewed literature, the EBSCO electronic database, which encompasses four databases covering a wide range of research topics including medical, psychology and general sciences (PsychINFO, CINAHL plus, PsychArticles, Academic Search Complete), were systematically searched from database inception to 12th May 2020. The search combined free text words and synonyms by applying thesaurus (CINAHL plus, PsychArticles and PsychInfo) or subject terms (Academic Search Complete). The terms ‘self-concept clarity’, ‘SCC’, ‘clarity of self-concept’ and ‘SCCS’ were combined with terms relating to relationships with others. The specific search terms used were ‘relationship’, ‘romantic relationship’, ‘close relationship’, ‘intimate relationship’, ‘relationship quality’, ‘interpersonal relationship’, ‘relationship satisfaction’ and ‘attachment’. Boolean operators ‘OR’ were used to combine searches within strings and ‘AND’ to combine search strings. Duplicate entries were then removed. The title, abstract and assessment measures of each

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citation were then screened against the inclusion and exclusion criteria. Reference lists and citations of included articles were also searched in order to identify any additional publications not found in the original electronic search.

Inclusion and exclusion criteria.

The following selection criteria were applied:

Inclusion criteria: (1) studies published in English from any country, (2) studies published in peer reviewed journals, (3) studies published between database inception to May 2020, (4) studies describing original data, (5) studies which included a standardised measure of self-concept clarity, (6) studies which investigated a quantifiable relationship between the variables SCC and relationship quality, satisfaction or attachment.

Papers were excluded if they only applied qualitative methodology. The following categories of article were also excluded: book sections, systematic reviews, literature reviews, meta-analyses, conference presentations/abstracts, guidelines, and commentaries.

Data extraction and quality assessment.

Study screening was conducted by one author (GH). Titles and abstracts of the papers generated through the database and hand search were screened according to the inclusion criteria. Any paper that was considered to still be relevant was then retrieved as a full-text and screened. Full-text articles were then included in the results if all inclusion criteria were fulfilled. Twenty-three citations potentially met inclusion criteria based on subject terms, titles and abstracts and their full text copies were retrieved and examined. On examination of full text copies, eight studies met the inclusion criteria for the review. No additional articles were found by hand searching references of included papers. See Figure 1 for an outline of

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the search procedure. The data from selected papers were not amenable to statistical synthesis through meta-analysis due to the limited amount of studies retrieved and largely due to study heterogeneity. Papers were clinically diverse (i.e. population age, type of relationship) and methodologically diverse (i.e. study design, reported outcomes and measures used). Many of the studies were also of low quality and so a meta-analysis would therefore compound errors. Therefore, a narrative systematic review was undertaken.

To assess the quality of included papers, the ‘Quality assessment tool for quantitative studies’ by the ‘Effective Public Health Practice Project’ (EPHPP) was used (http://www.ehphp.ca/PDF/Quality%20Assessment%20Tool_2010_2.pdf) (EPHPP, 2010). A global quality assessment rating of ‘strong’, ‘moderate’ or ‘weak’ was assigned based on the responses with each of the six main categories A to F (A. selection bias; B. study design; C. confounders; D. blinding; E. data collection methods; F. withdrawals and drop-outs) in accordance with the rating scale of the EPHPP dictionary (http://www.ehphp.ca/PDF/QADictionary_dec2009.pdf) (EPHPP, 2009). For a study to be considered as ‘strong’ on the global rating there should be no ‘weak’ ratings on any of the six components. For a study to be considered as ‘moderate’ on the global rating there should be only one ‘weak’ component rating. For those papers with two or more ‘weak’ component ratings the global rating is considered ‘weak’. Studies were not excluded based on quality scores, although ratings were used to aid in interpreting the results of each study.

Results

Description of studies

The search yielded a total of 3061 references using electronic databases PsychInfo (332), CINAHL (275), PsycARTICLES (11) and Academic Search Ultimate (2443). After removing duplicates, 2820 papers were then removed by title and abstract. The remaining 23

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full-text papers were then retrieved and subjected to further enquiry. No additional papers were included following hand searching. Eight papers were included in the narrative review (See Figure 1) and were studies published between 2001 and 2018. Table 1 and 2 indicate study sample characteristics, the aims and, key findings from the included studies.

Insert Figure 1

Study characteristics.

All of the included studies adopted observational designs. Participants were recruited from across at least six countries: USA (n=3), Taiwan (n=1), Netherlands (n=1), Italy (n=1), Bermuda (n=1), Norway (n=1). Most studies recruited from local universities, schools or colleges, although one also recruited more widely using social media platforms (Emery et al., 2018). The mean age of participants ranged from 13.03 years to 37.98 years. All studies included a mixed gender sample. Five of the six studies that reported gender ratios recruited more female than male participants. Four studies investigated SCC and romantic relationships, three studies investigated SCC and peer and/or parental relationships and one study investigated SCC and an unknown significant other. Four studies (3,5,6,8) reported the length of the relationship with their romantic partner (range = 1yr - 8.26yrs). Total sample sizes for all included studies ranged from 66 to 2079.

One of the eligibility criteria for the review was that a standardised measure was used to measure SCC. Only one measure of SCC met the eligibility criteria and that was the Self-Concept Clarity Scale (SCCS, Campbell et al., 1996), seven of the studies used the full 12-item version of the SCCS and one study used 1-item from the full-scale version. Relationship

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quality was assessed using established questionnaires (e.g. Experiences in Close Relationship Scale (ESR) – short form; Wei et al., 2007) and ad hoc measures of relationship satisfaction, commitment, trust and closeness. Table 1 provides detailed information on the relationship measures for each study.

 Insert Table 1

 Insert Table 2

Quality assessment of papers

The quality assessment of papers is shown in Table 3 for individual studies. Four papers included more than one study which was relevant to the research question and were therefore rated separately on quality as they incorporated different samples and methodology. Fifteen studies from the eight papers were therefore quality assessed. Only two studies from two separate papers were considered “strong” by the rater and four as “moderate”. The majority of studies were therefore considered “weak” in accordance with EPHPP criteria. All of the studies gave information on where the participants were recruited from but for the majority, they were from discrete university populations whereby the populations were likely to be limited to those who were in particular classes and from similar socioeconomic backgrounds. Many also did not state the numbers of participants who agreed to participate, indicating a further potential bias on external validity. For study design the rater deemed 14

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studies to be “moderate” and one as “strong” (Lewandowski, Nardone & Raines, 2010) due to it including a control group and being considered to be a ‘controlled clinical trial’ in accordance with the EPHPP dictionary (EPHPP, 2009). For confounders, nine were rated as “weak”, two as “moderate” and four as “strong”. For those considered “weak”, potential differences between individuals or couples such as age or gender were not described or considered within the analysis. For blinding, all 15 individual studies were considered “moderate”, but this was mainly due to studies not describing whether outcome researchers and participants were blind to the research question. In terms of the data collection method, seven were rated as “weak” and eight as “strong”. Whilst the majority of studies did not make any explicit reference to the validity of their outcome measures, many of the tools used were standard assessment measures that have known reliability and validity, a “strong” rating could be given in accordance with EPHPP guidelines. For withdrawals and drop-outs, 12 were rated as “moderate” and three as “strong”.

Insert Table 3

Exploring the association between SCC and relationship quality

Romantic relationships.

Four of the eight papers explored the association between SCC and relationship quality in romantic relationships. All the studies indicated that the quality of the relationship was associated with SCC. For example, Lewandowski, Nardone and Raines (2010) explored the role of SCC in relationship satisfaction and commitment in two population samples of undergraduate students who had been in a romantic relationship for at least one month. They

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found weak positive correlations in both study 1 and study 2 which indicated that the higher their SCC the greater their self-reported commitment and satisfaction within their relationships. Similarly, an association between higher SCC and higher relationship satisfaction was found in a more recent study by Parise, Pagani, Donato & Sedikides (2019) (study 1), whereby adults had been in a romantic relationship on average 6.32 years. However, despite the significant correlation it was again weak ($r= 0.17$). In study 2 Parise et al., 2019 examined this association in couples preparing to be married at two time points approximately 18 months apart, whereby all couples were married at T2. At T1 and T2 they found a significant association between relationship satisfaction and SCC. In addition, Parise et al., (2019), found that women and men differed significantly on SCC, men reporting higher levels of SCC than women. Gurung, Sarason & Sarason (2001) also reported that SCC is weakly, but significantly correlated with relationship satisfaction, such that greater levels of SCC are associated with higher relationship satisfaction as measured by the Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS asks the individual to indicate the extent of their agreement and disagreements between themselves and their partners on 22 issues as well as examine specific shared behaviours and attitudes between partners. In this study participants were undergraduates who had been in a romantic relationship for two months or longer and the association was only significant for females, not males. Gurung et al., (2001) also found a significant association between SCC and relationship quality as defined by support, conflict and depth as measured by the Quality of Relationship Inventory (QRI; Pierce, Sarason & Sarason, 1991), whereby the support scale measures perceived availability of social support from that relationship, the depth scale assesses how positive, important, and secure the relationship was perceived to be, and the conflict scale measures the extent to which the relationship was a source of conflict and ambivalence. For women, higher SCC

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was significantly associated with higher social support, greater depth and lower conflict. However, in men only a significant positive correlation was found for SCC and social support. However, Gurung et al., (2001) found no significant associations between SCC and closeness as measured by The Relationship Closeness Inventory-Strength subscale (RCI-S; Berscheid, Snyder & Omato, 1989). Finally, Emery et al., (2018) conducted five studies, which examined SCC and attachment avoidance, whereby individuals high on attachment avoidance are believed to resist high levels of closeness and lack trust in others. From a meta-analysis of all five studies, Emery et al., (2018) concluded that higher attachment avoidance was moderately significantly associated with lower SCC. These studies comprised of seven samples of adults, who were currently in a romantic relationship and were recruited via universities and online.

Overall, within romantic relationships, higher SCC was weakly to moderately associated with greater self-reported commitment, satisfaction, support, greater depth, lower conflict and attachment avoidance. However, half of the studies were of poor quality, scoring a global rating of 'weak' and therefore should be interpreted with caution.

Peer and parental relationships.

Three out of the eight papers measured the association between SCC and relationship quality in parental and/or peer relationships. All the studies indicated that an individual's SCC can influence the perception of their peer or parental relationship or conversely the quality of their peer or parental relationship can influence individual's SCC. For instance, in a study aimed at investigating parental bonding and SCC and their influence on eating disturbances, Perry, Silvera, Neilands, Rosenvinge & Hanssen (2008), found that there was a significant association between parental bonding behaviour typified by low care and over-

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protectiveness and poor SCC in adults from Norway and America. Interestingly Perry et al., 2008, also found a statistical difference between Norwegian and American participants in SCC scores, Norwegians reporting higher self-concept clarity than American participants. Becht et al., (2017) also investigated the direction of effects between SCC and relationship quality with parents as well as same sex best friends in adolescents, over a five-year longitudinal study (between the ages of 13 to 18 years old). They specifically investigated support and negative interaction as measured by The Support and Negative Interaction Subscales of the shortened Network of Relationship Inventory (Furman & Buhrmester, 1985). At time 1, adolescent SCC significantly but weakly positively correlated with perceived maternal support and perceived paternal support but was not statistically correlated with perceived support from their best friend. At time 1, adolescent SCC significantly but weakly negatively correlated with perceived negative interaction with their mother but was not statistically correlated with perceived negative interaction with their father or their best friend. Significant cross-lagged effects showed that increasing SCC was associated with increasing parental support, as well as increasing perceived support from their best friend, in the subsequent wave. Increasing adolescent SCC predicted less perceived paternal negative interaction, and less perceived negative interaction with their best friend. Davis (2013) also examined the effects of parental and peer relationships on SCC in a study investigating interpersonal relationships and digital media use on adolescents' (11-19 year olds) sense of identity. Adolescents who reported high quality relationships with their mothers tended to experience high self-concept clarity, when controlling for age, gender and schooling. Friendship quality also partially mediated the positive relationship between mother relationship quality and self-concept clarity. Specifically, adolescents who enjoyed high quality relationships with their mothers tended to experience greater self-concept clarity,

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partly as a result of the mediating role of high friendship quality. Of note, Davis (2013) also discovered a statistically significant positive association between age and SCC, such that older adolescents tended to report higher levels of SCC than younger adolescents.

In summary, within both adult and adolescent populations, higher SCC was associated with higher quality of parental relationships or parental bonding, higher perceived maternal and paternal support and lower perceived negative interaction with their fathers and best friend. However, again studies were of weak to moderate quality.

Close relationships in adulthood.

One of the eight papers investigated relationship quality and SCC with no specification on close relationship type. Wu (2009) utilised a measure of adult attachment which measures adult attachment style dimensions, including closeness and intimacy, comfort with depending on others and worry about being rejected or unloved 'Adult Attachment scale Taiwan version' (ASS-TW) (Wu, 2009). Wu (2009) recruited participants from a university in Taiwan and despite sample sizes being relatively small in comparison to most other studies, they found in both study 1b and study 2 that anxiety and avoidance attachment had a negative correlation with SCC. However, when SCC was regressed on anxiety and avoidance attachment, only anxiety attachment had a significant effect. In addition, similarly to Davis (2013), they also found that in study 2 but not study 1, age had a significant correlation with SCC such that older adults tended to report higher levels of SCC than younger adults.

Evidence suggests therefore that adult insecure attachment is associated with lower SCC. However, only one paper, comprised of two related studies had investigated this

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relationship. Both studies scored a global rating of weak, indicating that no assumptions should be made from this evidence alone.

Mediating factors on the association between self-concept clarity and relationship quality

Whilst the primary aim of the systematic review was to establish whether there is a consistent relationship between SCC and relationship quality, four of the eight papers also investigated the mediating role of other factors in this association. Wu (2009) and Lewandowski et al., (2010) investigated the mediating role of self-esteem, Wu (2009) finding that self-esteem mediated the relationship between attachment style and SCC, suggesting that people who have secure attachment have higher self-esteem which results in higher SCC. Lewandowski et al., (2010) in both study 1 and study 2 also found that self-esteem mediated the relationship between SCC and relationship satisfaction, indicating that those with higher SCC, experience higher self-esteem and therefore report greater relationship satisfaction. Lewandowski et al., (2010) also reported the mediating role of self-esteem in the association between SCC and relationship commitment, concluding that those with higher SCC experience greater self-esteem and thereby report greater relationship commitment. However, the mediating role of self-esteem was only significant in study 2 not study 1 which they suggested was due to differences in the measure of self-esteem utilised (trait vs state). Lewandowski et al., (2010) also investigated the potential mediating role of inclusion of the other in the self and found in both study 1 and 2, inclusion of the other in the self, mediated the relationship between SCC and relationship satisfaction and commitment. Emery et al., (2018) investigated the mediating role of self-verification and found that in both study 2 and study 3, self-verification significantly mediated the association between avoidance attachment and SCC. Finally, Parise et al., (2019), examined whether couple identity and/or

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dyadic coping behaviours mediated the relationship between SCC and relationship satisfaction and found that both these factors were significant mediators.

Evidence therefore indicated that there are several factors which may mediate the relationship between SCC and relationship quality including self-esteem, inclusion of the other in the self, self-verification, couple identity and dyadic coping. However, weak to moderate global ratings were given to these studies and therefore any conclusions should be attentive to this.

Discussion

A total of 15 studies from eight papers were reviewed. They were examined for associations between SCC and several aspects of relationship quality including attachment, satisfaction, commitment, closeness, care, protectiveness, support, interaction, conflict and depth. The included studies examined romantic, peer and parental relationships. Significant positive associations were found in all 15 studies although no association for a certain aspect of relationship quality (i.e. closeness) was found in one study (Gurung et al., 2001).

Significant associations were also dependent on relationship type within one of the papers (Becht et al., 2017). However, it is also worth noting that the association between SCC and relationship quality may be mediated by other variables such as self-esteem (Wu, 2009; Lewandowski et al., 2010). Relationship satisfaction was the most thoroughly explored (five studies, three papers) and the findings indicate that there is an association between adult SCC and relationship satisfaction, although this may only be significant for females and not males. Several studies reported that there was a significant difference in the levels of SCC reported for males and females, all of which found that males experienced higher SCC than females. Whilst there is very little research examining gender differences in SCC, the few studies that

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do exist and that have reported a gender difference have found that there is a tendency for males to have a clearer sense of self than do females (e.g. Light & Visser, 2013). Age differences in self-reported SCC was also found within two studies (Wu, 2009; Davis, 2013) which supports existing literature that suggest that the older the individual through younger adulthood, the greater SCC they possess (Lodi-Smith & Roberts, 2010). However, none of these studies included an older adulthood sample, Lodi-Smith & Roberts (2010) discovering that age negatively correlates with SCC during later life as the relationship between age and SCC is moderated by factors such as income and health-related social role limitations. It is worth noting that many of the studies included in this review recruited participants within adolescent and younger adulthood which may have influenced the findings. Many of the studies examining the association between SCC and relationship quality in romantic relationships recruited participants who were in relatively short term or potentially non-committal relationships and studies did not take relationship length into account when analysing their findings. However, it is known that relationship length is significantly correlated with SCC, such as those who have been with their partner for longer, report higher SCC (Mattingly et al., 2016). This may therefore have impacted on the findings of the studies reviewed, particularly as research suggests that the self-concept can undergo changes early in relationships (Aron et al., 1991).

The finding that SCC is associated with relationship quality is not surprising since early life experiences with primary caregivers strongly influence the formation of internal working models that include representations and beliefs about the self in relation to others (Bowlby, 1973) which then guides relationships in adulthood (Collins & Read, 1990). It is also theorised that close interpersonal relationships with others during adolescence are important for the continuing development of SCC (Chen, Boucher, & Tapias, 2006). Social

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relationships give individuals of all ages the opportunity to explore aspects of the self and receive feedback about how they interact with the world around them and therefore who they are or should be, thereby providing greater SCC. It is also understandable that those with lower SCC may find it difficult to establish high quality relationships because of the uncertainty of the self (Erikson, 1968). Therefore, as Erikson (1968) suggests, individuals who have established a clear sense of self can better evaluate their relationships and invest in the type of relationships that they chose to have. In recent years, evidence has accumulated to indicate that SCC is associated with various forms of psychopathology (Cicero, 2017) and whilst this was not the aim of this review, one study (Perry et al., 2008) indicated that SCC mediated the link between parental bonding and eating disturbances for both males and females indicating the potential clinical implications of both poor relationship quality and low SCC in the development and maintenance of mental health difficulties. Therefore, the potential influence of SCC on relationships has implications for therapeutic intervention whereby techniques could be utilised to help individuals improve SCC. This may result in positive changes for the person and their relationships. For instance, individuals, dyadic couples or families, may benefit from support in formulating how their beliefs about themselves and others around them, including past attachments, might impact on their current relationship satisfaction or quality and vice versa. Formulations based on attachments may also offer further insight into possible change within their interactions. This in turn would then potentially buffer the effects of mental health difficulties via increasing perceived social support from close others (Robustelli, Newberry, Whisman & Mittal., 2017). Although examining potential mediators was not the primary aim of this review, it does also highlight an important direction for future research as these are also concepts which can become the focus of therapeutic interventions to enhance psychological wellbeing. The results also

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provide support for central theories relevant to SCC. For example, attachment theory (Bowlby, 1982), self-expansion theory (Aron & Aron, 1996) and social comparison theory (Festinger, 1954) which all highlight the importance of close relationships (peer, parental, romantic) in shaping the development of self-concept across the lifespan.

This review has several limitations. Firstly, because most of the data were cross-sectional and observational, it is not possible to reach causal conclusions about the associations between SCC and relationship quality. Future investigations should make use of research designs that can make causal conclusions about the direction of effects between these two variables. In addition, a meta-analysis was not possible because of the small number and heterogeneity of studies linking SCC to the different outcomes associated with relationship quality. However, it would require consideration of the quality of studies, particularly as 87% of the studies reviewed were considered moderate or weak in methodological quality. Additionally, it would help clarify the impact of age, gender and cultural factors which were briefly discussed in this review as having a significant effect, particularly upon SCC. Given the age and SCC relationship, future studies should recruit a broader age group. Also, of note is that many of the studies recruited from colleges or universities and thus would have a higher education level than would be expected within a random population sample. Many of the studies also recruited a greater number of females than males which again impacts on the reliability of results given the known gender differences in SCC. Another limitation is the high variability of the instruments used to measure relationship quality. It is also important to consider that research with nonsignificant results may not have been published and therefore any conclusions should be taken with caution. Whilst implementing mixed method reviews has its challenges (Hayvaert, Maes, & Onghena, 2013), excluding qualitative data from the analysis may have also limited that

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breadth and depth of the information synthesised. Therefore, if a mixed methodological synthesis was employed, we may have gained a greater understanding of why SCC and relationship quality are related, which could result in how best this information can be used in clinical practice. However, given the inductive nature of most qualitative research and the fact the aim was to understand the specific theoretical construct of SCC, the impact of qualitative studies on the review may have been limited. In addition, only articles in English were reviewed and therefore it is possible that important studies were not included.

Conclusions

The present findings indicate that both adolescent and adults' SCC has an impact on their perceived relationships with others or that their perceived quality of their relationships with others influences their SCC. This knowledge can be therefore potentially be used to develop or refine efficient preventative and therapeutic interventions, particularly considering the association between mental health difficulties and SCC.

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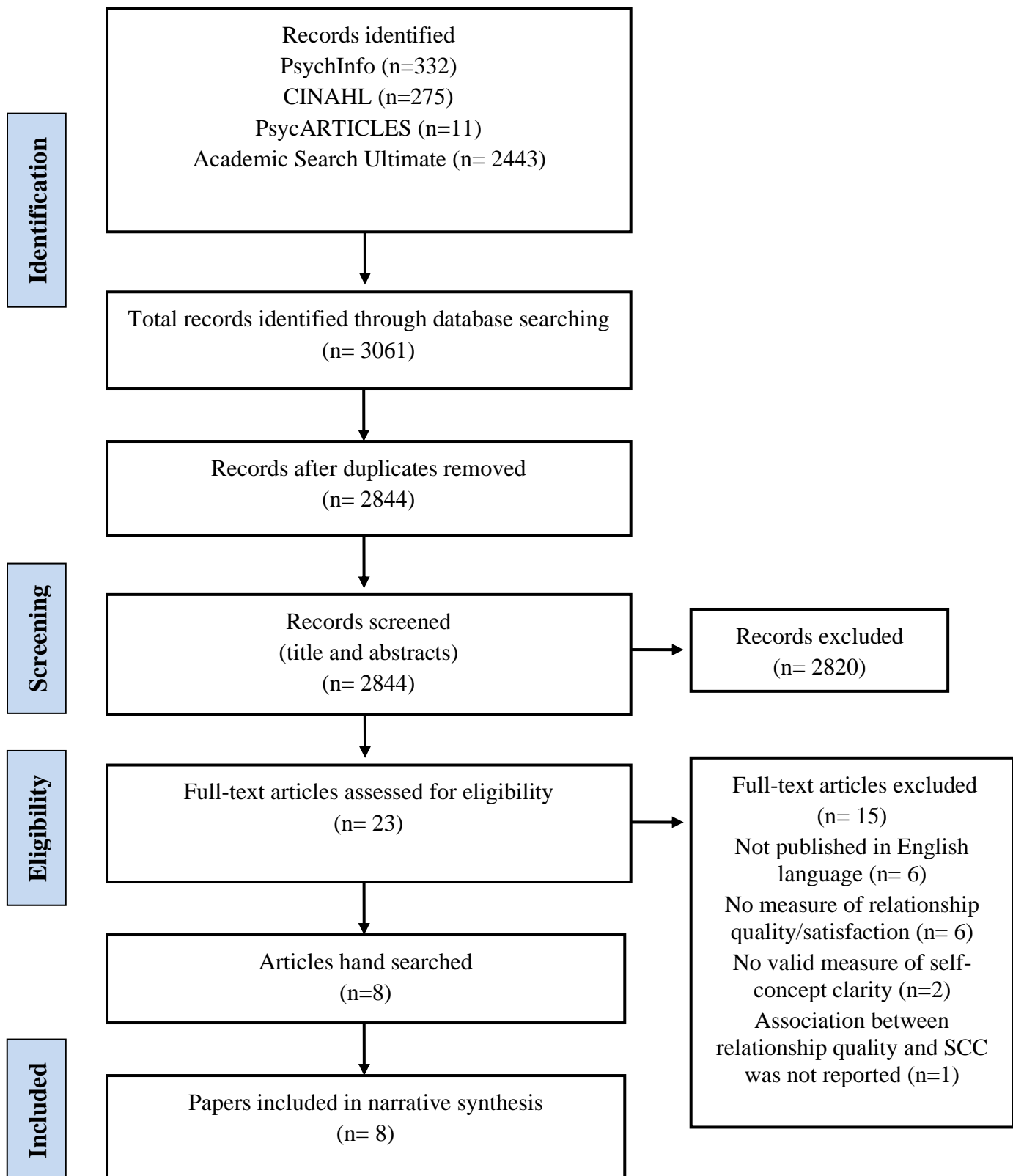
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Figure 1: Flow diagram of study selection procedure (adapted from Moher, 2009)



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Table 1 - Summary of descriptive characteristics for included studies

Authors, year and country	Study design	Sample population	N	Mean age (SD)	Gender	Length of relationship	Relationship measure	Self-Concept Clarity Measure
Wu (2009) Taiwan	Cross-sectional	Undergraduate students from a local University.	Study 1b - 86 Study 2 – 123	Study 1b – not included Study 2 – 20.15ys (1.70)	Study 1b – 57% female, 42% male (one participant did not report their gender) Study 2 – 72% female, 28% male	Unknown	Adult attachment scale Taiwan version (ASS-TW) (Wu, 2005)	Self-concept clarity scale (SCC) (Campbell et al., 1996)
Becht, Nelemans, Van Dijk, Branje, Van Lier, Denissen & Meeus (2017) Netherlands	Cross-sectional interrupted time series	Adolescents, their mothers, fathers and same sex best friend	1,885 (497 adolescents plus their mothers (n=495), fathers (n=446), and same sex best friend (n=447))	Time 1- 13.03yrs (0.46)	T1 – 43% female, 57% male	35% stable best friends for 5yrs, 65% unstable best friends or stable friends for less than 5yrs.	The support and negative interaction subscales of the shortened Network of Relationship Inventory (Furman & Buhrmester, 1985)	1 item adapted from the Self-concept clarity scale (SCC) (adapted from Campbell et al., 1996)
Lewandowski, Nardone & Raines (2010) USA	Study 1 – cross sectional Study 2 – controlled clinical trial	Undergraduate students from a local University who were in a current romantic relationship.	Study 1 – 194 Study 2 - 78	Study 1 – 18.96yrs Study 2 – 21.69yrs	Study 1 – 24% Male, 76% Female Study 2 – 27% Male, 73% Female	Study 1 – 19mths (1-81mths) Study 2 – 25mths (1-76mths)	Relationship satisfaction (Rusbult, Martz & Agnew, 1998). Relationship commitment (Rusbult, Martz	Self-concept clarity scale (SCC) (Campbell et al., 1996)

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							& Agnew, 1998).	
Perry, Silvera, Neilands, Rosenvinge & Hanssen. (2008) USA & Norway	Cross sectional	Students from a university and college.	399 (166 from USA, 233 from Norway)	American – 20.82yrs (5.52), Norwegian – 25.97yrs (6.15)	28% male, 71% female	N/A	The Parental Bonding Instrument (PBI)	Self-concept Clarity Scale (SCC) (Campbell et al., 1996)
Emery et al., (2018) Country unknown	Cross-sectional	Adults recruited online and undergraduates who were in a relationship.	1265 (sample 1 -257, sample 2 – 352, sample 3 – 248, sample 4 – 33, sample 5 – 140, sample 6 – 132, sample 7 – 103).	Sample 1 – 30.16yrs (9.02), Sample 2 – 34.57yrs (10.8), sample 3 – 37.98yrs (11.73), sample 4 – 18.59yrs (1.01), sample 5 – 34.16yrs (11.68), sample 6 – 20yrs (1.57), sample 7 – 34.47yrs (10.27)	Ratios were not calculated accurately.	Sample 1 – 5.24yrs, Sample 2 – 7.05yrs, Sample 3 – 11.32yrs, Sample 4 – 17.38mths, Sample 5 – 6.91yrs, Sample 6 – 1.02yrs, Sample 7 – 8.26yrs	Experiences in Close Relationships Scale (Wei et al., 2007)	Self-concept Clarity Scale (SCC) (Campbell et al., 1996)
Parise, Pagani, Donato & Sedikides (2019) Italy	Study 1 - Cross-sectional Study 2 – Cross-sectional interrupted time series.	Adults who were in a relationship.	Study 1 - 404 (202 couples) Study 2 – 97 couples	Study 1 Females – 29.15yrs (3.95) Males – 31.49yrs (4.71) Study 2 – Females – 30.50yrs (3.87), males- 32.64yrs (4.42).	Unknown	Study 1 – 6.32ys (1-20.17yrs) Study 2 - >19mths	Quality of Marriage Index (Norton, 1983)	Self-concept Clarity Scale (SCC) (Campbell et al., 1996)

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Davis (2013) Bermuda	Cross-sectional	Secondary school children	2079	15.4yrs	57% female, 43% male	Not applicable	10 item Mother trust scale, 10 item peer trust scale (adapted from Inventory of Parent and Peer Attachment (IPPA) (Armsden & Greenberg, 1987)).	Self-Concept Clarity Scale (Campbell et al., 1996)
Gurung, Sarason & Sarason (2001)		Students in a romantic relationship for 2 months or longer	162 (plus their romantic partners)	Female – 19.52yrs (2.31), male – 20.67yrs (3.19)	52% female, 48% male	Mean = 16 months Range = 2-84	The Relationship Closeness Inventory – Strength subscale (RCI-S) (Berscheid, Snyder & Omato, 1989). The Quality of Relationships Inventory (QRI; Pierce, Sarason & Sarason, 1991), The Dyadic Adjustment Scale (DAS; Spanier, 1976).	Self-Concept Clarity Scale (Campbell et al., 1996)

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Table 2 - Summary of the main aims and key findings for the included studies

Author	Aims	Main Findings in relation to self-concept clarity and relationship quality/satisfaction	Other findings
<i>Wu (2009)</i>	<p>Study 1b – To examine the relationship between attachment style and self-concept clarity.</p> <p>Study 2 – To examine whether the effect of attachment style on self-concept clarity would be mediated by self-esteem.</p>	<p>Study 1b – Anxiety and avoidance attachment had a negative correlation with self-concept clarity ($r = -0.38$, $p < 0.01$; $r = -0.21$, $p < 0.05$). When self-concept clarity was regressed on anxiety and avoidance attachment, only anxiety attachment had a significant effect ($b = -0.46$, $\beta = -0.35$, $t(83) = -3.42$, $p < 0.01$).</p> <p>Study 2 – Anxiety and avoidance attachment was negatively correlated with self-concept clarity ($r = -0.34$, $p < 0.01$; $r = -0.22$, $p < 0.01$). When self-concept clarity was regressed on anxiety and avoidance attachment, only anxiety attachment had a significant effect ($b = -0.43$, $\beta = -0.37$, $t(120) = -4.32$, $p < 0.01$).</p>	<p>Study 1 – Gender and age had no significant effect on anxiety attachment, avoidance attachment and self-concept clarity.</p> <p>Study 2 - Gender had no significant effect on research variables. Age had a significant correlation with anxiety attachment ($r = -0.30$, $p < 0.01$) and self-concept ($r = 0.28$, $p < 0.05$), but was not correlated with avoidance attachment. Self-esteem was found to mediate the relationship between attachment style and self-concept clarity.</p>
<i>Becht, Nelemans, Van Dijk, Branje, Van Lier, Denissen & Meeus (2017)</i>	<p>To investigate the direction of effects between SCC and relationship quality with parents and best friends.</p> <p>To investigate whether the strength of associations between relationship quality with peers and parents and SCC changes over time.</p>	<p>At T1, adolescent SCC positively correlated with perceived maternal support ($r = 0.11$, $p < 0.05$) and perceived paternal support ($r = 0.13$, $p < 0.05$) but was not statistically correlated with perceived support from their best friend. At T1, adolescent SCC negatively correlated with perceived negative interaction with their mother ($r = -0.12$, $p < 0.05$) but was not statistically correlated with perceived negative interaction with their father or their best friend.</p>	<p>Significant cross-lagged effects showed that increasing SCC was associated with increasing parental support, $\beta = 0.11$ to 0.13, as well as increasing perceived support from the best friend, $\beta = 0.08$ to 0.09, in the subsequent wave. Increasing adolescent SCC predicted less perceived paternal negative interaction, $\beta = -0.11$ to -0.13 and less perceived negative interaction with the best friend, $\beta = -0.08$ to -0.09.</p>

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<i>Lewandowski, Nardone & Raines (2010)</i>	To examine the role of self-concept clarity in relationship satisfaction and commitment through their direct association, as well as the potentially mediating roles of self-esteem and inclusion of other in the self.	Study 1 - There was a positive correlation between SCC and relationship satisfaction and commitment ($r=0.28, p<0.01$; $r=0.21, p<0.01$). Study 2 - There was a positive correlation between SCC and relationship satisfaction and commitment ($r=0.32, p<0.01$; $r=0.41, p<0.01$).	Study 1 - Inclusion of the other in the self, mediated the relationship between self-concept clarity and relationship satisfaction and commitment. Self-esteem did not mediate the relationship between self-concept clarity and relationship commitment. Self-esteem mediated the relationship between self-concept clarity and relationship satisfaction. Study 2 – Inclusion of the other in the self and self-esteem mediated the relationship between self-concept clarity and relationship satisfaction and commitment.
<i>Perry, Silvera, Neilands, Rosenvinge & Hanssen. (2008)</i>	To investigate the linkages between caretaker bonding behaviours, a poorly defined self-concept, and eating disturbances.	An association was found between parental bonding behaviour typified by low care and over-protectiveness and poor self-concept ($\beta = -0.532, p<0.001$).	Statistical differences were found between Norwegian and American participants in self-concept clarity scores, Norwegians reporting higher self-concept clarity than American participants. No statistically significant differences were found in regard to parental care or protection.
<i>Emery et al., (2018)</i>	Study 1 - To examine the association between attachment avoidance and self-concept clarity. Study 2 – To examine whether the lack of self-verification would mediate the association between avoidance and low self-concept clarity. Study 3 - To examine whether the lack of self-verification would mediate the association between avoidance and low self-concept clarity.	Study 1 - Higher avoidance was associated with lower self-concept clarity for every sample ($r=-0.29, p<0.01$; $r=-0.46, p<0.01$; $r=0.51, p<0.01$; $r=-0.52, p=0.02$; $r=-0.41, p<0.01$; $r=-0.45, p<0.01$; $r=-0.60, p<0.01$). The effect remained when controlling for attachment anxiety. A meta-analysis of all the studies showed that avoidance was significantly associated with self-concept clarity (average $\beta = -.43$, average SE = .03, $Z = 16.97, p < .001$).	Study 1 – None of the demographic variables moderated the association between avoidance and self-concept clarity. Study 2 – Self-verification significantly mediated the association between avoidance and self-concept clarity. Study 3 - Self-verification significantly mediated the association between avoidance and self-concept clarity. Study 4 – The tendency not to self-disclose and not to trust their partner’s feedback partly explained the link between avoidance and perceived self-verification. Study 5 – Avoidance predicted decreases in self-verification and higher self-verification predicted increases in self-concept clarity.

LITERATURE REVIEW

	<p>Study 4 – To explore why avoidant individuals experience less self-verification.</p> <p>Study 5 – To test whether avoidance predicts changes in perceived self-verification and self-concept clarity longitudinally over 9 months.</p>		
<p><i>Parise, Pagani, Donato & Sedikides (2019)</i></p>	<p>Study 1 - To examine whether self-concept clarity is associated with relationship satisfaction through couple identity.</p> <p>Study 2 – To study whether self-concept clarity predicts partners’ relationship satisfaction through dyadic coping behaviours.</p>	<p>Study 1 - An association was found with higher self-concept clarity and higher relationship satisfaction ($r=0.17$, $p \leq 0.001$). Own self-concept clarity was a positive direct predictor of own relationship quality ($\beta = 0.18$, $p < 0.001$).</p> <p>Study 2 - A significant association was found between higher self-concept clarity and higher relationship quality at T1 and T2 in both males and females.</p>	<p>Study 1 – Women and men differed significantly on self-concept clarity, men reporting higher levels of self-concept clarity than women. Self-concept clarity was associated with one’s own and partner’s relationship satisfaction, and this association was mediated by own and partner’s couple identity.</p> <p>Study 2 – Men had higher self-concept clarity than women. There was a direct effect from self-concept clarity to change in relationship satisfaction. Dyadic coping behaviours mediated the association between self-concept clarity and own relationship satisfaction.</p>
<p><i>Davis (2013)</i></p>	<p>To investigate the joint effects of interpersonal relationships and digital media use on adolescents’ sense of identity.</p>	<p>Adolescents who reported high quality relationships with their mothers tended to experience high self-concept clarity, when controlling for age, gender and school ($\hat{\gamma}_{11} = .18$, $p < .001$). Friendship quality partially mediated the positive relationship between mother relationship quality and self-concept clarity (z score = 4.72, $p < .001$). Specifically, adolescents who enjoyed high quality relationships with their mothers tended to experience greater self-concept clarity, partly as a result of the mediating role of high friendship quality.</p>	<p>A statistically significant positive association was found between age and self-concept clarity, older adolescents tended to report higher levels of self-concept clarity than younger adolescents.</p>

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Gurung, Sarason & Sarason (2001)	To evaluate the extent to which self-concept clarity, valence, and connectedness of Significant-Other-Concepts predicted relationship quality and emotional reactions to stressful situations.	Significant associations were found between self-concept clarity and conflict ($r=-0.20$, $p<0.05$), depth ($r=0.24$, $p<0.01$), support ($r=0.20$, $p<0.05$), and total DAS score ($r=0.32$, $p<0.01$) for women but only for support ($r=0.23$, $p<0.01$) for men. No significant correlations were found in both men and women between self-concept clarity and closeness.	
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LITERATURE REVIEW

Table 3 – Quality assessment outcomes

Author and year	Selection bias	Study design	Confounders	Blinding	Data collection methods	Withdrawals and drop-outs
<i>Wu (2009) Study 1</i>	Weak	Moderate	Strong	Moderate	Weak	Moderate
<i>Wu (2009) Study 2</i>	Weak	Moderate	Strong	Moderate	Weak	Moderate
<i>Becht et al., (2017)</i>	Moderate	Moderate	Strong	Moderate	Weak	Moderate
<i>Lewandowski et al., (2010) – study 1</i>	Weak	Moderate	Weak	Moderate	Strong	Strong
<i>Lewandowski et al., (2010) – study 2</i>	Weak	Strong	Weak	Moderate	Strong	Strong
<i>Perry et al., (2008)</i>	Weak	Moderate	Weak	Moderate	Strong	Strong
<i>Emery et al., (2018)- study 1</i>	Moderate	Moderate	Moderate	Moderate	Strong	Moderate
<i>Emery et al., (2018)- study 2,3,4</i>	Weak	Moderate	Weak	Moderate	Weak	Moderate
<i>Emery et al., (2018)- study 5</i>	Weak	Moderate	Moderate	Moderate	Weak	Moderate
<i>Parise et al., (2019) – study 1</i>	Moderate	Moderate	Weak	Moderate	Strong	Moderate
<i>Parise et al., (2019) – study 2</i>	Moderate	Moderate	Weak	Moderate	Strong	Moderate
<i>Davis (2013)</i>	Moderate	Moderate	Strong	Moderate	Strong	Moderate
<i>Gurung et al., (2001)</i>	Moderate	Moderate	Weak	Moderate	Strong	Moderate

Appendix 1-A

Self and Identity Notes for Authors

Preparing Your Paper

Structure

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

Word Limits

Please include a word count for your paper. There are no word limits for papers in this journal.

Format-Free Submission

Authors may submit their paper in any scholarly format or layout. Manuscripts may be supplied as single or multiple files. These can be Word, rich text format (rtf), open document format (odt), or PDF files. Figures and tables can be placed within the text or submitted as separate documents. Figures should be of sufficient resolution to enable refereeing.

- There are no strict formatting requirements, but all manuscripts must contain the essential elements needed to evaluate a manuscript: abstract, author affiliation, figures, tables, funder information, and references. Further details may be requested upon acceptance.
- References can be in any style or format, so long as a consistent scholarly citation format is applied. Author name(s), journal or book title, article or chapter title, year of publication, volume and issue (where appropriate) and page numbers are essential. All bibliographic entries must contain a corresponding in-text citation. The addition of DOI (Digital Object Identifier) numbers is recommended but not essential.
- The journal reference style will be applied to the paper post-acceptance by Taylor & Francis.
- Spelling can be US or UK English so long as usage is consistent.

Note that, regardless of the file format of the original submission, an editable version of the article must be supplied at the revision stage.

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Checklist: What to Include

LITERATURE REVIEW

1. **Author details.** All authors of a manuscript should include their full name and affiliation on the cover page of the manuscript. Where available, please also include ORCiDs and social media handles (Facebook, Twitter or LinkedIn). One author will need to be identified as the corresponding author, with their email address normally displayed in the article PDF (depending on the journal) and the online article. Authors' affiliations are the affiliations where the research was conducted. If any of the named co-authors moves affiliation during the peer-review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after your paper is accepted. [Read more on authorship.](#)
2. Should contain an unstructured abstract of 120 words.
3. **Graphical abstract** (optional). This is an image to give readers a clear idea of the content of your article. It should be a maximum width of 525 pixels. If your image is narrower than 525 pixels, please place it on a white background 525 pixels wide to ensure the dimensions are maintained. Save the graphical abstract as a .jpg, .png, or .tiff. Please do not embed it in the manuscript file but save it as a separate file, labelled GraphicalAbstract1.
4. You can opt to include a **video abstract** with your article. [Find out how these can help your work reach a wider audience, and what to think about when filming.](#)
5. No more than 5 **keywords**. Read [making your article more discoverable](#), including information on choosing a title and search engine optimization.
6. **Funding details.** Please supply all details required by your funding and grant-awarding bodies as follows:
For single agency grants
 This work was supported by the [Funding Agency] under Grant [number xxxx].
For multiple agency grants
 This work was supported by the [Funding Agency #1] under Grant [number xxxx]; [Funding Agency #2] under Grant [number xxxx]; and [Funding Agency #3] under Grant [number xxxx].
7. **Disclosure statement.** This is to acknowledge any financial interest or benefit that has arisen from the direct applications of your research. [Further guidance on what is a conflict of interest and how to disclose it.](#)
8. **Data availability statement.** If there is a data set associated with the paper, please provide information about where the data supporting the results or analyses presented in the paper can be found. Where applicable, this should include the hyperlink, DOI or other persistent identifier associated with the data set(s). [Templates](#) are also available to support authors.
9. **Data deposition.** If you choose to share or make the data underlying the study open, please deposit your data in a [recognized data repository](#) prior to or at the time of submission. You will be asked to provide the DOI, pre-reserved DOI, or other persistent identifier for the data set.
10. **Supplemental online material.** Supplemental material can be a video, dataset, fileset, sound file or anything which supports (and is pertinent to) your paper. We publish supplemental material online via Figshare. Find out more about [supplemental material and how to submit it with your article.](#)
11. **Figures.** Figures should be high quality (1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour, at the correct size). Figures should be supplied in one of our preferred file formats: EPS, PS, JPEG, TIFF, or Microsoft Word (DOC or DOCX) files are acceptable for figures that have been drawn in Word. For information relating to other file types, please consult our [Submission of electronic artwork](#) document.
12. **Tables.** Tables should present new information rather than duplicating what is in the text. Readers should be able to interpret the table without reference to the text. Please supply editable files.
13. **Equations.** If you are submitting your manuscript as a Word document, please ensure that equations are editable. More information about [mathematical symbols and equations.](#)
14. **Units.** Please use [SI units](#) (non-italicized).

Appendix 1-B

QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES



COMPONENT RATINGS

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study?

- 1 Very likely
- 2 Somewhat likely
- 3 Not likely
- 4 Can't tell

(Q2) What percentage of selected individuals agreed to participate?

- 1 80 - 100% agreement
- 2 60 - 79% agreement
- 3 less than 60% agreement
- 4 Not applicable
- 5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design

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

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

- No
- Yes

If Yes, was the method of randomization described? (See dictionary)

- No
- Yes

If Yes, was the method appropriate? (See dictionary)

- No
- Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

- 1 Yes

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- 2 No
- 3 Can't tell

The following are examples of confounders:

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

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

- 1 80 - 100% (most)
- 2 60 - 79% (some)
- 3 Less than 60% (few or none)
- 4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

c) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were the study participants aware of the research question?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

d) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were data collection tools shown to be reliable?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

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E) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

- 1 Yes
- 2 No
- 3 Can't tell
- 4 Not Applicable (i.e. one time surveys or interviews)

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

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

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

F) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell

(Q2) Was the consistency of the intervention measured?

- 1 Yes
- 2 No
- 3 Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

- 4 Yes
- 5 No
- 6 Can't tell

G) ANALYSES

(Q1) Indicate the unit of allocation (circle one)

community organization/institution practice/office individual

(Q2) Indicate the unit of analysis (circle one)

community organization/institution practice/office individual

(Q3) Are the statistical methods appropriate for the study design?

- 1 Yes
- 2 No
- 3 Can't tell

(Q4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

- 1 Yes
- 2 No
- 3 Can't tell

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GLOBAL RATING

COMPONENT RATINGS

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

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

1-1 GLOBAL RATING FOR THIS PAPER (circle one):

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

With both reviewers discussing the ratings:

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

No Yes

If yes, indicate the reason for the discrepancy

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

Final decision of both reviewers (circle one):

- | | |
|---|-----------------|
| 1 | STRONG |
| 2 | MODERATE |
| 3 | WEAK |

Appendix 1-C

Quality Assessment Tool for Quantitative Studies Dictionary



The purpose of this dictionary is to describe items in the tool thereby assist reporting or lack of clarity in the primary study, raters will need to make judgements about the extent that bias may be present. When making judgements about each component, raters should form their opinion based upon information contained in the study rather than making inferences about what the authors intended.

A) SELECTION BIAS

(Q1) Participants are more likely to be representative of the target population if they are randomly selected from a comprehensive list of individuals in the target population (score very likely). They may not be representative if they are referred from a source (e.g. clinic) in a systematic manner (score somewhat likely) or self-referred (score not likely).

(Q2) Refer to the % of subjects in the control and intervention groups that agreed to participate in the study before they were assigned to intervention or control groups.

B) STUDY DESIGN

In this section, raters assess the likelihood of bias due to the allocation process in an experimental study. For observational studies, raters assess the extent that assessments of exposure and outcome are likely to be independent. Generally, the type of design is a good indicator of the extent of bias. In stronger designs, an equivalent control group is present and the allocation process is such that the investigators are unable to predict the sequence.

Randomized Controlled Trial (RCT)

An experimental design where investigators randomly allocate eligible people to an intervention or control group. A rater should describe a study as an RCT if the randomization sequence allows each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. If the investigators do not describe the allocation process and only use the words 'random' or 'randomly', the study is described as a controlled clinical trial.

See below for more details.

Was the study described as randomized?

Score YES, if the authors used words such as random allocation, randomly assigned, and random assignment. Score NO, if no mention of randomization is made.

Was the method of randomization described?

Score YES, if the authors describe any method used to generate a random allocation sequence.

Score NO, if the authors do not describe the allocation method or describe methods of allocation such as alternation, case record numbers, dates of birth, day of the week, and any allocation procedure that is entirely transparent before assignment, such as an open list of random numbers of assignments.

If NO is scored, then the study is a controlled clinical trial.

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Was the method appropriate?

Score YES, if the randomization sequence allowed each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. Examples of appropriate approaches include assignment of subjects by a central office unaware of subject characteristics, or sequentially numbered, sealed, opaque envelopes.

Score NO, if the randomization sequence is open to the individuals responsible for recruiting and allocating participants or providing the intervention, since those individuals can influence the allocation process, either knowingly or unknowingly.

If NO is scored, then the study is a controlled clinical trial.

Controlled Clinical Trial (CCT)

An experimental study design where the method of allocating study subjects to intervention or control groups is open to individuals responsible for recruiting subjects or providing the intervention. The method of allocation is transparent before assignment, e.g. an open list of random numbers or allocation by date of birth, etc.

Cohort analytic (two group pre and post)

An observational study design where groups are assembled according to whether or not exposure to the intervention has occurred. Exposure to the intervention is not under the control of the investigators. Study groups might be non-equivalent or not comparable on some feature that affects outcome.

Case control study

A retrospective study design where the investigators gather 'cases' of people who already have the outcome of interest and 'controls' who do not. Both groups are then questioned or their records examined about whether they received the intervention exposure of interest.

Cohort (one group pre + post (before and after))

The same group is pretested, given an intervention, and tested immediately after the intervention. The intervention group, by means of the pretest, act as their own control group.

Interrupted time series

A time series consists of multiple observations over time. Observations can be on the same units (e.g. individuals over time) or on different but similar units (e.g. student achievement scores for particular grade and school). Interrupted time series analysis requires knowing the specific point in the series when an intervention occurred.

C) CONFOUNDERS

By definition, a confounder is a variable that is associated with the intervention or exposure and causally related to the outcome of interest. Even in a robust study design, groups may not be balanced with respect to important variables prior to the intervention. The authors should indicate if confounders were controlled in the design (by stratification or matching) or in the analysis. If the allocation to intervention and control groups is randomized, the authors must report that the groups were balanced at baseline with respect to confounders (either in the text or a table).

D) BLINDING

(Q1) Assessors should be described as blinded to which participants were in the control and intervention groups. The purpose of blinding the outcome assessors (whom might also be the care providers) is to protect against detection bias.

(Q2) Study participants should not be aware of (i.e. blinded to) the research question. The purpose of blinding the participants is to protect against reporting bias.

LITERATURE REVIEW

E) DATA COLLECTION METHODS

Tools for primary outcome measures must be described as reliable and valid. If 'face' validity or 'content' validity has been demonstrated, this is acceptable. Some sources from which data may be collected are described below:

Self reported data includes data that is collected from participants in the study (e.g. completing a questionnaire, survey, answering questions during an interview, etc.).

Assessment/Screening includes objective data that is retrieved by the researchers. (e.g. observations by investigators).

Medical Records/Vital Statistics refer to the types of formal records used for the extraction of the data.

Reliability and validity can be reported in the study or in a separate study. For example, some standard assessment tools have known reliability and validity.

F) WITHDRAWALS AND DROP-OUTS

Score YES if the authors describe BOTH the numbers and reasons for withdrawals and drop-outs. Score NO if either the numbers or reasons for withdrawals and drop-outs are not reported.

The percentage of participants completing the study refers to the % of subjects remaining in the study at the final data collection period in all groups (i.e. control and intervention groups).

G) INTERVENTION INTEGRITY

The number of participants receiving the intended intervention should be noted (consider both frequency and intensity). For example, the authors may have reported that at least 80 percent of the participants received the complete intervention. The authors should describe a method of measuring if the intervention was provided to all participants the same way. As well, the authors should indicate if subjects received an unintended intervention that may have influenced the outcomes. For example, co-intervention occurs when the study group receives an additional intervention (other than that intended). In this case, it is possible that the effect of the intervention may be over-estimated. Contamination refers to situations where the control group accidentally receives the study intervention. This could result in an under-estimation of the impact of the intervention.

H) ANALYSIS APPROPRIATE TO QUESTION

Was the quantitative analysis appropriate to the research question being asked?

An intention-to-treat analysis is one in which all the participants in a trial are analyzed according to the intervention to which they were allocated, whether they received it or not. Intention-to-treat analyses are favoured in assessments of effectiveness as they mirror the non-compliance and treatment changes that are likely to occur when the intervention is used in practice, and because of the risk of attrition bias when participants are excluded from the analysis.

Component Ratings of Study:

For each of the six components A – F, use the following descriptions as a roadmap.

A) SELECTION BIAS

Strong: The selected individuals are very likely to be representative of the target population (Q1 is 1) and there is greater than 80% participation (Q2 is 1).

Moderate: The selected individuals are at least somewhat likely to be representative of the target population (Q1 is 1 or 2); and there is 60–79% participation (Q2 is 2). 'Moderate' may also be assigned if Q1 is 1 or 2 and Q2 is 5 (can't tell).

Weak: The selected individuals are not likely to be representative of the target population (Q1 is 3); or there is less than 60% participation (Q2 is 3) or selection is not described (Q1 is 4); and the level of participation is not described (Q2 is 5).

B) DESIGN

Strong: will be assigned to those articles that described RCTs and CCTs.

Moderate: will be assigned to those that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.

Weak: will be assigned to those that used any other method or did not state the method used.

C) CONFOUNDERS

Strong: will be assigned to those articles that controlled for at least 80% of relevant confounders (Q1 is 2); or (Q2 is 1). **Moderate:** will be given to those studies that controlled for 60–79% of relevant confounders (Q1 is 1) and (Q2 is 2). **Weak:** will be assigned when less than 60% of relevant confounders were controlled (Q1 is 1) and (Q2 is 3) or control of confounders was not described (Q1 is 3) and (Q2 is 4).

D) BLINDING

Strong: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); and the study participants are not aware of the research question (Q2 is 2).

Moderate: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); or the study participants are not aware of the research question (Q2 is 2); or blinding is not described (Q1 is 3 and Q2 is 3).

Weak: The outcome assessor is aware of the intervention status of participants (Q1 is 1); and the study participants are aware of the research question (Q2 is 1).

E) DATA COLLECTION METHODS

Strong: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have been shown to be reliable (Q2 is 1).

Moderate: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have not been shown to be reliable (Q2 is 2) or reliability is not described (Q2 is 3).

Weak: The data collection tools have not been shown to be valid (Q1 is 2) or both reliability and validity are not described (Q1 is 3 and Q2 is 3).

F) WITHDRAWALS AND DROP-OUTS - a rating of:

Strong: will be assigned when the follow-up rate is 80% or greater (Q2 is 1).

Moderate: will be assigned when the follow-up rate is 60 – 79% (Q2 is 2) OR Q2 is 5 (N/A).

Weak: will be assigned when a follow-up rate is less than 60% (Q2 is 3) or if the withdrawals and drop-outs were not described (Q2 is 4).

Chapter Two: Empirical Paper

Attachment, childhood adverse experiences and the mediating role of self-concept clarity in psychotic-like experiences.

Prepared in accordance with the author guidance for:

Total word count: 6667

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Abstract

Self-concept clarity (SCC) may be important in the onset and development of psychosis. The primary aim of the study was to explore whether SCC mediates the relationship between insecure attachment styles and psychotic-like experiences (PLEs), along with adverse childhood experiences (ACEs) and PLEs. A cross-sectional survey utilising online social media was used. Participants (n=212) were recruited and completed a battery of questionnaires including measures of SCC, adult attachment, ACEs and PLEs. Data were analysed using correlational and mediational models. Diminished SCC was associated with higher levels of childhood trauma, avoidant and anxious adult attachment style and PLEs. ACEs and insecure attachment styles were also positively associated with PLEs. SCC was also found to mediate the relationships between ACEs and PLEs and insecure attachment styles and PLEs. SCC may therefore be important to consider when developing and delivering psychological interventions for individuals who experience distress associated with PLEs. Limitations of the current study are discussed, along with implications for clinical practice.

Keywords: Self-concept clarity (SCC); Adult Attachment; Adverse Childhood Experiences; Psychotic-like Experiences, non-clinical population.

Introduction

Self-concept clarity (SCC), as defined by Campbell et al. (1996), is the extent to which the contents of the self-concept (beliefs about the self) are ‘clearly and confidently defined, internally consistent and temporally stable’ (p.141). Campbell et al. (1996) suggested that an individual who has low self-concept clarity will have beliefs that are uncertain, unstable and inconsistent. SCC is associated with relationship satisfaction, commitment and adult attachment (*See Chapter 1 for a review*) as well as resilience, coping and psychological wellbeing (Willis & Burnett, 2016; Hanley & Garland, 2017). SCC is therefore an important construct. Campbell, (1990) suggests that SCC has an evaluative component with a strong association with self-esteem (a personal judgement of worthiness). Therefore, in the face of adversity (e.g. abuse, financial pressures) it seems plausible that SCC, or the clarity with which the self is known, influences and is influenced by these psychosocial stressors. SCC has been implicated in a range of mental health problems known to be associated with adversity but seems to be particularly salient in psychosis (Binsale, 2017). For instance, evidence suggests that individuals who experience psychosis score significantly lower on self-concept clarity than controls (de Sousa, et al., 2016; Cicero et al., 2016).

Psychosis is a term used to describe a range of experiences such as hearing voices that other people do not, also known by some as hallucinations (Cooke, 2017). It also includes holding strong beliefs that others do not share, also known by some as delusions, as well as speaking in a way that others find hard to follow, also known as thought disorder (Cooke, 2017). The term also includes experiences such as withdrawal from others or showing little expression (Cooke, 2017). It is widely accepted within diagnostic classification systems that impaired reality testing is a central concept to the term psychosis (Arciniegas, 2015) and that everyone’s

experiences are different. There is also now an abundance of literature suggesting that ‘psychotic experiences or phenomena’ (i.e. hallucinations, delusions) exist on a continuum of severity rather than as categorical entity (Van Os, et al., 2000). Meta-analyses reveal that these experiences are common not only in individuals who have accessed mental health services but also in the general population (7.2%), and for some, these experiences can become more severe over time (Linscott & Van Os, 2013). This indicates that psychotic-like experiences (PLEs) are an important area to study, particularly to support services and clinicians in the early detection and prevention of psychosis. In addition, studying PLEs may provide important information about the mechanisms which underlie these experiences, thereby avoiding later significant distress and potentially hospitalisation. One meta-analysis indicated that over 50% of individuals diagnosed with first episode psychosis required admission to a mental health hospital (Ajnakina et al., 2020). Psychosis or PLEs are subtyped into positive and negative symptoms, positive being something you experience in addition to your normal experiences (e.g. hearing voices and persecutory delusions), negative being things that are taken away from your normal experience (e.g. apathy, social withdrawal).

The relationship between adverse childhood experiences (ACEs) (such as sexual, physical or emotional abuse, neglect, bereavement and bullying) and clinical psychosis is well-established (Varese et al., 2012; Setién-Suero, et al., 2020; McGrath et al., 2017). Trauma models emphasise the early exposure of adverse factors in the development of perceptual abnormalities known to be associated with PLEs (O’Connor et al., 2019). There is also evidence that within non-clinical samples, PLEs and traumatic life experiences are associated (Gawęda et al., 2018) although this may not include parental loss (Coughlan & Cannon, 1997). However, there is some debate regarding the potential mechanisms with which exposure to childhood adversity leads to a

development of PLEs in later life (Coughlan & Cannon, 2017). Gawęda et al., (2018) suggest that cognitive biases and self-disturbances may mediate this relationship. Similarly, Wong et al., (2019) suggest that ACEs including abuse, neglect and family/household dysfunction may destabilize an individual's sense of identity and thereby disrupt self-understanding. Wong et al., (2019) therefore hypothesised that this disrupted sense of self-meaning leads to the development of mental health difficulties and concluded from their findings that SCC mediated the ACEs effects on adult mental health. Interestingly Evans et al., 2015 also proposed that ACEs may disrupt the development of an integrated self-concept and consistent with this hypothesis found that SCC mediated the relationship between childhood trauma and psychosis. Taking this further, in a large general population survey (n=5877), Sitko et al., (2014) found that specific childhood traumas are associated with specific psychotic symptoms (paranoia and hallucinations) and that this association depended upon (were mediated by) specific attachment styles.

Adult attachment is also associated with psychotic phenomenology (Korver-Nieberg et al., 2014). Attachment, as defined by Bowlby (1969), is considered to be a life-long construct, developed via early relationships with primary caregivers which have an impact on later interpersonal relationships (Bowlby, 1973). Adult attachment consists of two dimensions, anxiety and avoidance (Mikulincer, et al., 2003) and higher scores in either of these dimensions indicates an insecure adult attachment orientation. Attachment anxiety is defined as 'involving the fear of interpersonal rejection or abandonment, an excessive need for approval from others, and distress when one's partner is unavailable or unresponsive'. Attachment avoidance is defined as 'involving fear of dependence and interpersonal intimacy, an excessive need for self-reliance, and reluctance to self-disclose' Wei et al., (2007, p188). Within attachment theory, a further disorganised attachment pattern has been suggested, which is characterised by generalised fear of

romantic attachment figures within adulthood (Paetzold, Rholes, & Kohn 2015). Disorganised attachment is thought to co-exist alongside organised attachment patterns (Berry & Bucci, 2016) and to be associated with both high levels of anxiety and avoidance (Korver-Nieberg et al., 2014). It is proposed those with higher disorganised attachment styles may have confused and inconsistent mental representations of themselves and others (Paetzold, Rholes, & Kohn 2015) and therefore, similarly to anxious and avoidant attachment styles, disorganised attachment has been found to be associated with SCC (Paetzold & Rholes, 2021) and implicated as a risk factor for the development of psychopathology (Harder, 2014). In a systematic review Korver-Nieberg et al., (2014) concluded that attachment style is a clinically relevant construct in relation to the development, course and treatment of psychosis. However, results were variable and of limited methodological quality (i.e. small sample size). However, Korver-Neiberg et al., (2014) also highlighted the importance of understanding how attachment patterns can affect outcomes in psychosis, particularly when considering clinical practice. For instance it is suggested that insecure attachment styles may significantly affect the therapeutic alliance between clinician and service user and evidence has demonstrated that the therapeutic alliance has a causal effect on outcome for psychological treatment and that a poor alliance may actually be detrimental (Goldsmith et al., 2015). This is particularly pertinent given that evidence suggests that service users considered to be ‘Ultra High Risk’ of developing psychosis present low attachment security (Boldrini et al., 2020). In non-clinical samples, Berry et al., (2006) report an association between PLEs and anxious and avoidant attachment although there was some contrasting evidence in a later study (Berry et al., 2007b). In a more recent study within a non-clinical population, Marlowe & Nicholson Perry (2020) did however find a relationship between anxious and avoidant adult attachment with positive PLEs but did not find support that childhood trauma was linked to PLEs.

Considering the evidence indicating an association between ACEs, adult attachment and psychosis as well as SCC and psychosis, understanding the mechanisms by which these constructs are linked constitutes an important area of research. The current study aims to draw together our current knowledge of adverse childhood experiences, attachment theory and self-concept theory to contribute to the understanding of vulnerability to psychotic experiences within a non-clinical sample. Given that attachment theory proposes that individuals develop a positive self-concept through the stable and predictable feedback from their caregivers and that there may also be a relationship between attachment style and self-concept clarity (Wu, 2009), it is hypothesised that low self-concept clarity will be associated with insecure adult attachment styles. Moreover, it is also hypothesised that SCC will mediate the link between attachment styles and occurrence of PLEs, and early adverse experiences and occurrence of psychotic experiences. In working with PLEs, these variables are potentially useful therapeutic targets or goals which are likely to be important in terms of assessing vulnerability to psychosis and recovery. In fact, certain items relating to SCC are present in the widely used questionnaire about the process of recovery which is designed to evaluate recovery from psychosis (QPR; Neil et al., 2009).

The primary objective of this study is to test whether self-concept clarity mediates the relationship between attachment styles and psychotic experiences, along with adverse childhood experiences and psychotic experiences as highlighted by Evans et al. (2015).

Hypotheses

It was predicted that:

- SCC will be negatively associated with PLEs.
- SCC will be negatively associated with attachment anxiety and avoidance.
- SCC will be negatively associated with ACEs.
- Attachment anxiety and avoidance will be positively associated with PLEs.
- ACEs will be positively associated with PLEs.
- ACEs will be positively associated with attachment anxiety and avoidance.
- SCC will mediate the relationship between ACEs and PLEs.
- SCC will mediate the relationship between attachment avoidance/anxiety and PLEs.

Method

Design

A cross-sectional, quantitative questionnaire-based design was adopted. All data were collected via an online database (Qualtrics, 2005).

Participants and Procedure

Participants were aged 18 years or over and were fluent in English. They were recruited online by advertising on social media platforms. The study was advertised on Twitter, Facebook and Reddit and included social media groups interested in psychosis and general psychological research. The advertisement contained an online link to a participant information sheet (Appendix 4-A). Consent was obtained online after presentation of the study background (Appendix 4-B). Participants were then directed to the online questionnaires. Without consent they were

unable to proceed to the questionnaires. Questionnaires took approximately 25 minutes to complete (Appendix 4-D, 4-E, 4-F, 4-G, 4-H). An online debrief sheet was provided on completion or if they chose to withdraw from the survey (Appendix 4-C). Participants who wished to receive a summary of findings on the completion of the research or to be entered into a prize draw to win one of four £25 Amazon vouchers, were asked to provide their email address. The email addresses were kept in a database separate from the anonymised responses of the questionnaires. The research was approved by the Lancaster University Faculty of Health and Medicine Research Ethics Committee (Appendix 4-I).

Measures

Demographic Information. Participants were asked to provide their age, gender, ethnicity, marital status, highest level of education achieved, employment status, mental health history and how they heard about the study.

Self-Concept Clarity. The Self-Concept Clarity Scale (SCCS; Campbell et al., 1996) is a 12-item scale measuring the extent to which the contents of an individual's self-concept is clearly defined, internally consistent and temporally stable (Campbell et al., 1996). Example items include: "My beliefs about myself seem to change very frequently" and "In general, I have a clear sense of who I am and what I am". Respondents are asked to answer using a 5-point Likert scale ranging from strongly agree to strongly disagree. Two items are reversed scored and higher scores represent greater self-clarity. The SCCS has a good internal consistency ($\alpha=0.86$) and test-retest reliability ($r=0.79$) (Campbell et al., 2003). Internal consistency in the current research was high (Cronbach's $\alpha=.78$).

Adverse Childhood Experiences. The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995). This is a 38-item self-report measure comprised of questions related to the individual's childhood or adolescent experiences of a negative home environment, neglect, punishment, and sexual, physical and psychological mistreatment. The scale allows the respondent to determine their own evaluation of the severity of their experiences. The questionnaire provides a total score reflecting the perceived severity of maltreatment, as well as four subscale scores assessing experiences of child sexual abuse, punishment/physical abuse, neglect/negative home environment and emotional abuse. Example items include "Did your parents ridicule you?" and "As a child were you punished in unusual ways (e.g. being locked in a closet for a long time or being tied up)?" Participants are required to estimate how frequently they were exposed to the abusive experiences by utilising a 5-point Likert scale ranging from never to always. The CATS has demonstrated good internal consistency ($\alpha=0.90$) and test-retest reliability ($r=0.89$) (Sanders & Becker-Lausen, 1995). In this study, the CATS presented good internal consistency (total scale Cronbach's $\alpha=0.91$).

Adult Attachment. The Experiences in Close Relationships – Short Form (ESR-S; Wei et al., 2007). This is a 12 item self-report which measures two forms of insecure attachment, avoidant and anxious attachment. People who score high on either or both of these dimensions are assumed to have an insecure adult attachment orientation (Brennan et al., 1998). Example items include "It helps to turn to my romantic partner in times of need." and "I need a lot of reassurance that I am loved by my partner". Respondents are asked to indicate how they generally experience relationships, not just in what is happening in a current relationship on a 7-point Likert scale ranging from strongly agree to strongly disagree. Some items are reversed scored and sum scores are computed for the anxious and avoidant attachment scale. It has shown

good internal consistency (Anxiety - $\alpha=0.78$; Avoidance - $\alpha=0.84$) and test-retest reliability ($r=0.80$: Anxiety; $r=0.83$: Avoidance) (Wei et al., 2007). In this study, the ESR-S showed good internal consistency for both avoidance ($\alpha=0.88$) and anxiety ($\alpha=0.81$) scales.

Psychotic-like Experiences. The Community Assessment of Psychic Experiences (CAPE-42) (Stefanis et al., 2002). The CAPE-42 is a 42 item self-report scale that is widely used to assess psychotic experiences in the general population. It includes subscales, one to measure the frequency of the experience and the other to measure the level of associated distress. The CAPE-42 includes dimensions of positive psychotic experiences, negative psychotic experiences and depressive experiences. Example items include “Do you feel as if things in magazines or on TV were written especially for you?” and “Do you ever feel as if the thoughts in your head are not your own?”. The frequency score is measured on a 4-point scale from never to nearly always. The degree of distress is measured on a 4-point scale ranging from not distressed to very distressed. It provides an overall score and a total score for each domain by summation of scores on the frequency and distress scales. The CAPE-42 has demonstrated discriminant validity (Stefanis et al., 2002) and a meta-analysis found the CAPE-42 to be psychometrically reliable ($\alpha=0.78$) (Mark & Toulopoulou, 2016). In this study the CAPE-42 showed good internal reliability for the negative ($\alpha= 0.81$), positive ($\alpha= 0.87$) and depression ($\alpha= 0.85$) subscales.

Power Analysis

The concepts explored within this study and the lack of research in this area mean an accurate power calculation to establish the required sample necessary to achieve statistical power could not be established. Guidelines for sample sizes required for mediation analysis indicate if α , β and τ' are all assumed to have medium effect sizes then the sample size required to detect a mediated effect is $n=75$ (Fritz & Mackinnon, 2007). Evans et al. (2015) in a mediational study,

exploring similar concepts (self-concept clarity, childhood trauma) found a participant number of 60 within the aggregate group (combined clinical and non-clinical) was sufficient to detect an effect.

Parametric assumptions

The Shapiro-Wilk test suggested that all variables were significantly different from the normal distribution. However, in large sample sizes, it is common that small deviations from the normal distribution can result in these tests being significant. Therefore, skewness and kurtosis scores and their computed z-scores were explored which again indicated a deviation from a normal distribution for most of the variables (see Table 3). Examination of histograms and Quantile-Quantile plots also indicated a study sample that is significantly different from a normal distribution. This is not surprising in a non-clinical population and due to the sample size being relatively large ($n > 200$) obtaining a normal distribution of data is not necessary in accordance with the central limit theory. Transformation techniques were considered. However, they have been criticised as they can lead to difficulties when interpreting findings (Feng et al., 2014). Non-parametric analyses were therefore employed for the correlational analyses, and bootstrapping was utilised within the regression and mediational analyses.

Insert Table 1

Data were analysed using SPSS version 26 and the PROCESS macro add-on (Hayes, 2020). Preliminary analyses were completed using descriptive statistics. Bivariate correlational analyses (two-tailed) were then conducted to explore associations among adverse childhood

experiences, adult attachment, SCC and PLEs. Linear and multiple mediation analyses, with bootstrapping (Preacher & Hayes, 2008) were then used to estimate direct and indirect effects. Bootstrapping allows analysis of non-normal data. As recommended by Preacher and Hayes (2008), 5000 bootstrap samples were analysed in the current study to produce bias-corrected and accelerated 95% confidence intervals.

Results

Sample Characteristics

286 people accessed the survey. However, 71 participants chose to end the survey before completing it and were therefore excluded from the analysis in accordance with the consent process. 215 participants were therefore recruited. However, three participants were excluded as they were under the age of 18 years old and therefore did not meet inclusion criteria to participate. The final sample consisted of 212 participants. All missing data were removed using the listwise deletion method. The demographic information for the included participants can be found in Table 1. Participants' age ranged from 18-74 years ($\bar{x} = 27.7$, $SD = 8.6$); the majority were female ($n=168$, 79.2%) and described their ethnicity as White British ($n=101$, 47.6%) or other white background ($n=73$, 34.4%). More than half the participants were single or never married ($n=117$, 55.2%), were studying ($n=69$, 32.5%) and their highest level of education obtained was an undergraduate degree ($n=75$, 35.4%). 43% of participants had received a mental health diagnosis at some point in their lives including Anxiety, Depression, Post Traumatic Stress Disorder, Attention Deficit Hyperactivity Disorder, Bipolar Affective Disorder, Anorexia/Bulimia/Binge Eating Disorder/Body Dysmorphia, Personality Disorder, Obsessive Compulsive Disorder, Psychosis/Schizophrenia, Dissociative Identity Disorder and Panic Disorder. More than half of participants (54.2%) had seen a health professional for support with

emotional or mental health difficulties at some point in their lives such as Psychiatrists, Counsellors, Psychologists and other mental health professionals.

Insert Table 2

Internal consistency of the measures

The internal consistency of the questionnaires for the current sample were assessed using Cronbach's alpha (α). Table 2 shows that high internal consistency was found for all measures.

Insert Table 3

Psychotic Like-Experiences

206 (97%) of participants reported one or more positive PLEs, 180 (87%) of these participants reported associated distress with these experiences. 210 (99%) participants reported one or more negative PLEs, 198 (94%) reported associated distress with these experiences. 212 (100%) of participants reported one or more symptoms of depression as measured by the CAPE-42, 206 (97%) reported associated distress by these experiences.

Adverse Childhood Experiences

All participants (n=212) reported one or more adverse childhood experiences. In accordance with the subscales, 76 (36%) reported childhood sexual abuse, 210 (99%) reported

punishment during childhood, and 208 (98%) reported neglect and/or a negative home atmosphere as a child.

Data Analysis

Assessment of possible covariates

Based on previous research (Lodi-Smith & Roberts, 2010; Light & Visser, 2013; Scott et al., 2008; Wu, 2009), both age and gender were investigated as possible covariates. Results are presented in Table 4. Age was significantly correlated with SCC, anxious attachment style, avoidance attachment style, negative and positive PLEs and depression as measured by the CAPE-42. No statistically significant gender differences were found. As such, additional mediational analyses were conducted including age as a covariate.

Insert Table 4

Correlational analyses

The Spearman's correlations between the variables can be observed in Table 5. Significant negative and moderate correlations were found between SCCS and CATS, ESR-S Anxiety, ESR-S Avoidance, and CAPE-42 Positive symptoms, and significant strong negative correlations between SCCS and CAPE-42 Negative symptoms and CAPE-42 Depression. This suggests that higher childhood trauma, avoidant adult attachment styles, anxious attachment styles, positive and negative psychotic like experiences and depression are all associated with diminished SCC. Significant positive and weak correlations were found between CATS and ESR-S Anxiety, and ESR-S Avoidance, significantly moderate positive correlations between

CATS and CAPE-42 Positive, and CAPE-42 Negative and a strong and significant correlation between CATS and CAPE-42 Depression. This suggests that anxious adult attachment styles, avoidant adult attachment styles, depression and positive and negative psychotic-like experiences are associated with higher childhood trauma. Significant weak positive correlations were found between ESR-S Anxiety and ESR-S Avoidance and ESR-S Anxiety and CAPE-42 negative symptoms and significant moderate positive correlations were found between ESR-S Anxiety and CAPE-42 positive symptoms and ESR-S Anxiety and CAPE-42 depression. Significant moderate correlations were found between ESR-Avoidance and CAPE-42 positive symptoms, CAPE-42 negative symptoms and CAPE-42 depression. Significant moderate correlations were found between CAPE-42 positive symptoms and CAPE-42 negative symptoms and CAPE-42 depression. A significant strong correlation was found between CAPE-42 negative symptoms and CAPE-42 depression. The results indicated that whilst associations were found, as hypothesised, no correlation was higher than 0.7 and therefore multicollinearity was not a problem for subsequent analyses.

Insert Table 5

Mediation analysis

Separate mediational models were completed, with bootstrapping (Preacher & Hayes, 2008) to estimate the direct effect of anxious attachment, avoidance attachment, childhood adverse experiences on positive and negative PLE's, and the indirect effect mediated by SCC. This resulted in six models, three for positive PLEs and three for negative PLEs (see Table 6).

The conceptual mediation model used is presented in Appendix 2-A. The mediation analyses were conducted with and without age as a covariate.

Insert Table 6

Mediation Analyses for Positive Psychotic-Like Experiences (PLEs)

Insert Figure 1

Attachment anxiety. There were statistically significant total, direct and indirect effects of attachment anxiety on positive PLEs when SCC was entered as the mediating variable. As shown in Figure 1 the un-standardised regression coefficient between attachment anxiety and SCC was statistically significant as was that between SCC and positive PLEs. Attachment anxiety explained 16% of the variance in SCC, whilst attachment anxiety and SCC explained 21% of the variance in positive PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.1324) based in 5000 bootstrapped samples was above zero (0.0740, 0.2048), suggesting that attachment anxiety indirectly effects positive PLEs through SCC. There was evidence that attachment anxiety also influenced positive PLEs independent of its effect on SCC.

Insert Figure 2

Attachment avoidance. There were statistically significant total, direct and indirect effects of attachment avoidance on positive PLEs when SCC was entered as the mediating variable. As shown in Figure 2 the un-standardised regression coefficient between attachment avoidance and SCC was statistically significant as was that between SCC and positive PLEs. Attachment avoidance explained 9% of the variance in SCC, whilst attachment avoidance and SCC explained 19% of the variance in positive PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.1097) based in 5000 bootstrapped samples was above zero (0.0509, 0.1756), suggesting that attachment avoidance indirectly effects positive PLEs through SCC. There was evidence that attachment avoidance also influenced positive PLEs independent of its effect on SCC.

Insert Figure 3

Adverse Childhood Experiences. There were statistically significant total, direct and indirect effects of attachment avoidance on positive PLEs when SCC was entered as the mediating variable. As shown in Figure 3 the un-standardised regression coefficient between adverse childhood experiences (ACEs) and SCC was statistically significant ($b = -.1306$, $p=0.0000$) as was that between SCC and positive PLEs ($b = -.1903$, $p=0.0000$). ACEs explained 10% of the variance in SCC, whilst ACEs and SCC explained 24% of the variance in positive

PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.1007) based in 5000 bootstrapped samples was above zero (0.0494, 0.1648), suggesting that ACEs indirectly effects positive PLEs through SCC. There was evidence that ACEs also influenced positive PLEs independent of its effect on SCC.

Mediation Analyses for Negative Psychotic-Like Experiences (PLEs)

Insert Figure 4

Attachment anxiety. There were statistically significant total, direct and indirect effects of attachment avoidance on negative PLEs when SCC was entered as the mediating variable. As shown in Figure 4 the un-standardised regression coefficient between attachment anxiety and SCC was statistically significant as was that between SCC and negative PLEs. Attachment anxiety explained 16% of the variance in SCC, whilst attachment anxiety and SCC explained 29% of the variance in negative PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.2009) based in 5000 bootstrapped samples was above zero (0.1237, 0.2847), suggesting that attachment anxiety indirectly effects negative PLEs through SCC. There was no evidence that attachment anxiety also influenced negative PLEs independent of its effect on SCC ($p = 0.2623$).

Insert Figure 5

Attachment avoidance. There were statistically significant total, direct and indirect effects of attachment avoidance on negative PLEs when SCC was entered as the mediating variable. As shown in Figure 5 the un-standardised regression coefficient between attachment avoidance and SCC was statistically significant as was that between SCC and negative PLEs. Attachment avoidance explained 9% of the variance in SCC, whilst attachment avoidance and SCC explained 35% of the variance in negative PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.1344) based in 5000 bootstrapped samples was above zero (0.0615, 0.2239), suggesting that attachment avoidance indirectly effects negative PLEs through SCC. There was evidence that attachment avoidance also influenced negative PLEs independent of its effect on SCC.

Insert Figure 6

Adverse Childhood Experiences. There were statistically significant total, direct and indirect effects of attachment avoidance on positive PLEs when SCC was entered as the mediating variable. As shown in Figure 6 the un-standardised regression coefficient between ACEs and SCC was statistically significant as was that between SCC and negative PLEs. ACEs explained 10% of the variance in SCC, whilst ACEs and SCC explained 32% of the variance in negative PLEs. A bias-corrected bootstrap confidence interval for the completely standardised indirect effect (0.1528) based on 5000 bootstrapped samples was above zero (0.0810, 0.2295), suggesting that ACEs indirectly effects negative PLEs through SCC. There was evidence that ACEs also influenced negative PLEs independent of its effect on SCC.

When all six mediation models were run with age as a covariate, all direct and indirect effects remained significant and SCC remained a significant mediator. See Table 7 for completely standardised beta values and bootstrapped confidence intervals and Appendix 2-B for diagrammatical representations of the mediation models.

Insert Table 7

Discussion

Summary of findings

The aim of this current study was to extend the existing literature on the association between ACEs and PLEs and adult attachment and PLEs by examining SCC as a mechanism that may impact on these relationships. In line with previous findings, the result of the analyses indicated that ACEs are positively associated with negative and positive PLEs (Sitko et al., 2014) and insecure adult attachment styles are also positively associated with negative and positive PLEs (Berry et al., 2006; Whale et al., 2019). Furthermore, findings suggest that these relationships are mediated by SCC whereby those with lower SCC are more likely to experience both positive and negative PLEs within a general population. The identification of specific indirect effects for SCC in all mediation models confirms the potential influence of SCC on psychopathology (Binsale, 2017) including within non-clinical populations. However, it should be noted that just under half of the participants reported a mental health diagnosis and just over half had input from health professionals for support of their psychological wellbeing at some point in their lives. However, the high percentage is not surprising within the sample population

given that it is estimated that 1 in 6 people in the past week are likely to have experienced a common mental health difficulty (McManus et al., 2016).

Psychotic-like Experiences

The high proportion of participants who reported one or more positive or negative PLEs is not consistent with prevalence studies within general populations (Bourgin et al., 2020) but is consistent with studies who use self-report measures such as the CAPE-42 (Bayshnikov et al., 2018). Whilst our aim was not to examine the strength of the association of the number of PLEs with psychosis, this does mean that we are unable to extend our understanding to clinical psychosis due to the way in which the data were collected (i.e. self-report measure with no clinical cut-off). SCC was found to be associated with positive and negative PLEs, indicating that the greater an individuals' SCC the less likely they are to experience PLEs. That SCC is associated with negative and positive symptoms of PLEs is consistent with previous studies which examined these associations within clinical populations (Cicero et al., 2016). However, Cierco et al., 2016 found that SCC was not associated with PLEs within healthy controls. However, it should be noted that healthy control participants were excluded from the data if they had a lifetime history of any 'Axis 1' diagnosis which would exclude anyone with a history of the most commonly known mental health difficulties such as anxiety, low mood or substance misuse, thereby not representing a general population like this study aimed to recruit from.

Adverse Childhood Experiences

It is estimated in crime surveys that one in five adults (20%) experience childhood abuse before the age of 16 years (Office for National Statistics, 2020). However, within our sample, all participants reported one or more adverse experiences during childhood. One possible

explanation for this is the differences in definition of adversity, abuse and trauma. The CATS for example asks participants to rate their experiences of a negative home atmosphere and/or punishment and many participants related highly to these experiences, partly accounting for the high mean scores. However, in accordance with theory and research data (Evans et al., 2015), experiencing childhood trauma may account for the low mean score for SCC within our sample, when compared to other SCC data (de Sousa et al., 2016). However, it is worth noting that this was a general population sample, not a control sample whereby participation was not restricted to those who were not experiencing PLEs and, as previously mentioned, there were high rates of PLEs within this study's sample. It should also be noted that the sample was self-selected and therefore may have been generally interested in participation because the variables of concern seemed particularly relevant to them. This could account for the high proportions reporting PLEs and ACEs.

Self-Concept Clarity, Adverse Childhood Experiences and Adult Attachment

Whilst the significant overall indirect effect indicates that SCC may explain the link between ACEs and PLEs, a direct causal relationship or a complete model cannot be assumed given an addition of only 14% (positive PLEs) and 22% (negative PLEs) of variance being accounted for within the mediation model. This indicates that other putative mediators should be considered. Aside from SCC, various psychological and biological factors have been proposed as mediators between childhood adversity and psychosis including studies within non-clinical populations. Recent systematic reviews suggests that partial mediators may include loneliness, mentalization, social defeat, attachment, depression, anxiety, dissociation, post-traumatic symptoms, emotion dysregulation and negative cognitive schemas, although reviews conclude that there is still requirement for methodologically robust studies before accurately estimating

mediation between child abuse and psychosis (Sideli et al., 2020; Alameda et al., 2020; Williams et al., 2018). Whilst the research into the suggested relationship between adult attachment and psychosis has not been extensively explored, mediators have been suggested such as self-esteem (Wickham et al., 2015). However, adding further proposed mediators to the model such as self-esteem may introduce multicollinearity, due to its association with SCC (Wong et al., 2016) and within this research it was important to understand the potential role of SCC in the relationships between attachment, ACEs and PLEs without the risk of overlapping variance. In addition, SCC may be linked closely to one or more other variables relating to the development of social cognition. Self-concept depends, at least in part, on others' discourse and experiences of the individual within different conditions or circumstances (Hermans, 2001; Meehan & MacLachlan, 2008), which in turn may also involve attachment processes. Therefore, it may be parallel associated factors to SCC which are the primary mediators and therefore drivers of psychosis and that SCC is disrupted as a result of these possible factors (i.e. social cognition). Teasing out the roles of any underlying variables therefore requires further research.

Limitations

The internet is being increasingly used in psychological research, however concerns exist in terms of the accuracy of the data collected and whether instructions within each questionnaire are attended to conscientiously (Ramsey et al., 2016). However, web-based surveys are deemed as more convenient and resourceful (Ramsey et al., 2016) meaning recruitment is likely to have been more effective than traditional paper and pen administration. Recent statistics also indicate that most adults (91%) in the UK are internet users (Office for National Statistics, 2019). It has also been highlighted that participants are less likely to misreport when collecting data on potentially sensitive topics (Gnambs & Kaspar, 2015). Despite this, self-selection bias may have

been an issue (Wright, 2005) and we are unable to determine why some individuals exposed to the survey chose not to complete it. There was also a notable degree of sample attrition (25%) which again is a challenge for internet mediated surveys, although research into non-response rates is inconclusive (Padayachee, 2016). A possibility for participant drop-out is the length of the survey (Hoerger, 2010) despite the suggested use of incentives and transparency, including survey length, within the participant information sheet (McPeake et al., 2014).

A further limitation of this study is that those recruited were predominately female and white ethnicity which limits the generalisability of the findings to males and other ethnic groups which are at higher risk of developing psychosis (Jongsma et al., 2019). Research is divisive in terms of gender and its association with SCC (Wu, 2009; Crocetti, et al., 2015) it being suggested that gender differences dissipate after adolescence (Lodi-Smith et al., 2017). However, as for many studies, the gender imbalance of the sample may be the reason for the lack of association found. Therefore, future research should consider including gender as a covariate when developing mediation models examining SCC, particularly if a non-gender biased sample is obtained and/or an association is found with other variables within the model. In addition to a gender and ethnically skewed sample, 84% of the sample were under the age of 35 years. However, in terms of clinical samples, the incidence of first episode psychosis is higher in those aged between 15 and 29 years old (Simon et al., 2017). Of further note is that more than half the participants deemed themselves to be single or never married. This may have affected the validity of the results in regard to adult attachment, as some participants may have never formed a romantic adult attachment (past or present), as measured by the ESR-S. Moreover, self-report measures of attachment have been criticised in the literature for possibly measuring biased interpretations about themselves and their relationship functioning (Jacobvitz et al., 2002).

Bowlby (1980) also hypothesised that internal working models operate, at least partially, out of conscious awareness. However, although social desirability and or other motivational factors is a concern, it is proposed that most adults have the experience within close relationships to be able to reflect on their relational cognitions, emotions and behaviour (Crowell et al., 1999). The ESR-S is also considered to be more reliable than other widely used self-report measures (Graham & Unterschute, 2015) and one of the better options for use in clinical practice (Shi et al., 2014). Without the restrictions of time and circumstantial restraints, the use of a semi-structured interview such as the Adult Attachment Interview (George et al., 1985) may have been considered more reliable and valid. However, the aim of this research was not to explore early attachment relationships with primary caregivers, but to explore participants' feelings and behaviours associated within the context of close adult relationships which is thought to be achieved by the ESR-S.

Clinical implications and recommendations for future research

The results from the current study highlight the need for clinicians to ask about childhood trauma and current close relationships within the framework of attachment as well as potentially using therapeutic interventions which focus on increasing self-concept clarity in individuals at risk of developing psychosis. It is also important to consider that disrupted or low SCC may not be directly associated with psychosis but general psychological well-being, so in terms of clinical implications can be associated with improved recovery. In fact, the QPR measure of recovery (Neil et al., 2009; Pitt et al., 2007), which was generated from a qualitative study of service users' experience and understanding of recovery, includes items that seem to relate to SCC. However, at present, research into the therapeutic models which are designed to facilitate individuals in developing a more stable, clear and consistent self-concept is sparse, although there is some

indication that dialectical behavioural therapy (DBT) may be useful in individuals with a diagnosis of borderline personality disorder (Roepke et al., 2011), a disorder in which SCC is known to be disrupted (Błażek, 2015a; Błażek, 2015b; Roepke et al 2011). However, there is need for further research to explore the feasibility and effectiveness of other psychotherapeutic interventions in increasing SCC. These could be incorporated into existing recommended therapeutic modalities for adults with psychosis such as cognitive behavioural therapy (CBT) (National Institute for Health and Clinical Excellence (NICE), 2014). It would be useful for further research to examine longitudinally the effects of SCC on the development of psychosis as well as using group comparison studies incorporating both clinical and non-clinical populations (see critical review for why this was unachievable within the parameters of this thesis). Research which includes complex mediation models which account for other potential mediating factors would also be beneficial in further exploring the amount of variance that SCC plays in the development of SCC.

Conclusions

Despite some limitations, the results of the present study extend our understanding of the importance of the self-concept in the development of PLEs, specifically that SCC partially mediates the relationship between adult attachment and PLEs. In line with previous literature, the results also indicated that ACES and PLEs are associated and that this relationship is also mediated by SCC. These findings highlight the need for clinicians to explore past trauma, current relationships and patterns and target interventions which focus on generating a more stable, clear and consistent self-concept. Further research is needed to extend these findings to clinical populations and expand the data to account for other potential mediating factors or additional

variables as described above which will help further our understanding as to what extent PLEs develop as a result of ACEs, insecure adult attachment and low SCC.

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Tables

Table 1: Exploratory data analysis

Measure	Mean	Standard Deviation	Skewness	Z score	Kurtosis	Z score	Shapiro Wilk Significance
SCCS	34.76	9.84	-0.43	-2.57	-0.69	-2.07	0.024
CATS	38.22	24.25	1.11	6.67	1.00	2.98	0.000
ESR-S							
Anxiety	22.93	8.00	-0.10	-0.60	-0.78	-2.31	0.008
Avoidance	16.99	8.35	0.74	4.38	-0.15	-0.44	0.000
CAPE-42							
Positive	27.25	5.97	1.78	10.63	3.75	11.25	0.000
Negative	27.44	7.13	0.75	4.51	0.16	0.47	0.000
Depression	16.59	4.60	0.81	4.84	0.01	0.04	0.000

Table 2: Demographic information (n = 212)

Characteristic	N	%
Age (in years) M= 27.7, SD = 8.6		
18-24	95	44.81
25-34	84	39.62
35-44	24	11.32
45-54	4	1.89
55-64	3	1.42
64-74	2	0.94
Gender		
Male	41	19.34
Female	168	79.25
Non-binary	3	1.42
Ethnicity		
<u>White</u>		
British	101	47.64
Irish	3	1.42
Any other white background	73	34.43
<u>Asian/Asian British</u>		
Indian	4	1.89
Pakistani	0	0
Bangladeshi	1	0.47
Any other Asian background	5	2.36
<u>Mixed</u>		
White & Black Caribbean	0	0
White & Black African	0	0
White & Asian	0	0
Any other Mixed background	4	1.89

<u>Black/Black British</u>		
Caribbean	1	0.47
African	3	1.42
Any other Black background	1	0.47
<u>Chinese</u>		
Chinese	7	3.30
Any other ethnic background	7	3.30
Marital Status		
Single or never married	117	55.19
Married	43	20.28
Living with a partner	47	22.17
Widowed	1	0.47
Divorced or separated	4	1.89
Education		
Did not finish school	5	2.36
GCSE's/O'Levels	5	2.36
Vocational qualification (e.g. BTEC, NVQ)	7	3.30
A Levels	37	17.45
Undergraduate degree	75	35.38
Postgraduate degree	67	31.60
Doctoral degree	15	7.08
Employment status		
Unemployed	23	10.85
Working	61	28.77
Studying	69	32.55
Working & studying	59	27.83

Mental health diagnosis		
Yes	91	42.92
No	121	57.08
Previous support from a health professional for emotional/mental health difficulty		
Yes	115	54.25
No	97	45.75

Table 3: Cronbach's (α) for each of the measures

Measure	Cronbach's (α)
SCCS	0.78
CATS	0.91
ESR-S	
Anxiety	0.88
Avoidance	0.81
CAPE-42	
Positive symptoms	0.85
Negative symptoms	0.87
Depression	0.86

Table 4: Summary of results from covariate analyses: Spearman's Rho and Mann-Whitney U

		SCCS	Anxiety Attachment	Avoidant Attachment	CATS	CAPE negative	CAPE positive	CAPE depression
Age	<i>R</i>	.285**	-.183**	-.181**	.001	-.180**	-.176*	-.168*
	Sig. (2-tailed)	.000	.008	.009		.009	.010	.015
Gender	Mean	-.375	-1.386	-2.675	-.482	-.342	-1.565	-1.758
	difference (Z)							

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 5: Spearman's Correlations for all variables

Variables	SCCS	CATS	ESR-S Anxiety	ESR-S Avoidance	CAPE 42 Positive symptoms	CAPE 42 Negative symptoms	CAPE 42 Depression
SCCS	1						
CATS	-.309**	1					
ESR-S Anxiety	-.395**	.165*	1				
ESR-S Avoidance	-.313**	.276**	.180**	1			
CAPE 42 Positive symptoms	-.413**	.393**	.331**	.323**	1		
CAPE 42 Negative symptoms	-.552**	.377*	.291**	.369**	.306**	1	
CAPE 42 Depression	-.647**	.502**	.367**	.315**	.409**	.665**	1

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Table 6: Models investigating the role of Self-Concept Clarity in mediating the relationship between adult attachment, childhood trauma and psychotic-like experiences.

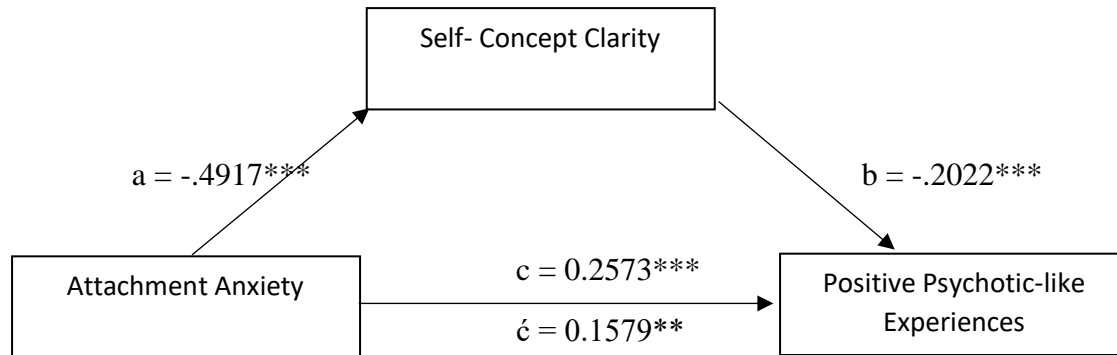
Mediation model	Predictor (X) variable	Mediating (M) variables	Criterion (Y) variable
1	Attachment Anxiety	Self-Concept Clarity	Positive Psychotic-like Experiences
2	Attachment Avoidance	Self-Concept Clarity	Positive Psychotic-like Experiences
3	Adverse childhood experiences	Self-Concept Clarity	Positive Psychotic-like Experiences
4	Attachment Anxiety	Self-Concept Clarity	Negative Psychotic-like experiences
5	Attachment Avoidance	Self-Concept Clarity	Negative Psychotic-like experiences
6	Adverse childhood experiences	Self-Concept Clarity	Negative Psychotic-like experiences

Table 7: Mediation analysis for all variables with covariate (age) included.

	Beta	Standard Error	95% BCa CI	
			Lower	Upper
Positive PLEs				
Attachment Anxiety	0.12	0.03	0.06	0.19
Attachment Avoidance	0.09	0.03	0.04	0.16
Adverse Childhood Experiences	0.09	0.03	0.04	0.15
Negative PLEs				
Attachment Anxiety	0.18	0.04	0.11	0.27
Attachment Avoidance	0.12	0.04	0.04	0.27
Adverse Childhood Experiences	0.14	0.04	0.08	0.22

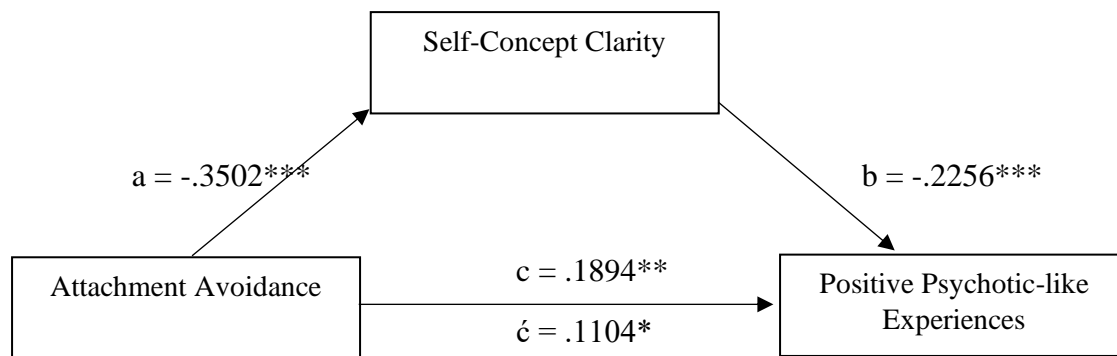
Figures

Figure 1: Mediation model for Attachment Anxiety

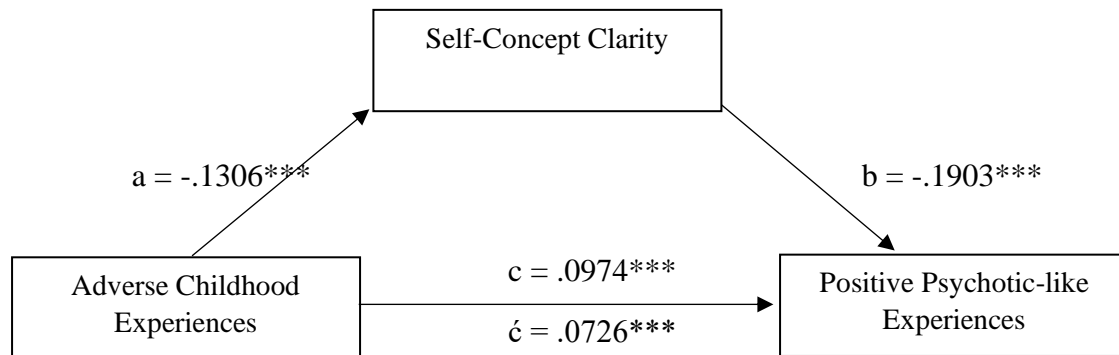


*** $p=0.0000$, ** $p=0.0022$

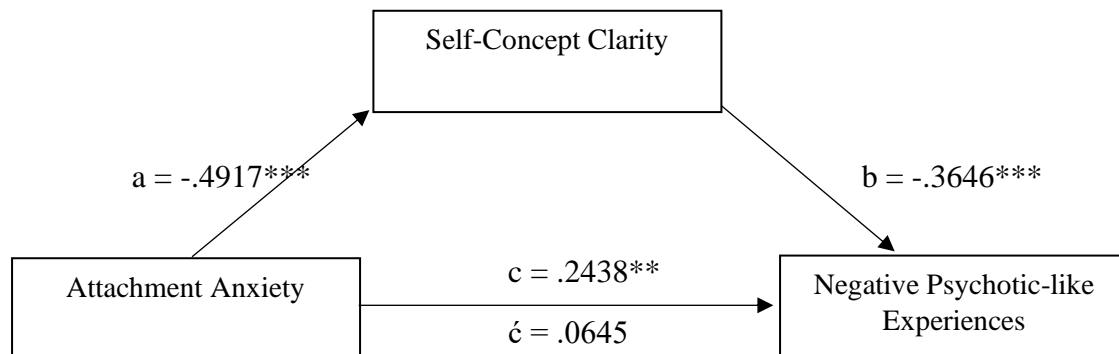
Figure 2: Mediation model for Attachment Avoidance



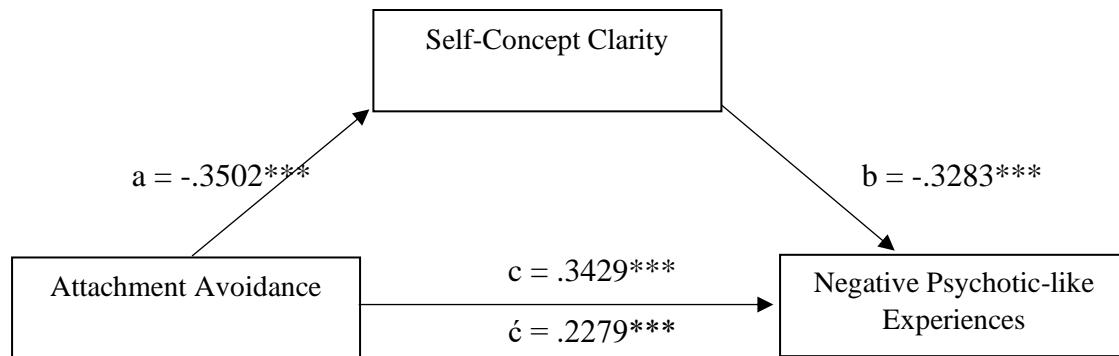
*** $p=0.0000$, ** $p=0.0001$, * $p=0.0205$

Figure 3: Mediation model for adverse childhood experiences

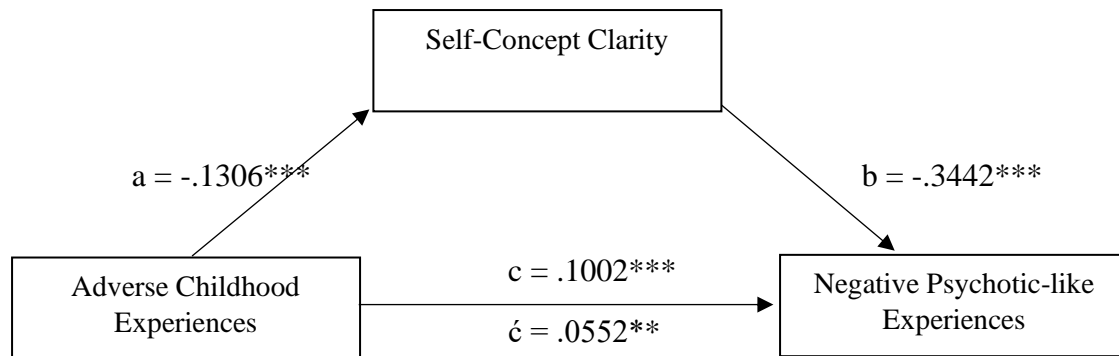
*** p=0.0000

Figure 4: Mediation model for attachment anxiety

*** p=0.0000, ** p=0.0001

Figure 5: Mediation model for avoidant attachment

*** p=0.0000

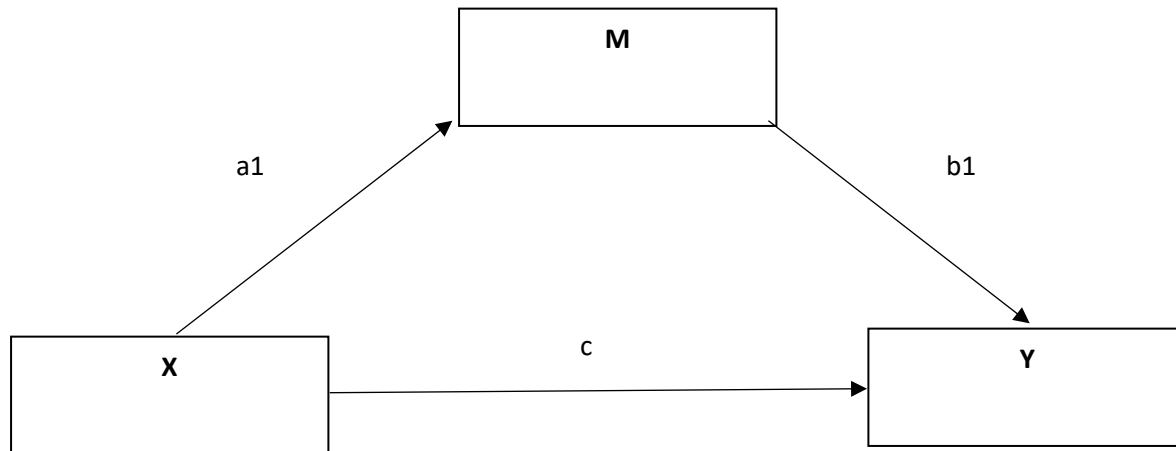
Figure 6: Mediation model for adverse childhood experiences

*** p=0.0000, **p=0.0022

Appendices

Appendix 2-A

Figure. Conceptual mediation model



X = predictor variable (attachment-related avoidance/anxiety/adverse childhood experiences)

Y = criterion variable (positive/negative PLEs)

M = mediating variable (self-concept clarity)

Indirect effects of X on Y: a_1b_1

c = direct effect of X on Y

Appendix 2-B

Figure 7. Mediation model for attachment anxiety

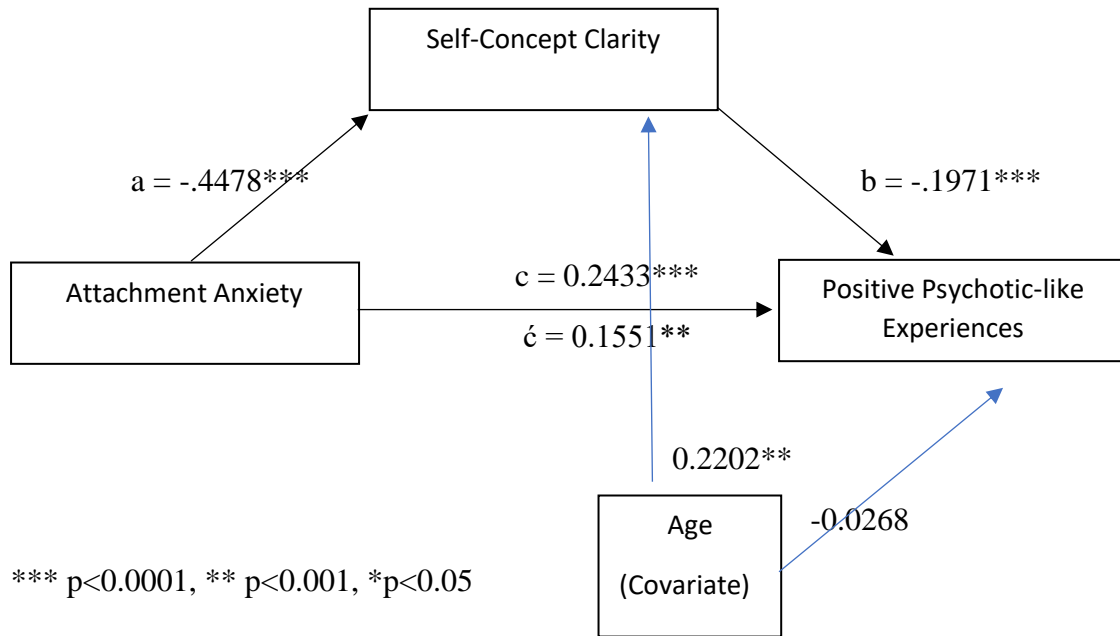


Figure 8. Mediation model for attachment avoidance

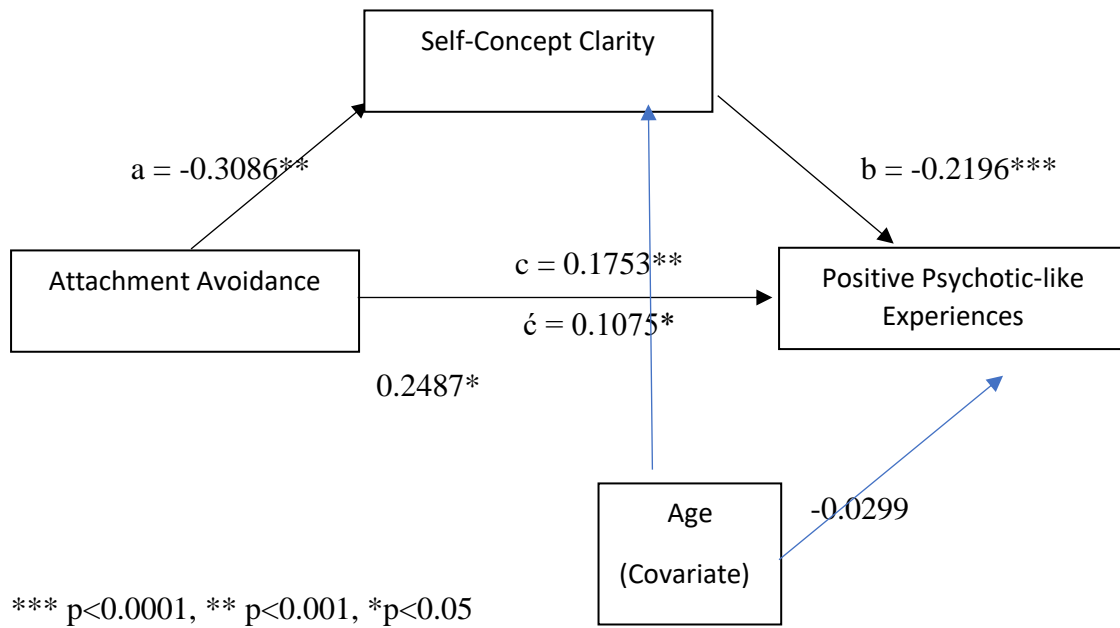


Figure 9: Mediation model for adverse childhood experiences

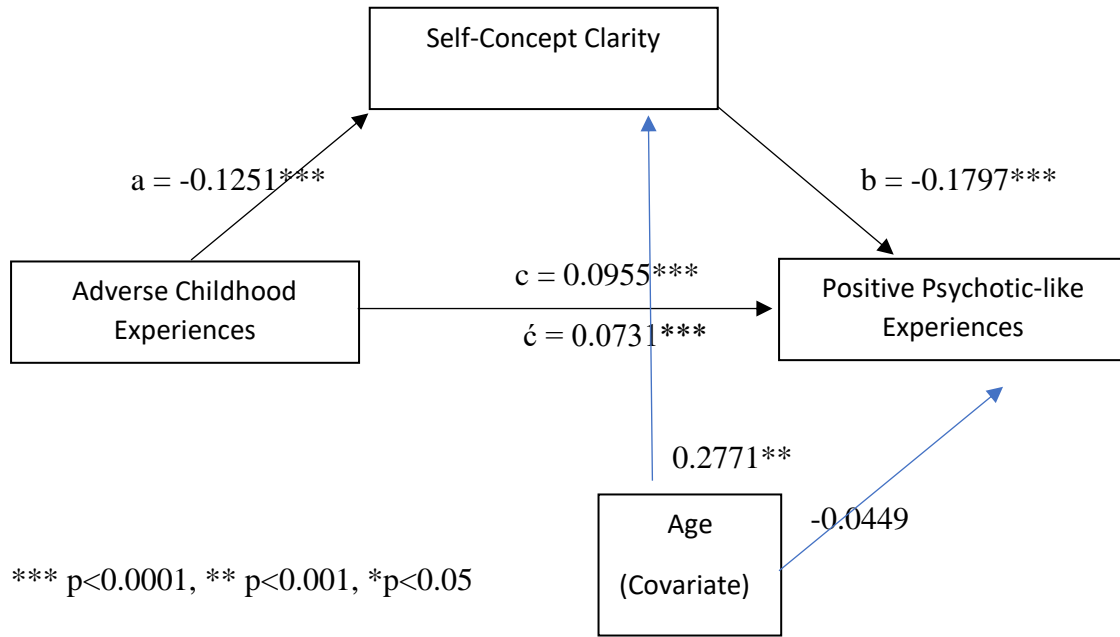


Figure 10. Mediation model for attachment anxiety

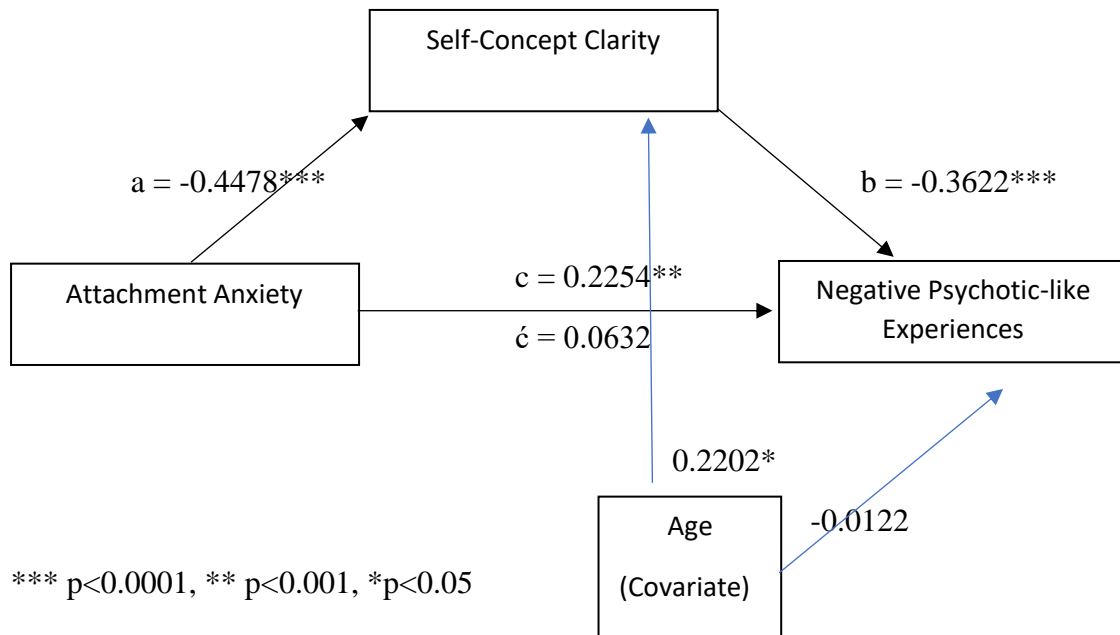


Figure 11. Mediation model for attachment avoidance

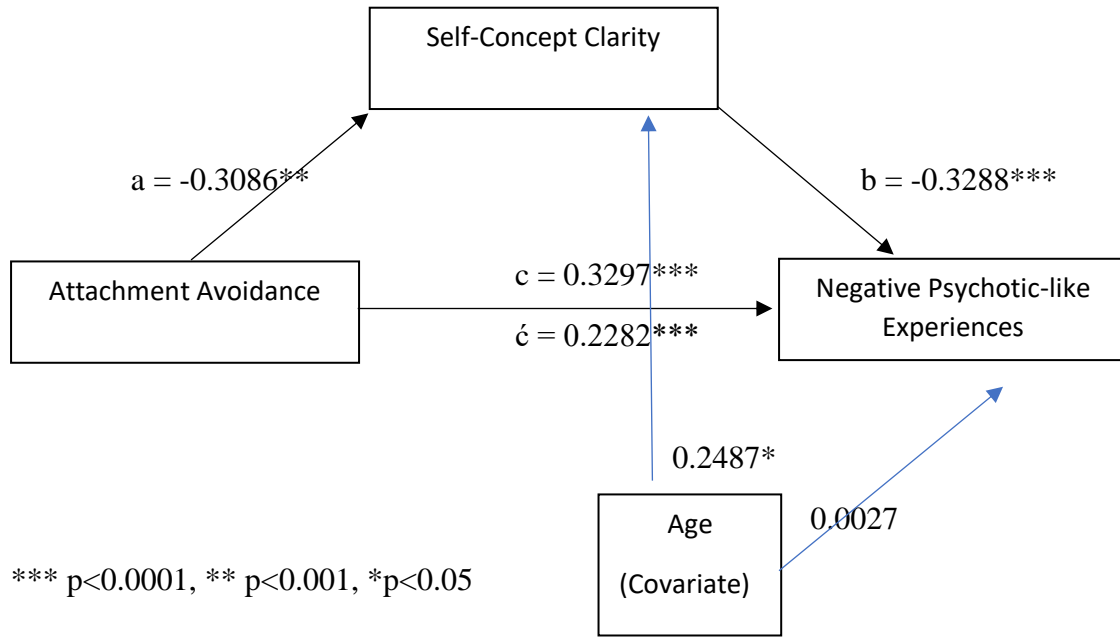
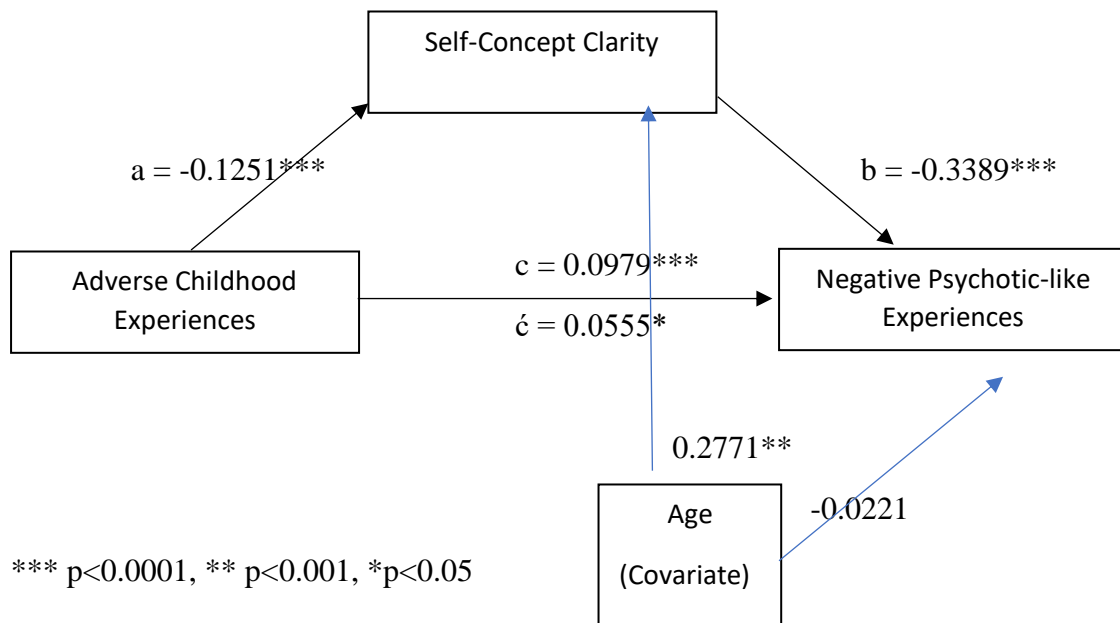


Figure 12. Mediation model for adverse childhood experiences



Appendix 2-C

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

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Chapter Three: Critical Appraisal

Total word count: 3187 (excluding references)

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Introduction

The aim of the critical appraisal is to provide further context to the systematic literature review (Chapter 1) and the empirical research paper (Chapter 2). To achieve this I will give an overview of the main findings of each of the papers, explore my personal reasons for choosing this area of research, some of the challenges I had to overcome, as well as the strengths and limitations of the research. I also hope that the critical appraisal will help to inform future research relating to individuals who experience psychosis or psychotic-like experiences (PLEs).

Main findings

Systematic Review

The systematic review (Chapter 1) is a comprehensive overview of studies exploring close relationships and self-concept clarity (SCC). The definition of SCC was the “extent to which the contents of an individual's self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p.141). According to this definition, an individual reporting low SCC would experience an unclear and unstable self-concept, one that would be inconsistent and lack clarity and definition.

All 15 included studies found some significant association between SCC and romantic, parental or peer relationships quality, satisfaction or attachment by reporting on correlational and regression analysis. However, limitations to the studies’ methodology, the heterogeneity of the studies and the small number of published studies, indicated that more evidence is required before firm conclusions can be made.

Empirical Research Study

The empirical paper aimed to explore whether SCC mediated the relationship between attachment styles and PLEs, along with adverse childhood experiences (ACEs) and PLEs. 212 participants were recruited via social media sites and asked to complete an online survey. Consistent with Chapter 1, attachment anxiety and attachment avoidance were significantly associated with SCC, whereby the higher the levels of attachment avoidance or anxiety, the lower the levels of SCC and vice versa. In terms of the main findings, SCC was found to mediate both the relationship between attachment and PLEs and the relationship between ACEs and PLEs, whereby those with lower SCC are more likely to experience both positive and negative PLEs within a general population. The most significant implication of these findings was providing additional evidence and understanding to how PLEs may develop or are maintained, particularly as much of the research is focused on positive PLEs rather than negative PLEs (Cicero & Cohn, 2018). This therefore has important implications when developing preventative or management based therapeutic interventions, highlighting that focusing on increasing SCC may be beneficial in the psychological care of those at risk or who are experiencing psychosis. However, there were limitations to this study which will be further explored below.

Research decisions, personal reflections, limitations, challenges and recommendations

Chapter 1 - Systematic Review

The review topic

The initial plan was to review the association between adult attachment and self-concept clarity. However, during initial scoping it was apparent that there were very few studies which examined this association. The decision was therefore made to expand the search to incorporate

close relationships as it is now widely accepted that attachment theory incorporates not just caregiver-child relationships but affects all significant relationships across the lifespan (Bowlby, 1973). Time was therefore spent considering how the term ‘close relationships’ are captured within the literature, discovering that this definition centred around romantic, peer and parental relationships. It was therefore decided that given the limited data on the quality of relationships and its potential association with SCC, all types of relationships would be included.

Search terms

Initial scoping highlighted that reviewing the literature on ‘close relationships’ would be challenging mainly due to the term ‘relationship’ being widely used within psychological research. Studies were also heterogeneous in the terms they used to describe relationship ‘quality’ (i.e. satisfaction, attachment) which caused some challenges in the search being practical as well as meaningful. However, it became apparent in the scoping search that only terms such as satisfaction, quality and attachment were necessary to ensure that all relevant studies of interest were captured. Therefore, using controlled vocabularies (i.e. MeSH terms) within the databases were considered impractical as they generated extremely high volumes of unrelated papers and included terms which were irrelevant to the required studies (i.e. nurse-patient relations). However, the MeSH terms were scrutinised to ensure relevant papers were not missed by excluding them. Similar reviews within this area (i.e. Ghaziri & Darwiche, 2018; Harris & Orth, 2019) were also considered before finalising the search terms.

Given the final searches from the four databases returned over 3000 articles there is some possibility that articles were incorrectly excluded. In order to reduce selection bias, a second assessor would have been appropriate. However, due to the time scale and availability of research colleagues this was impractical for this review. However, no further articles were

identified when reviewing the reference lists from the relevant articles which provides some assurance that all articles that met the inclusion criteria were captured.

Quality Assessment

After careful consideration of the available quality appraisal tools, the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies was selected as it was suitable for observational, cross-sectional, before and after and randomised control trial study designs and is deemed more favourable than other assessment tools (Armijo-Olivo, Stiles, Hagen, Biondo & Cummings, 2012; Deeks, et al., 2003). It is also considered that the EPHPP relies less on subjective judgement (Armijo-Olivo, et al., 2012) and due to there not being the opportunity for an independent second reviewer, this was considered highly important when choosing the most appropriate tool. However, it is strongly recommended that any future systematic reviews involve at least one other reviewer who can quality assess and discuss the ratings given and that an independent reviewer is also used to quality assess a proportion of the included studies and any disagreements discussed and resolved, thereby reducing bias.

Synthesising Data

A narrative synthesis approach was chosen to summarise and explain the findings due to the heterogeneity of the articles which met the criteria for inclusion. However, due to the variability of the study designs, methodologies, nature of the studies, types of relationships which were investigated and the small number of articles, it was challenging to find a clear, concise and engaging approach to present the results. Whilst the methodology and the measure used to capture relationship quality were considered, it was felt that due to the variability of the

studies that it would be clearer to the reader to synthesise the findings based on relationship types.

Chapter 2 – Empirical Paper

Research topic

My reasons for embarking on research into the development of psychosis and psychotic-like experiences is related to my experience of working with many individuals, both prior to and during DClInPsy training, who have accessed services due to the distress caused by such experiences. I found that there were many explanations for why someone may have had these experiences and become distressed by them and they would often ask the question ‘why me?’ which was a question I was unable to clearly or accurately answer even with a collaboratively developed psychological formulation which took into account past and current beliefs and experiences. This research therefore came from a place of compassion, having seen and understood some of the challenges people face and the adversities they had experienced. I also recognised the limitations of recommended interventions for people who are distressed by psychotic experiences (NICE, 2014) and wanted to contribute to supporting research which leads to better preventative interventions for those at risk. I also felt that having some understanding of the challenges people face with PLEs, such as fear and anxiety, would give me the contextual awareness to prevent distress caused by participation, answer any questions which potential participants may have had, as well as give the human understanding needed during the process of data collection and analysis.

The initial research proposed was aimed at investigating the development of psychosis by exploring the relationship between adverse childhood experiences, attachment security and self-concept clarity. This would have been done by recruiting adult participants who had a diagnosis

of psychosis and were under early intervention in psychosis services and recruiting a control sample of adults who did not report mental health difficulties. The control sample would have completed the Psychosis Screening Questionnaire (PSQ; Bebbington & Nayani, 1995) and participants would have been excluded if they scored above the clinical cut-off. The proposed idea was to compare the clinical sample with the non-clinical sample. Due to the recruitment of clinical participants, ethical approval was submitted to the North West- Haydock NHS Ethics Committee in May 2019 and I attended a full REC Committee meeting on 11th June 2019. This proved to be a daunting meeting as over 10 people represented the panel and were from non-psychological disciplines (e.g. dentist). All queries were answered during the meeting and they did not express any concerns once these had been answered. Unfortunately, the members of the committee gave an unfavourable ethical opinion based upon concerns that the researcher would not be present when participants completed the survey and therefore could not offer direct face to face support should they experience any distress. However, the EIT services who agreed to participate did not have any computer accessible rooms for participants and the distance was too great to ask participants to travel to the University site. Also, many individuals within an EIT service are supported in their home environment and it felt far too intrusive and costly for this to be practical. The survey data would also not be anonymous and evidence from the psychological literature suggests that participants are more comfortable disclosing sensitive information when the researcher is not present (Richman, Kiesler, Weisband & Drasgow, 1999). In addition, the time available for data collection was limited and it was felt that the number of participants needed to reach statistical power would not be achievable. The participant information sheet included details regarding what to expect from the questionnaires so that potential participants are fully aware of the level of intrusiveness and potential distress entailed before entering the

study and were provided with a debrief sheet including services they could access should they require support. Their care co-ordinators would also be aware that they may be taking part in the research and therefore could advise them as necessary. However, the ethics panel did not deem this as sufficient. There was also potential for researcher bias if the collection was not anonymous. Many studies recruit participants who experience psychosis and ask them to complete surveys on sensitive topics without the explicit supervision of the researcher (Varese et al., 2012; Bailey, Alvarez-Jimenez, Garcia-Sanchez, Hulbert, Barlow, & Bendall, 2018). I hypothesised that the lack of knowledge of how mental health services function played a role in their decision. Therefore, whilst this decision could have been appealed, it was decided that, due to the time scale, an adaption to the research question and methodology would be more feasible. This allowed recruitment outside of the NHS and therefore a more direct ethical approval via the University. The main adaption was the recruitment of non-clinical participants from the general population. This process was justified, given that it is widely understood that Psychotic-Like Experiences (PLEs) are common in the general population (Linscott & Van Os, 2013) and that psychosis related phenomena exist on a continuum (Van Os, Hanssen, Bijl, & Ravelli, 2000).

Ethical issues

Due to the nature of the study, particularly asking questions of a sensitive nature, there were clear ethical issues that had to be considered. The process of going through NHS ethical approval taught me the importance of clarity within the participant information sheet and consent process in order to limit the possibility of any psychological distress from participation. The study was assessed and granted approval by Lancaster University Research Ethics Committee in January 2020 without any required amendments. However, upon reflection, the debrief sheet could have offered more variety of services to contact should participants wish to seek support

for their experiences, as not all services would have been accessible to all due to their country of residence. This only became apparent at the data analysis stage, that some participants may not have lived within the UK, recruitment having been via social media sites. However, there was more general advice given which should have been accessible to all such as seeking guidance from a general practitioner.

Methodological issues

Sample and recruitment

Recruitment via mental health charities (e.g. Hearing Voices Network) and education settings (e.g. local colleges which include vocational as well as academic courses) was attempted by contacting staff via email or through online contact processes, asking for consent to advertise. However, unfortunately nobody responded to these requests despite several attempts. Whilst the recruitment of participants via social media platforms (i.e. Twitter, Reddit, Facebook) was effective at recruiting a range of participants and above the sample size required for the data analysis to be adequately powered, this method of data collection was not without its disadvantages. Firstly, there is a possible limitation to the generalisability of the results as the sample may not be representative of the general population. This was indicated by the majority of the sample being white British, female, 34 years or below, having completed a high level of education and having reported high levels of ACEs and PLEs. However, whilst most psychological studies rely on student populations which has limitations when making generalisations to the general population (Hanel & Vione, 2016), the employment status of the sample indicated that 66% of participants were not currently studying and were working or unemployed, suggesting a more representative sample. Secondly, it is also worth noting that

participants would not only require access to technology to complete the survey but have the skill to understand written English. It is believed that 1 in 6 (16.4%) adults in England have 'very poor literacy skills' (National Literacy Trust, 2020). Whilst giving participants the opportunity to complete the questionnaires by telephone with the researcher was considered, this would prevent full anonymity. Also due to the time scales and work priorities of the researcher, it was not felt to be a viable addition to data collection. The requirement for participants needing to be fluent in written English also means that individuals from certain cultures or ethnic background will have likely been under-represented. This is particularly pertinent given the differences associated with culture and PLEs endorsement (Vermeiden et al., 2019). Data collection took approximately 6 months and the online survey was kept open for as long as practically possible in order to ensure adequate write up time for the thesis. Whilst the survey could have been closed earlier due to the minimum sample size being obtained, it was decided that the larger the sample size, the more likely the data would ensure a reliable general population sample which was important for this research topic. I also found that individuals accessed the survey in clusters based on advertisement times. It was therefore important that advertisements were re-posted regularly and at different times of the day and night. Re-posting advertisements on various social media platforms was timely and to comply with certain facebook groups, it also required or asked of your participation in other researchers' studies, again adding to the time of the researcher. I would therefore recommend that researchers undertaking studies within this field take into consideration the amount of time it takes to recruit both a sufficient sample size and a heterogenous sample from a general population, particularly when using online social media recruitment. In order to enhance the representation within the sample, future research may also

benefit from employing alternative recruitment strategies whereby participants can still remain anonymous (e.g. postal surveys).

Measures

When designing the empirical study, it was vital that the most reliable and valid standardised measures were used to explore Self-Concept Clarity (SCC), Adult Attachment, Adverse Childhood Experiences (ACEs) and Psychotic-like experiences (PLEs). Whilst there is only one measure thought to meet these criteria for SCC, The Self-Concept Clarity Scale (SCCS; Campbell et al., 1996), there were many choices for measures of adult attachment, ACEs and PLEs. The decisions for the chosen measures was largely informed by previous studies in the field. For instance, The Child Abuse and Trauma Scale (CATS; Sanders & Becker-Lausen, 1995) has been used widely in psychological research including those that explore PLEs and psychosis (e.g. Cole, Newman-Taylor & Kennedy, 2016; Seidenfaden et al., 2017). However, what should have been more carefully considered was the demand the survey placed on participants. For instance, the CATS is a lengthy measure of ACEs and whilst it gave a comprehensive dataset it may have led to higher attrition rates and non-responses, resulting in important data being missed. A shorter measure of ACEs could have resulted in the same meaningful analysis and potentially a more heterogenous sample, as well as reducing survey fatigue which is thought to influence responses (Saxon, Garratt, Gilroy & Cairns, 2003). It is broadly shared that individuals have to make the decision whether the rewards from completing a survey outweigh the effort expended. There is a possibility that the subject topic, and therefore the relevance or importance to the individual, as well as the measures presented, may account for the gender difference in responders and non-responders, only 19% being male.

Qualtrics was used as the online survey software as it was readily available within the University and allowed for automated analytics and easy transfer into SPSS, the chosen statistical package for data analysis. Having never used Qualtrics this proved to be a challenging process due to wanting to keep the survey as clear, functional and socially desirable as possible. One of the considerations was to use forced responses. However, it was felt to be unethical given the topics which were being explored and would not allow the respondents to continue the survey should they wish to miss certain questions due to distress or difficulty in understanding. The only forced response incorporated was therefore the consent page to ensure that the questionnaires were not viewable until the participant information sheet had been read and then consent was obtained.

Conclusion

This critical appraisal has provided further discussion of the systematic review and empirical paper including the wider ethical and methodological issues. It has also provided an opportunity to further explore how psychological research within this area can be better conducted in the future. It is hoped that the findings from this thesis has made a useful contribution to the self-concept clarity (SCC), attachment, adverse childhood experiences and most clinically pertinent, the psychosis literature. The primary research aim was to better understand SCC and its importance in understanding how it can affect psychological well-being. The systematic review explored its association with close relationships and the second paper explores SCC's role in further understanding the potential development of PLE's by expanding on the research on the role of adverse childhood experiences and adult attachment. This process has provided an important learning experience for the researcher both in terms of the concepts explored and how to conduct large scale research projects and publishable papers. This has been

a challenging process given the time pressures but has provided much appreciated professional development.

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Chapter 4 : Ethics Section

Attachment, childhood adverse experiences and the mediating role of self-concept clarity in psychotic-like experiences.



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

Application for Ethical Approval for Research

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

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

Title of Project: Attachment, childhood adverse experiences and the mediating role of self-concept clarity in psychosis.

Name of applicant/researcher: Gemma Hayes

ACP ID number (if applicable)*:

Funding source (if applicable)

Grant code (if applicable):

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

Type of study

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

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

SECTION ONE

1. Appointment/position held by applicant and Division within FHM Trainee Clinical Psychologist

2. Contact information for applicant:

E-mail: g.hayes1@lancaster.ac.uk
can be contacted at short notice)

Telephone: 07772654879 (please give a number on which you

Address: Doctorate in Clinical Psychology, Furness College, Lancaster University, Lancaster, LA1 4YG

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

Professor Bill Sellwood (Programme Director – DClinPsy, Lancaster University)

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

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

4. Project supervisor(s), if different from applicant: Professor Bill Sellwood

5. Appointment held by supervisor(s) and institution(s) where based (if applicable): Programme Director of DClinPsy, Lancaster University

SECTION TWO

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

1. Anticipated project dates (month and year)

Start date: _____ End date: _____

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

Data Management

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

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

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

4b. Will you be gathering data from websites, discussion forums and on-line 'chat-rooms' no

4c. If yes, where relevant has permission / agreement been secured from the website moderator? no

4d. If you are only using those sites that are open access and do not require registration, have you made your intentions clear to other site users? no

4e. If no, please give your reasons

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

6a. Is the secondary data you will be using in the public domain? no

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

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

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

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

8. Confidentiality and Anonymity

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

yes

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

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

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

SECTION THREE

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

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

The research aims to establish whether or not having a good understanding of oneself (self-concept clarity) enhances are likelihood of establishing secure relationships in adulthood, thereby protecting us from the influence of childhood adversity and influencing our psychological well-being. The research will recruit adults with and without a clinical diagnosis of psychosis. The study will be advertised on social media sites, within university /colleges and on charity websites. Interested participants will be directed to a Qualtrics survey containing an information sheet and consent form. Participants who consent will then be asked to complete a set of questionnaires. A debrief sheet will be provided on completion or if they withdraw. All data will be anonymised. Data collected from the questionnaires will be analysed in order to explore the potential relationship between factors (e.g. interpersonal relationship behaviour, adverse childhood experiences, characteristics about the self) have in the occurrence of psychotic like phenomena.

2. **Anticipated project dates (month and year only)**

Start date: November 2019

End date: April 2020

Data Collection and Management

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

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

We aim to recruit a minimum of 75 participants. We will include both male and female participants aged 18 years or above.

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

Participants will be recruited via opportunity sampling. This includes advertising using the recruitment poster online via social media platforms (i.e. Facebook, Twitter), on mental health charity websites (i.e. Hearing Voices Network) and with the permission of University and Colleges, displayed in public areas. On the recruitment poster it will contain a brief introduction to the research, state the inclusion criteria, provide details of the chief investigator, and contain an online link to the research materials.

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

Data will be collected via an online database named Qualtrics. This is so information can be given anonymously in order to aid recruitment and reduce potential distress. Data will then be securely transferred by the chief

investigator to the software package 'Statistical Package for Social Sciences' (SPSS) for analysis. Data will be analysed using a statistical mediation model such as the approach outlined by Preacher and Hayes (2008). Mediation analysis' objective is to identify and explain the relationship between an independent and a dependent variable, via the inclusion of a third variable (mediator variable). In this study the mediator variable is self-concept clarity. Therefore in accordance with the primary research questions two mediation models will be analysed:

Model 1: Adult attachment style (independent variable), self-concept clarity (mediator variable) and psychotic experience (dependent variable).

Model 2: Childhood trauma (independent variable), self-concept clarity (mediator variable) and psychotic experience (dependent variable).

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

All data will be entered on to the online database (Qualtrics). In terms of the storage of personal data, the physical security arrangements will be congruent with Lancaster University Policy. All participants' personal details (i.e. participants who choose to provide their email addresses in order to receive a summary of the research findings and/or be entered into the prize draw) will be kept separately from the data from the questionnaires and will be stored on the chief investigator's password protected file space (H drive) on Lancaster University's server. The database containing the personal details of the participants will be destroyed by the chief investigator once the relevant participants have been sent a copy of the findings and/or the prizes have been drawn.

Only the chief investigator will have access to the email addresses of the participants. No other personal data will be requested during the study.

All data generated by the study will be analysed by the chief investigator and research supervisor. Data analysis will take place on the Lancaster University campus via the chief researcher's password protected space.

In accordance with Lancaster University's research data policy, all research data will be stored electronically for up to 10 years after the end of the project, unless ethical considerations specifically require otherwise. It is the responsibility of the Research Coordinator to delete the files.

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

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

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

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

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

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

9. Consent

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

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

Consent will be obtained by potential participants completing an online form. Only upon ticking the box indicating that they agree with all statements will they be directed to the online questionnaires.

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

Due to the sensitive nature of some of the questionnaires, although not anticipated, there is the potential for individuals to experience psychological distress. Participants will be asked about adverse childhood experiences, psychotic experiences, how they relate to others and beliefs about themselves. However, the participant information sheet will be open and transparent about what the questionnaires will be asking before they consent to participation in the research, including sample questions. Participants will also have the opportunity to withdraw from the research at anytime during the completion of the survey and will be directed immediately to the debrief sheet. Should they experience any distress, the debrief sheet contains information about what support services are available and how they can access these.

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

The researcher may be exposed to potentially distressing information when analysing the data or if contacted by participants. The researcher will use their clinical skills learnt as part of their clinical training to manage the situation and will seek supervision appropriately.

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

There will not necessarily be any benefits to research participants other than having the opportunity to be entered into a prize draw to win one of four £25 Amazon vouchers to spend how they wish.

13. Details of any incentives/payments (including out-of-pocket expenses) made to participants:
No out of pocket expenses are anticipated. Participants will be given the opportunity to be entered into a prize draw to win vouchers by providing their email address upon completion of the survey.

14. Confidentiality and Anonymity

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

yes

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

Participants will not be required to provide identifiable information during the research study and all participation will be anonymous in line with the guidance from the Department of Health Code of Confidentiality. However, participants will be given the opportunity to provide their email address in order to be entered into the prize draw and/or receive a summary of the research findings. No further personal details or identifiable information will be requested and providing their email address is voluntary. All participants' personal details will be kept separately from the data in a separate file on the chief investigators' password protected file space (H drive) on Lancaster University's server. The file containing the personal details of the participants (i.e. email address) will be destroyed once the summary of research findings have been disseminated to the participants and the prizes have been drawn.

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

Lupin members (a service user group involved in the DClinPsy programme at Lancaster University) will be asked if they would like to be involved in the layout and design of the Qualtrics survey.

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

Dissemination will involve the academic submission of the thesis report and will be presented to academic staff and students at Lancaster University as part of the DClinPsy programme. It is also envisaged that the results will be disseminated to research seminars for peer review and submitted for publication in an academic/professional journal. Participants will also be offered the opportunity to receive a summary of the findings via email.

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

N/A

SECTION FOUR: signatureApplicant electronic signature: Date

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

Project Supervisor name (if applicable): Date application discussed **Submission Guidance**

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

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

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



Thesis Research Protocol

Title: Attachment security, early childhood adverse experience and the mediating role of self-concept clarity in psychotic like phenomena.

Name of applicant: Gemma Hayes

Names of supervisors: Professor Bill Sellwood

Version number 1

Introduction

Psychosis is a clinically defined term for a set of medical diagnoses (e.g. Schizophrenia) that are formally given by clinicians utilising diagnostic classification systems (e.g. DSM-V (American Psychiatric Association, 2013)). Impaired reality testing is a central concept to these clinical defined terms. However, there is now an abundance of literature suggesting that ‘psychotic experiences or phenomena’ (i.e. hallucinations, delusions) exist on a continuum of severity rather than as categorical entity (Van Os, Hanssen, Bijl, & Ravelli, 2000). Meta-analyses have found that these experiences are common not only in individuals who have accessed mental health services but also in the general population and for some, these experiences can become more severe over time (Linscott & Van Os, 2013).

Attachment, as defined by Bowlby (1969), is considered to be a life-long construct, relating to early relationships with primary caregivers which have an impact on later interpersonal relationships (Bowlby, 1973). Adult attachment is associated with psychotic phenomenology (Korver-Nieberg, Berry, Meijer & Hann, 2014). In a systematic review Korver-Nieberg et al., (2014) concluded that attachment style is a clinically relevant construct in relation to the development, course and treatment of psychosis. However, results were variable and of poor methodological quality (i.e. small sample size). However, Korver-Neiberg et al., (2014) also highlighted the importance of understanding how attachment patterns can affect outcomes in psychosis, particularly when considering future clinical practice. Taking this further, in a large general population survey (n=5877), Sitko, Bentall, Shevlin, O’Sullivan & Sellwood (2014) found that specific childhood traumas are associated with specific psychotic symptoms (paranoia and hallucinations) and that this association depended upon (were mediated by) specific attachment styles.

Self-concept clarity (SCC), as defined by Campbell et al. (1996), is the extent to which the contents of the self-concept (beliefs about the self) are ‘clearly and confidently defined, internally consistent and temporally stable’ (p.141). Campbell et al. (1996) suggested that an individual who has low self-concept clarity will have beliefs that are uncertain, unstable and inconsistent. Self-concept clarity has been implicated in a range of mental health problems, but seems to be particularly salient in psychosis

(Sellwood, Binsale, Preston & Reilly, 2018). Not only do individuals who experience psychosis score significantly lower on self-concept clarity than controls (de Sousa, Sellwood, Spray, Fernyhough & Bentall, 2016; Evans, Reid, G., Preston, P., Palmier-Claus, J., & Sellwood, 2015) but SCC mediates the relationship between childhood trauma and psychosis (Evans et al., 2015).

The current study aims to draw together our current knowledge of adverse childhood experiences, attachment theory and self-concept theory to contribute to the understanding of vulnerability to psychotic experiences. Given that attachment theory proposes that individuals develop a positive self-concept through the stable and predictable feedback from their caregivers and that there may also be a relationship between attachment style and self-concept clarity (Wu, 2009), it is hypothesised that increased self-concept clarity will be associated with secure adult attachment styles. Moreover, it is also hypothesised that SCC will mediate the link between attachment styles and occurrence of psychotic experiences, and early adverse experiences and occurrence of psychosis experiences. In working with psychosis, these variables are potentially useful therapeutic targets or goals which are likely to be important in terms of assessing vulnerability to psychosis and recovery. In fact, certain items relating to SCC are present in the widely used questionnaire about the process of recovery which is designed to evaluate recovery from psychosis (QPR; Neil et al., 2009).

The primary objective of this study is to test whether self-concept clarity mediates the relationship between attachment styles and psychotic experiences, along with adverse childhood experiences and psychotic experiences as highlighted by Evans et al. (2015).

Method

Participants

Inclusion criteria

The research has two inclusion criteria, which are that participants are aged 18 years or over and are fluent in verbal and written English.

Recruitment

Participants will be recruited via opportunity sampling. Based on the broad inclusion criteria and in order to provide a broader range of presentation severity, a range of forums will be used to aid recruitment. These will include advertising in universities, colleges, mental health charity websites (i.e. Hearing Voices Network), and social media platforms (i.e. Facebook, Twitter).

Sampling

The concepts explored within this study and the lack of research in this area mean an accurate power calculation to establish the required sample necessary to achieve statistical power cannot be established. Guidelines for sample sizes required for mediation analysis indicate if α , β and τ' are all assumed to have medium effect sizes then the sample size required to detect a mediated effect is $n=75$ (Fritz & Mackinnon, 2007). Evans et al. (2015) in a mediational study, exploring similar concepts (self-concept clarity, childhood trauma) found a participant number of 60 within the aggregate group (combined clinical and non-clinical) was sufficient to detect an effect.

Design

This is a quantitative cross-sectional design. Participants will complete a series of self-report measures. The independent variable is psychotic experience. The dependent variables are attachment security and adverse childhood experiences. The mediating variable will be self-concept clarity.

Materials

Demographic questionnaire – Information regarding participants' age, gender identity, ethnicity, marital status, educational attainment, occupational/educational status, contact with health professionals regarding mental health.

The Self-Concept Clarity Scale (SCCS) (Campbell et al, 1996) – This is a 12-item self-report questionnaire evaluating the extent to which beliefs about the self are clearly and confidently defined,

consistent and stable. The SCCS has good internal consistency ($\alpha=0.86$) and test-retest reliability ($r=0.79$) (Campbell, Assanand & Paula, 2003).

The Child Abuse and Trauma Scale (CATS) (Sanders & Becker-Lausen, 1995). – This is a 38-item self-report measure comprised of questions related to the individual's childhood or adolescent experiences of a negative home environment, neglect, punishment, and sexual, physical and psychological mistreatment. The CATS has demonstrated good internal consistency ($\alpha=0.90$) and test-retest reliability ($r=0.89$) (Sanders & Becker-Lausen, 1995).

The Experiences in Close Relationships – Short Form (ESR-S) (Wei, Russell, Mallinckrodt & Vogel, 2007). This is a 12 item self report measure of adult attachment. It has shown good internal consistency ($\alpha=0.78$; Anxiety; $\alpha=0.84$, Avoidance) and test-retest reliability ($r=0.80$: Anxiety; $r=0.83$: Avoidance) (Wei et al., 2007).

The Community Assessment of Psychic Experiences (CAPE-42) (Stefanis et al., 2002). The CAPE-42 is a forty two item self-report scale that is widely used to assess psychotic experiences in the general population. It includes subscales, one to measure the frequency of the experience and the other to measure the level of associated distress. The CAPE-42 includes dimensions of positive psychotic experiences, negative psychotic experiences and depressive experiences. The CAPE-42 has demonstrated discriminant validity (Stefanis et al., 2002) and a meta-analysis found the CAPE-42 to be psychometrically reliable ($\alpha=0.78$) (Mark & Touloupoulou, 2016).

Procedure

Potential participants will be directed via online and poster advertising to click on link which will take them to an online database named Qualtrics. Before deciding to participate, participants will be asked to read the participant information sheet which outlines the reasons for the study and what it will entail. Should they wish to take part they will then be directed to the online consent form and will have to indicate that they have understood the information provided and give their consent by ticking the appropriate box and submitting electronically. If consent is given they will then be directed to the online

questionnaires which will be presented and completing in the following order: demographic questionnaire, SCCS, ESR-S, CATS, CAPE-42. Without consent they will not be able to proceed to the questionnaires. An online debrief sheet will be provided on completion or if they withdraw from the survey. Participants who wish to receive a summary of findings on completion of the research or wish to be entered in to the prize draw will be asked to provide their email address. The email addresses will be kept in databases which are separate to the anonymised responses of the questionnaires. All databases will be kept on a password protected file on Lancaster University's server.

Once data collection is completed, all of the data on Qualtrics online database will be securely transferred by the chief investigator to the software package 'Statistical Package for Social Sciences' (SPSS) for analysis. When relevant participants have been sent a copy of the findings and the prizes have been drawn, the files containing the participants' personal information will be destroyed.

Proposed Analysis

Data will be analysed using a statistical mediation model such as the approach outlined by Preacher and Hayes (2008). Mediation analysis' objective is to identify and explain the relationship between an independent and a dependent variable, via the inclusion of a third variable (mediator variable). In this study the mediator variable is self concept clarity. Therefore in accordance with the primary research questions two mediation models will be analysed:

Model 1: Adult attachment style (independent variable), self concept clarity (mediator variable) and psychotic experience (dependent variable).

Model 2: Childhood trauma (independent variable), self concept clarity (mediator variable) and psychotic experience (dependent variable).

Practical Issues

Due to the sensitive nature of some of the questions contained within the battery of questionnaires and also the time required to complete the survey participant uptake may be limited. Therefore, it order to

address this issue, recruitment will be started at the earliest opportunity once ethical approval is obtained. A voucher incentive in the form of a random prize draw will also be utilised in order to aid recruitment.

Ethical Concerns

Due to the sensitive nature of some of the questions contained within the battery of questionnaires there is potential for individuals to be distressed. Participants will be asked about adverse childhood experiences, psychotic experiences, how they relate to others and beliefs about themselves. However, the participant information sheet will be open and transparent about what the questionnaires will be asking before they consent to participation in the research, including sample questions. Participants will also have the opportunity to withdraw from the research at anytime during the completion of the survey and will be directed immediately to the debrief sheet. Should they experience any distress, the debrief sheet contains information about what support services are available and how they can access these.

Ethical approval will be sort from FHMREC at Lancaster University before recruitment commences.

Timescale

September 2019 – October 2019	Prepare and submit course and ethics documentation: Research protocol and FHMREC application.
November 2019	Develop literature review plan. Transfer all measures and supplementary materials onto Qualtrics.
December 2019	Online database goes live. Distribute posters and participant information sheets to colleges/university and websites. Submit draft of literature review.
January 2020	Submit draft of introduction and methodology
February 2020	Data analysis
March 2020	Submit drafts of results and discussion and critical appraisal.
April 2020	Submit Thesis

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Appendix 4-A**Participant Information Sheet**

Study Title: The role of adverse childhood experiences, self-concept clarity and adult relationships in psychotic like experiences.

Researcher: Gemma Hayes

Dear prospective participant,

My name is Gemma Hayes and I am conducting this research as a trainee clinical psychologist on the Doctorate in Clinical Psychology programme at Lancaster University. This research study has been granted ethical approval by Lancaster University FHM Research Ethics Committee.

I would like to invite you to take part in this research study. Before you decide, it is important for you to understand why this research is being done and what it would involve. Please take time to read the information carefully and discuss it with others if you wish. You do not have to make the decision right away, so if you have any doubts or feel unsure, please take some time to think about it. If you have any questions about the research, please do not hesitate to contact the chief researcher Gemma Hayes g.hayes1@lancaster.ac.uk

What is the purpose of the study?

Research suggests that experiences such as hearing voices, seeing visions or unusual beliefs may be linked to upsetting events in childhood and how we form relationships in adulthood. We want to better understand these links by investigating whether the current beliefs we have about ourselves play a part in this. By carrying out this research we hope to expand professionals' knowledge and influence some of our clinical practice when working with clients who experience psychological distress.

Why have been asked to take part?

We are asking individuals to take part who are 18 years old and above and are fluent in English. To take part you do not have to have experienced psychotic phenomena (e.g. heard voices). However, if you have experienced psychotic phenomena or have experienced mental health difficulties in the past, you are also very welcome to take part. This is so that we know what factors may or may not play a role in the development of psychosis.

Do I have to take part?

No. It is entirely up to you whether or not you decide to take part. Whatever decision you make, you do not have to give a reason. If you decide you would like to take part, you can download this information sheet to keep and will be asked to complete a consent form. You can decide to stop at any point during the completion of the survey. However, it will not be possible to withdraw once you have completed the survey as your data will be anonymised.

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

If you agree to take part, you will be given a consent form and asked to tick a box provided to ensure you understand what the study entails. After providing consent you will be directed to an online survey which contains a set of questionnaires. The survey will take approximately 35 minutes to complete. The survey will ask you questions related to difficult or upsetting events you may have experienced in childhood, close relationships, questions about unusual experiences and about the feelings you have towards yourself. See below examples of some of the questions/statements you will be asked about:

Example 1: My desire to be very close sometimes scares people away.

Example 2: As a child were you punished in unusual ways (e.g. being locked in a closet for a long time or being tied up)?

Example 3: I spend a lot of time wondering about what kind of person I really am.

Example 4: Do you ever feel as if you do not want to live anymore?

Example 5: Do you ever feel as if the thoughts in your head are not your own?

What are the possible benefits of taking part?

Research findings obtained during the study may help us better understand people who develop psychotic phenomena (i.e. experiencing visions, voice hearing or believing things that others find strange), and may potentially be used to improve psychological interventions in the future.

By providing us with an email address, you will have the opportunity to be entered in to a prize draw to win one of four £25 Amazon vouchers to spend how you wish.

What are the possible disadvantages and risks of taking part?

Some of the questionnaires may cover issues that are sensitive and/or potentially distressing for you, such as questions about previous stressful events. These questions are chosen to help us understand the development and maintenance of psychosis. If you do experience distress you may discontinue the survey/questionnaires at any time. At the bottom of the page, and on completion of the survey, there is a list of contact details of support services that you may contact if you experience distress as a result of participating.

Will my taking part in the study be kept confidential?

Yes, all the information collected during the study will be kept strictly confidential. All data will be anonymised by pooling all the responses together. No personal identifiable data such as your name and date of birth will be required to participate. All data will be stored in a secure place on a password protected computer drive on Lancaster University's server that only the project researcher will have access to. If you choose to provide your email address (e.g. to be entered into the prize draw or obtain a summary of the findings), this will also be kept confidential and in a different database on the password protected computer drive so that nobody, including the researchers, will know whose responses match which email address.

Email addresses will be deleted as soon as the winners of the vouchers have been randomly drawn and the project has been completed. All other data may be retained for up to 10 years and it is the responsibility of the Research Coordinator at Lancaster University to delete them.

Lancaster University will be the data controller for any personal information (i.e. your email address) collected as part of this study. Under the GDPR you have certain rights when personal data is collected about you. You have the right to access any personal data held about you, to object to the processing of your personal information, to rectify personal data if it is inaccurate, the right to have data about you erased and, depending on the circumstances, the right to data portability. Please be aware that many of these rights are not absolute and only apply in certain circumstances. If you would like to know more about your rights in relation to your personal data, please speak to the researcher on your particular study. For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection.

What will happen to the results of the research study?

The research should be completed by August 2020. The results of the study will be included in a report and submitted for examination by Lancaster University. The results may also be published within an academic journal and may be presented to a variety of audiences. There will be no personal information about any of the people who participate within any of these reports or presentations. If you wish to receive a summary of the findings, you will be given the opportunity to provide your email address, and the summary will be sent at the point of completion.

What if I am unhappy or if there is a problem?

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Professor Bill Sellwood on 01524 593998 or via email b.sellwood@lancaster.ac.uk. Professor Sellwood is supervising the research and is based at the Division of Health Research at Lancaster University.

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

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

Associate Dean for Research Email: r.pickup@lancaster.ac.uk

Faculty of Health and Medicine

(Division of Biomedical and Life Sciences)

Lancaster University

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Thank you for taking the time to read this information sheet.

Chief researcher:

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g.hayes1@lancaster.ac.uk

Research Supervisor:

Professor Bill Sellwood

Doctorate of Clinical Psychology Programme Director,

Faculty of Health and Medicine,

Furness College, Lancaster University,

LA1 4YF

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01524 593998

Experiencing distress?

Should you experience any distress, either as a result of taking part in this research or in the future, I would advise you to speak directly to your General Practitioner (GP) who will be able to direct you to services which provide free mental health support. If you are already receiving support from a mental health service I advise you to speak to your named nurse, care-co-ordinator, Psychiatrist or Psychologist. Alternatively, there are mental health charities which can offer support and advice (please see below).

Mental Health Charities**The Samaritans**

The Samaritans are open 24 hours a day, 365 days a year and you can contact them using the free phone number below to talk to them about anything that may be causing you upset.

Website: www.samaritans.org

Telephone number: 116 123 (free from mobiles and landlines)

Mind

Mind is a charity which provides information on different types of mental health difficulties, treatments and where to get help in your local area.

Website: www.mind.org.uk

Telephone: 0300 123 3393 (currently available 9-6pm, Monday to Friday except bank holidays).

Appendix 4-B

**Consent Form****The role of adverse childhood experiences, self-concept clarity and adult relationships in psychotic like experiences.**

Before you consent to participating in this study we ask you to carefully read the participant information sheet and tick the box below if you agree to all of the statements. If you have any questions before signing the consent form, please contact the chief researcher, Gemma Hayes g.hayes1@lancaster.ac.uk who will be happy to answer any of your queries.

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

I confirm that I have had all my questions answered.

I understand that all my responses will remain anonymous.

I consent to anonymous information from my responses to be used in reports, conferences and training events.

I understand that my participation is voluntary and that if I wish to withdraw from the study I am able to until the end of the survey without giving any reason.

I understand that due to my responses being anonymous I will be unable to withdraw my responses once I have completed the survey.

I understand that the information provided in my responses will be shared with the supervisors of this research study.

I consent to Lancaster University keeping the anonymised data for a period of 10 years after the study has finished.

I consent to taking part in this research.

Appendix 4-C**Debrief Information Sheet*****The role of adverse childhood experiences, self-concept clarity and adult relationships in psychotic like experiences.***

The study is interested in how upsetting childhood experiences, how we relate to others and the beliefs we have of ourselves, may or may not impact on the development of psychosis.

Thank you very much for participating in this research.

Please enter your email address below if you would like to enter a prize draw for Amazon vouchers.

If you did not complete the survey, your data will be deleted. If you did, your data will be analysed. I would like to remind you that your data is completely anonymous and confidential.

How was this explored?

In this study, participants were asked to complete a set of questionnaires. The questionnaires explored background and personal characteristics, current mood, occurrence of adverse childhood experiences, occurrence of 'unusual experiences', current behaviours with their partner or a close other and beliefs about themselves. A term called 'self-concept clarity' was the main focus of the current research and refers to how an individual views themselves.

The data collected from the questionnaires will be evaluated in order to explore the potential relationship between factors (e.g. relationship behaviour, childhood experiences, view of the self and 'unusual' experiences).

Why is this important to study?

It is important to study what factors may contribute to the development and maintenance of mental health difficulties (i.e. psychosis) so that we can develop therapeutic interventions which will help promote prevention and recovery.

What if I want to know more?

If you would like to know more about this research please provide your email address below and the chief researcher Gemma Hayes will contact you with a summary of the findings.

Should you experience any distress, either as a result of taking part in this research or in the future, I would advise you to speak directly to your General Practitioner (GP) who will be able to direct you to services which provide free mental health support. If you are already receiving support from a mental health service I advise you to speak to your named nurse, care-co-ordinator, Psychiatrist or Psychologist. Alternatively, there are mental health charities which can offer support and advice (please see below).

Thank you once again for participating in this study and I wish you all the best for the future.

Mental Health Charities

The Samaritans

The Samaritans are open 24 hours a day, 365 days a year and you can contact them using the free phone number below to talk to them about anything that may be causing you upset.

Website: www.samaritans.org

Telephone number: 116 123 (free from mobiles and landlines)

Mind

Mind is a charity which provides information on different types of mental health difficulties, treatments and where to get help in your local area.

Website: www.mind.org.uk

Telephone: 0300 123 3393 (currently available 9-6pm, Monday to Friday except bank holidays).

Appendix 4-D

Participant Demographic Questionnaire

Firstly I would like to ask some questions about yourself. The information you provide will be kept confidential.

Q1. What is your gender?

- Male
 Female
 Other *Please state*

Q2. What is your age in years?

Q3. What is your ethnicity?

White

- British
 Irish
 Any other White background

Asian/Asian British

- Indian
 Pakistani
 Bangladeshi
 Any other Asian background

Mixed

- White & Black Caribbean
 White & Black African
 White & Asian
 Any other Mixed background

Black/Black British

- Caribbean
 African
 Any other Black background

Chinese

- Chinese

Other ethnic background

- Any other ethnic background
(please specify)

Q4. What is your marital status?

- Single or never married
 Married
 Living with a partner
 Widowed
 Divorced or separated

Q5. What is the highest level of education that you have obtained?

- I didn't finish school
- GCSE's/ O'Levels
- Vocational qualification (e.g. BTEC, NVQ)
- A Levels
- Undergraduate degree
- Postgraduate degree
- Doctoral degree

Q6. Are you working or studying at the moment?

- Unemployed
- Working
- Studying
- Working & studying

Q7. How did you hear about the study?

.....

Q8. Have you ever received a mental health diagnosis? (e.g. depression, anxiety, psychosis)?

- Yes (*please state.....*)
- No

Q9. Have you ever seen a health professional for support with emotional or mental health difficulties?

- Yes (*Please give as much detail below as possible*)

.....
.....
.....

- No

Appendix 4-E

Self-Concept Clarity Scale (SCCS)

Please read each statement carefully and answer by placing a mark on a scale of 1 to 5, where 1 indicates that you strongly disagree with the statement and 5 indicates that you strongly agree with the statement. Base your answers on how you feel the statement matches your thoughts, feelings and experiences. There is no right or wrong answer so please answer as honestly as possible.

	Strongly Disagree 1	2	3	4	Strongly Agree 5
My beliefs about myself often conflict with one another.					
On one day I might have one opinion of myself and on another day I might have a different opinion.					
I spend a lot of time wondering about what kind of person I really am.					
Sometimes I feel that I am not really the person that I appear to be.					
When I think about the kind of person I have been in the past, I'm not sure what I was really like.					
I seldom experience conflict between the different aspects of my personality.					
Sometimes I think I know other people better than I know myself.					
My beliefs about myself seem to change very frequently.					
If I were asked to describe my personality, my description might end up being different from one day to another day.					
Even if I wanted to, I don't think I could tell someone what I'm really like.					
In general, I have a clear sense of who I am and what I am.					
It is often hard for me to make up my mind about things because I don't really know what I want.					

Appendix 4-F**CHILD ABUSE AND TRAUMA SCALE**

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

In responding to these questions, simply circle the appropriate number according to the following definitions:

- 0 = never
- 1 = rarely
- 2 = sometimes
- 3 = very often
- 4 = always

To illustrate, here is a hypothetical question: Did your parents criticise you when you were young? If you were rarely criticised you should circle number 1.

Please answer all of the questions.

1. Did your parents ridicule you?	0	1	2	3	4
2. Did you ever seek outside help or guidance because of problems in your home?	0	1	2	3	4
3. Did your parents verbally abuse each other?	0	1	2	3	4
4. Were you expected to follow a strict code of behaviour in your home?	0	1	2	3	4
5. When you were punished as a child or teenager, did you understand the reason you were punished?	0	1	2	3	4
6. When you didn't follow the rules of the house, how often were you severely punished?	0	1	2	3	4
7. As a child did you feel unwanted or emotionally neglected?	0	1	2	3	4
8. Did your parents insult you or call you names?	0	1	2	3	4
9. Before you were 14, did you engage in any sexual activity with an adult?	0	1	2	3	4
10. Were your parents unhappy with each other?	0	1	2	3	4
11. Were your parents unwilling to attend any of your school-related activities?	0	1	2	3	4
12. As a child were you punished in unusual ways (e.g. being locked in a closet for a long time or being tied up)?	0	1	2	3	4
13. Were there traumatic or upsetting sexual experiences when you were a child or teenager that you couldn't speak to adults about?	0	1	2	3	4

14. Did you ever think you wanted to leave your family and live with another family?	0	1	2	3	4
15. Did you ever witness the sexual mistreatment of another family member?	0	1	2	3	4
16. Did you ever think seriously about running away from home?	0	1	2	3	4
17. Did you witness the physical mistreatment of another family member?	0	1	2	3	4
18. When you were punished as a child or teenager, did you feel the punishment was deserved?	0	1	2	3	4
19. As a child or teenager, did you feel disliked by either of your parents?	0	1	2	3	4
20. How often did your parents get really angry with you?	0	1	2	3	4
21. As a child did you feel that your home was charged with the possibility of unpredictable physical violence?	0	1	2	3	4
22. Did you feel comfortable bringing friends home to visit?	0	1	2	3	4
23. Did you feel safe living at home?	0	1	2	3	4
24. When you were punished as a child or teenager, did you feel "the punishment fit the crime"?	0	1	2	3	4
25. Did your parents ever verbally lash out at you when you did not expect it?	0	1	2	3	4
26. Did you have traumatic sexual experiences as a child or teenager?	0	1	2	3	4
27. Were you lonely as a child?	0	1	2	3	4
28. Did your parents yell at you?	0	1	2	3	4
29. When either of your parents was intoxicated, were you ever afraid of being sexually mistreated?	0	1	2	3	4
30. Did you ever wish for a friend to share your life?	0	1	2	3	4
31. How often were you left at home alone as a child?	0	1	2	3	4
32. Did your parents blame you for things you didn't do?	0	1	2	3	4
33. To what extent did either of your parents drink heavily or abuse drugs?	0	1	2	3	4
34. Did your parents ever hit or beat you when you did not expect it?	0	1	2	3	4
35. Did your relationship with your parents ever involve a sexual experience?	0	1	2	3	4
36. As a child, did you have to take care of yourself before you were old enough?	0	1	2	3	4
37. Were you physically mistreated as a child or teenager?	0	1	2	3	4
38. Was your childhood stressful?	0	1	2	3	4

Appendix 4-G

EXPERIENCES IN CLOSE RELATIONSHIP SCALE-SHORT FORM (ECR-S)

The following statements concern how you feel in romantic relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by indicating how much you agree or disagree with it. Mark your answers using the scale provided.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1. It helps to turn to my romantic partner in times of need.							
2. I need a lot of reassurance that I am loved by my partner.							
3. I want to get close to my partner, but I keep pulling back.							
4. I find that my partner(s) don't want to get as close as I would like.							
5. I turn to my partner for many things, including comfort and reassurance.							
6. My desire to be very close sometimes scares people away.							
7. I try to avoid getting too close to my partner.							
8. I do not often worry about being abandoned.							
9. I usually discuss my problems and concerns with my partner.							
10. I get frustrated if romantic partners are not available when I need them.							
11. I am nervous when partners get too close to me.							

12. I worry that romantic partners won't care about me as much as I care about them.							
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Appendix 4-H**The Community Assessment of Psychic Experiences (CAPE-42)**

Q1 Do you ever feel sad?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 2.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q2. Do you ever feel as if people seem to drop hints about you or say things with a double meaning?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 3.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q3. Do you ever feel that you are not a very animated person?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 4.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q4. Do you ever feel that you are not much of a talker when you are conversing with other people?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 5.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q5. Do you feel as if things in magazines or on TV were written especially for you?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 6.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q6. Do you ever feel as if some people are not what they seem to be?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 7.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q7. Do you ever feel as if you are being persecuted in some way?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 8.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q8. Do you ever feel that you experience few or no emotions at important events?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 9.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q9. Do you ever feel pessimistic about everything?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 10.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q10. Do you ever feel as if there is a conspiracy against you?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 11.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q11. Do you ever feel as if you are destined to be someone very important?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 12.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q12. Do you feel as if there is no future for you?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 13.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q13. Do you feel that you are very special or unusual person?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 14.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q14. Do you ever feel as if you do not want to live anymore?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 15.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q15. Do you ever think that people can communicate telepathically?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 16.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q16. Do you ever fee that you have no interest to be with other people?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 17.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q17. Do you ever feel as if electrical devices such as computers can influence the way you think?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 18.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q18. Do you ever feel that you are lacking in motivation to do things?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 19.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q19. Do you ever cry about nothing?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 20.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q20. Do you believe in the power of witchcraft, voodoo or the occult?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 21.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q21. Do you ever feel that you are lacking in energy?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 22.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q22. Do you ever feel that people look at you oddly because of your appearance?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 23.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q23. Do you ever feel that your mind is empty?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 24.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q24. Do you ever feel as if the thoughts in your head are being taken away from you?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 25.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q25. Do you ever feel that you are spending all your days doing nothing?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 26.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q26. Do you ever feel as if the thoughts in your head are not your own?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 27.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q27. Do you ever feel that your feelings are lacking in intensity?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 28.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q28. Have your thoughts ever been so vivid that you were worried other people would hear them?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 29.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q29. Do you ever feel that you are lacking in spontaneity?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 30.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q30. Do you ever hear your own thoughts being echoed back to you?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 31.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q31. Do you ever feel as if you are under the control of some force or power other than yourself?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 32.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q32. Do you ever feel that your emotions are blunted?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 33.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q33. Do you ever hear voices when you are alone?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 34.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q34. Do you ever hear voices talking to each other when you are alone?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 35.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q35. Do you ever feel that you are neglecting your appearance or personal hygiene?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 36.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q36. Do you ever feel that you can never get things done?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 37.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q37. Do you ever feel that you have only few hobbies or interests?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 38.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q38. Do you ever feel guilty?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 39.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q39. Do you ever feel like a failure?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 40.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q40. Do you ever feel tense?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 41.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q41. Do you ever feel as if a double has taken the place of a family member, friend or acquaintance?

Never Sometimes Often Nearly always

If you ticked "never", please go to question 42.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Q42. Do you ever see objects, people or animals that other people cannot see?

Never Sometimes Often Nearly always

If you ticked "never", please go to the next page.

If you ticked "sometimes", "often" or "nearly always" please indicate how distressed you are by this experience:

Not distressed A bit distressed Quite distressed Very distressed

Appendix 4-I



Applicant: Gemma Hayes
Supervisor: Bill Sellwood
Department: Health Research
FHMREC Reference: FHMREC19017

06 January 2020

Dear Gemma

Re: Attachment, childhood adverse experiences and the mediating role of self-concept clarity in psychosis.

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

As principal investigator your responsibilities include:

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

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

Tel:- 01542 593987

Email:- fhmresearchsupport@lancaster.ac.uk

Yours sincerely,

A handwritten signature in cursive script that reads "R.E. Case".

Becky Case
Research Ethics Officer, Secretary to FHMREC.