

## University of Southampton Research Repository

Copyright © and Moral Rights for this thesis and, where applicable, any accompanying data are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis and the accompanying data cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content of the thesis and accompanying research data (where applicable) must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holder/s.

When referring to this thesis and any accompanying data, full bibliographic details must be given, e.g.

Thesis: Author (Year of Submission) "Full thesis title", University of Southampton, name of the University Faculty or School or Department, PhD Thesis, pagination.

Data: Author (Year) Title. URI [dataset]



**University of Southampton**

Faculty of Environmental and Life Sciences School of Psychology

**Understanding Suspicious Thinking: What Mediates the Relationship Between  
Attachment Style and Psychosis?**

by

**Olivia Partridge**

ORCID ID: 0000-0002-8281-5558

Thesis for the degree of Doctor of Clinical Psychology

June 2021

Word Count: 15480



# University of Southampton

## Abstract

Faculty of Environmental and Life Sciences School of Psychology

Thesis for the degree of Doctor of Clinical Psychology

Understanding Suspicious Thinking: What Mediates the Relationship Between  
Attachment Style and Psychosis?

by

Olivia Partridge

Psychosis is characterised by difficulties in interpreting reality. Cognitive Behavioural Therapy for psychosis primarily targets cognitions and behaviour to effect therapeutic change, and yields modest results, warranting further research into the psychological factors contributing to the development and maintenance of distressing psychosis. It is now well-established that insecure attachment is related to psychosis, but little is known about the mediating mechanisms underlying this relationship.

A systematic review was conducted which examined 17 studies exploring mediating mechanisms between attachment style and psychosis. The attachment and psychosis relationship was found to be mediated by four variables, with strong evidence for affective factors (e.g. affective dysregulation) and cognitive factors (e.g. self-beliefs), and tentative evidence for duration of untreated psychosis and negative symptoms. The results suggest that, in addition to cognitive factors, it may be beneficial to target affective factors and attachment style in psychological interventions for psychosis. Based on this review, an empirical study was conducted to explore the mediating role of affect regulation in the attachment and psychosis relationship. Sixty-two individuals with elevated paranoia were recruited from NHS and community settings. As predicted, affect dysregulation mediated the association between attachment avoidance and paranoia, and between attachment anxiety and paranoia. Emotion suppression did not mediate the association between attachment avoidance and paranoia, possibly due to power.

Collectively, these findings highlight the key role of attachment and affect regulation in psychosis and provide a guide to future research, including the need to evaluate the effectiveness of emotion regulation skills training for people with psychosis.



# Table of Contents

Table of Contents.....	i
Table of Tables.....	v
Table of Figures .....	vi
Research Thesis: Declaration of Authorship .....	vii
Acknowledgements .....	ix
Definitions and Abbreviations.....	xi
<b>Chapter 1 How Does Attachment Style Affect Psychosis? A Systematic Review of Causal Mechanisms and Guide to Future Inquiry.....</b>	<b>1</b>
1.1 Abstract.....	2
1.2 Background .....	2
1.2.1 Attachment .....	3
1.2.2 Attachment and Psychosis .....	4
1.2.3 Aims.....	4
1.3 Method.....	4
1.3.1 Search Procedure .....	4
1.3.2 Inclusion and Exclusion Criteria .....	6
1.3.3 Study Selection, Data Extraction, and Analysis Plan .....	6
1.3.4 Quality Assessment.....	8
1.4 Results .....	9
1.4.1 Study Characteristics.....	9
1.4.2 Participant Characteristics .....	16
1.4.3 Measures of Attachment .....	16
1.4.4 Measures of Psychosis .....	18
1.4.5 Measures of Mediators.....	19
1.5 <i>Synthesis of Research Examining Mediators in the Relationship between Attachment and Psychosis</i> .....	21
1.5.1 Affective Factors .....	23
1.5.1.1 Affective Dysregulation.....	23

## Table of Contents

1.5.1.2	Affective Disturbances.....	24
1.5.2	Cognitive Factors .....	25
1.5.2.1	Beliefs About Symptoms.....	25
1.5.2.2	Self-Beliefs and Self-Esteem .....	26
1.5.2.3	Beliefs about Others and the World.....	27
1.5.2.4	Meta-Cognitive Beliefs and Processes.....	27
1.5.3	Duration of Untreated Psychosis and Negative Psychotic Symptoms .....	28
1.6	<i>Discussion</i> .....	28
1.6.1	Overview of Findings .....	28
1.6.2	Strengths.....	31
1.6.3	Limitations .....	31
1.6.4	A Guide to Future Inquiry .....	32
1.6.5	Clinical Implications .....	33
1.6.6	Conclusions .....	34
<b>Chapter 2</b>	<b>Pathways from Insecure Attachment to Paranoia: The Mediating Role of Emotion Regulation .....</b>	<b>35</b>
2.1	<i>Abstract</i> .....	36
2.2	<i>Background</i> .....	36
2.2.1	Attachment.....	37
2.2.2	Emotion Regulation .....	38
2.2.3	Current study .....	39
2.3	<i>Method</i> .....	40
2.3.1	Design .....	40
2.3.2	Participants .....	40
2.3.3	Procedure .....	40
2.3.4	Measures .....	41
2.3.4.1	Demographic Questionnaire.....	41
2.3.4.2	Paranoia.....	41
2.3.4.3	Attachment.....	41
2.3.4.4	Emotion Regulation .....	42
2.3.5	Ethical considerations.....	42
2.3.6	Statistical Analyses.....	42
2.4	<i>Results</i> .....	43
2.4.1	Sample characteristics .....	43



2.4.2	Mediation Analyses.....	45
2.4.3	Correlation Analyses.....	48
2.5	<i>Discussion</i> .....	49
2.5.1	Strengths and Limitations.....	51
2.5.2	Future Research and Clinical Implications.....	52
2.5.3	Conclusions.....	52
<b>Appendix A</b>	<b>Quality Assessment Ratings.....</b>	<b>54</b>
<b>Appendix B</b>	<b>Social Media Advertisement.....</b>	<b>57</b>
<b>Appendix C</b>	<b>Participant Information Sheet for NHS Recruitment.....</b>	<b>58</b>
<b>Appendix D</b>	<b>Participant Information Sheet for Community Recruitment.....</b>	<b>62</b>
<b>Appendix E</b>	<b>Consent Form for NHS Recruitment.....</b>	<b>65</b>
<b>Appendix F</b>	<b>Consent Form for Community Recruitment.....</b>	<b>66</b>
<b>Appendix G</b>	<b>Debrief Form for NHS Recruitment.....</b>	<b>67</b>
<b>Appendix H</b>	<b>Debrief Form for Community Recruitment.....</b>	<b>68</b>
<b>Appendix I</b>	<b>Ethical Approval.....</b>	<b>69</b>
<b>Appendix J</b>	<b>Descriptive Statistics for Clinical and Community Participants.....</b>	<b>77</b>
	<b>List of References.....</b>	<b>79</b>



**Table of Tables**

<b>Table 1</b>	Free Text and Subject Headings used in the Search Strategy .....	5
<b>Table 2</b>	Inclusion and Exclusion Criteria for Study Selection .....	6
<b>Table 3</b>	Summary of Study Data Extraction .....	10
<b>Table 4</b>	Attachment Outcome Measures .....	17
<b>Table 5</b>	Psychosis Experiences Outcome Measures.....	18
<b>Table 6</b>	Mediating Mechanisms Outcome Measures.....	19
<b>Table 7</b>	Research Priorities in Understanding Causal Mechanisms in the Attachment- Psychosis Relationship, and Impact of Clinical Interventions.....	32
<b>Table 8</b>	Demographic Data and Descriptive Statistics .....	43
<b>Table 9</b>	Correlation Matrix for Attachment Anxiety and Emotion Regulation .....	48
<b>Table 10</b>	Correlation Matrix for Attachment Avoidance and Emotion Regulation .....	49

Table of Figures

**Table of Figures**

<b>Figure 1</b>	PRISMA Diagram for Paper Selection.....	7
<b>Figure 2</b>	Summary of the Mediating Mechanisms Underlying the Insecure Attachment and Psychosis Relationship.....	22
<b>Figure 3</b>	Mediation Model Testing if Emotion Dysregulation Mediates the Relationship between Attachment Anxiety and Paranoia .....	45
<b>Figure 4</b>	Mediation Model Testing if Emotion Dysregulation Mediates the Relationships between Attachment Avoidance and Paranoia .....	46
<b>Figure 5</b>	Mediation Model Testing if Emotion Suppression Mediates the Relationships between Attachment Avoidance and Paranoia .....	47
<b>Figure 6</b>	Mediation Model testing if Emotion Dysregulation Mediates the Relationships between Attachment Anxiety and Paranoia, Controlling for Gender and Recruitment Pathway.....	47
<b>Figure 7</b>	Mediation Model testing if Emotion Dysregulation Mediates the Relationships between Attachment Avoidance and Paranoia, Controlling for Gender and Recruitment Pathway.....	48

## Research Thesis: Declaration of Authorship

Print name: Olivia Partridge

Title of thesis: Understanding Suspicious Thinking: What Mediates the Relationship Between Attachment Style and Psychosis?

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: ..... Date: 02/06/2021



## **Acknowledgements**

I would like to thank my supervisors Dr Katherine Newman-Taylor and Dr Tess Maguire. During this project they shared not only their extensive knowledge and expertise but also their kindness and compassion, which helped me to overcome the difficulties I faced, including those caused by COVID-19. My supervisors guided me through this project at a time when the whole world was struggling, for which I am very grateful.

I would also like to thank the participants in the study, and the clinicians who helped me to recruit.





## Definitions and Abbreviations

CBT .....	Cognitive Behavioural Therapy
DERS .....	Difficulty in Emotion Regulation Scale
DUP .....	Duration of Untreated Psychosis
EPHPP .....	Effective Public Health Practice Project Quality Assessment Tool
ERGO .....	Ethics and Research Governance Online
ERQ.....	Emotion Regulation Questionnaire
NHS.....	National Health Service
NICE.....	National Institute for Health and Care Excellence
PAM.....	Psychosis Attachment Measure
PRISMA.....	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
R-GPTS.....	Revised-Green Paranoid Thought Scale
SEM .....	Structural Equation Modelling
SPSS.....	Statistical Package for the Social Sciences



# **Chapter 1 How Does Attachment Style Affect Psychosis? A Systematic Review of Causal Mechanisms and Guide to Future Inquiry**

The following paper has been prepared in line with the 'Psychology and Psychotherapy: Theory, Research and Practice' journal author guidelines.

## 1.1 Abstract

The link between attachment and psychosis is now well established, but less is known about the causal mechanisms underlying this relationship. This systematic review aimed to synthesise what is currently known about the mediating mechanisms in the attachment and psychosis relationship, in both clinical and non-clinical samples. A database search was conducted (PsychINFO, MEDLINE, Web of Science) to identify all eligible studies irrespective of publication status, language of article, or article date. Methodological quality was assessed and a narrative synthesis was conducted given the heterogeneity of studies to date. Seventeen papers were identified, comprising 3672 participants. The results show that the relationship between attachment and psychosis is mediated by four variables or groups of variables. There is good evidence for the causal role of affective factors (affective dysregulation and affective disturbances) and cognitive factors (e.g. self-beliefs and self-esteem, and beliefs about symptoms). Unlike cognitive factors, affective factors differed by attachment style. Tentative evidence was found for the role of duration of untreated psychosis and negative symptoms. While cognitive factors are routinely targeted in recommended psychological interventions for psychosis, affective factors and attachment style are less commonly considered. Psychological therapies may be improved by calibrating cognitive and affective interventions by attachment style, which should be subjected to experimental and then field studies to assess the impact on clinical and recovery outcomes.

## 1.2 Background

Psychosis refers to the experience of thoughts and perceptions that differ from commonly shared reality (Cooke et al., 2014; National Institute for Health and Care Excellence [NICE], 2014). This includes hallucinations (perceptions of stimuli that are not present), delusions (firmly held beliefs despite evidence to the contrary), and disorganised thinking (e.g. flight of ideas; Cooke et al., 2014; NICE, 2014). Psychotic experiences are reported by both clinical and non-clinical populations, ranging on a continuum from common concerns (e.g. suspicious thinking) to clinically significant symptoms (e.g. intense delusions; van Os et al., 2009). In clinical groups, psychosis is typically associated with diagnoses such as schizophrenia, schizoaffective disorder, and delusional disorder (Cooke, 2014).

In 2011, the societal cost of schizophrenia was around £11.8 billion in England (Andrew et al., 2012). Schizophrenia is associated with multiple negative outcomes including increased victimisation, homelessness, and unemployment, compared with the general population (Kooyman et al., 2007). A systematic review reported a 5% lifetime suicide rate for individuals

with psychosis / schizophrenia (Hor & Taylor, 2010), with one study finding those with schizophrenia were 20 times more likely to take their own life than the general population (Nordentoft et al., 2004). Individuals with psychosis are also subject to significant stigma and misunderstanding from others (NICE, 2014).

Cognitive Behavioural Therapy (CBT) is a psychological intervention currently recommended for psychosis, but yields just modest effects (Jauhar et al., 2014; Jones et al., 2018; Laws et al., 2018). We need to understand the factors that lead to the development and maintenance of psychosis in order to determine which factors should be targeted in therapeutic interventions to improve clinical and recovery outcomes. Attachment theory provides an explanatory psychological framework of the development and maintenance of psychosis (Berry et al., 2007; Berry et al., 2020; Gumley, Taylor, et al., 2014).

### **1.2.1 Attachment**

Attachment theory assumes that humans have an innate desire to seek connections with others, and that early experiences with caregivers influence relationships and psychological functioning in later life (Bowlby, 1969/1982). The dimensional conceptualisation of attachment (Brennan et al., 1998) suggests that individuals vary on attachment anxiety and attachment avoidance. Low scores on both dimensions indicates secure attachment, whereas a high score on either indicates insecure attachment.

Secure attachment typically develops from responsive caregiving (Mikulincer & Shaver, 2007). The child learns to use effective affect regulation strategies – self-managing distress and seeking out others appropriately in times of need (Shaver & Mikulincer, 2002). In adulthood, attachment security is associated with comfort with autonomy and intimacy, and positive and realistic self and other appraisals (Gillath et al., 2016).

Attachment anxiety typically develops following inconsistent caregiving, which motivates the child to adopt hyperactivating affect regulation strategies (e.g. exaggerating calls of distress) in attempt to get their needs met and maintain parental proximity (Mikulincer & Shaver, 2007). In adulthood, this is linked with an intense desire for closeness and fear of abandonment, and continued use of hyperactivating strategies; individuals may view themselves as helpless and others as unreliable (Mikulincer et al., 2003).

Attachment avoidance typically develops following unavailable or rejecting caregiving, which motivates the child to adopt deactivating affect regulation strategies (e.g. minimising or

## Chapter 1

suppressing emotions) to avoid further rejection (Mikulincer & Shaver, 2007). In adulthood, this is linked with discomfort with closeness and a desire for independence, and continued use of deactivating strategies; individuals may view others as untrustworthy and hold unrealistic beliefs about their ability to manage alone (Mikulincer et al., 2003).

### 1.2.2 Attachment and Psychosis

Attachment theory assumes that insecure attachment reduces resilience and ability to cope, predisposing individuals to psychological difficulties (Bowlby, 1988). A number of systematic reviews and meta-analyses have now established that insecure attachment is overrepresented in individuals with psychosis (Berry et al., 2007; Carr et al., 2018; Gumley, Taylor, et al., 2014; Korver-Nieberg et al., 2014). These reviews also show that insecure attachment is associated with increased psychotic symptomology across clinical and non-clinical samples, including positive symptoms (e.g. hallucinations and paranoia) and negative symptoms (e.g. social withdrawal; Carr et al., 2018; Gumley, Taylor, et al., 2014; Korver-Nieberg et al., 2014; Lavin et al., 2020; Murphy et al., 2020). While there is strong evidence of a relationship between attachment and psychosis, little is known about the underlying mediating mechanisms which explain *how* attachment style influences psychosis. Mediators may be amenable to change and therefore possible targets for psychological interventions, since attachment style is assumed to be a stable construct (Bowlby, 1969/1982).

### 1.2.3 Aims

While reviews have examined the relationship between attachment and psychosis, to date, there has been no systematic review of the literature focused on mediating mechanisms in the relationship between attachment and psychosis. This review therefore aims to examine the following review question: 'What Mediates the Relationship between Attachment Style and Psychosis?', as well as to evaluate the quality of the evidence to date and develop a guide for future inquiry.

## 1.3 Method

### 1.3.1 Search Procedure

The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). The protocol was published in advance on The International Prospective Register of Systematic Reviews (Registration ID:

CRD42020187917). Initial scoping searches were conducted from April 2020 on Google Scholar, which indicated that there would likely be modest but sufficient literature relevant to the research question. The search strategy was also extended to grey literature on this basis. Three electronic databases were searched on 15th January 2021 (PsycINFO, MEDLINE, Web of Science), using free text and subject headings to improve search accuracy (Boland et al., 2017). Subject headings are set by some databases to identify different terms used for the same concept. Web of Science does not use subject headings. Table 1 displays the search strategy used across platforms. Search terms were agreed collaboratively by the main researcher, supervisors, and two university librarians. The British Library and the Open Grey database were also searched to locate relevant grey literature.

**Table 1**

*Free Text and Subject Headings used in the Search Strategy*

	Terms for psychosis	Terms for attachment	Terms for mediator
Free text	paranoi* OR persecut* OR delusion* OR suspici* OR psychosis OR psychotic OR schizo* OR voice* OR hallucinat*	attachment*	mechanism* OR mediat* OR pathway*
Medline subject headings	"Psychotic Disorders" OR "Delusions" OR "Voice" OR "Voice Disorders" OR "Schizophrenia Spectrum and Other Psychotic Disorders" OR "Schizotypal Personality Disorder" OR "Schizophrenia, Paranoid" "Schizophrenia" OR "Psychoses, Substance-Induced" OR "Paranoid Personality Disorder" OR "Paranoid Disorders" OR "Paranoid Behavior"	"Object Attachment"	- <sup>a</sup>
PsycInfo subject headings	"Acute Psychosis" OR "Paranoia (Psychosis)" OR "Schizophrenia" OR "Chronic Psychosis" OR "Paranoid Schizophrenia" OR "Schizophrenia (Disorganized Type)" OR "Psychosis" OR "Voice" OR "Persecution" OR "Delusions"	"Attachment Disorders" OR "Attachment Behavior" OR "Attachment Theory"	"Mediation"

*Note.* The Web of Science platform does not utilise subject headings.

<sup>a</sup>No subject headings were relevant for this term on this database.

### 1.3.2 Inclusion and Exclusion Criteria

To reduce publication bias, increase comprehensiveness of the search, and yield a balanced overview of the evidence (Paez, 2017) the search strategy contained no limiters regarding publication status, publication date, or language of article. Assuming the continuity model of psychosis (van Os et al., 2009), studies with clinical and / or non-clinical participants were included. In this review the term ‘psychosis’ refers to all experiences across the clinical and non-clinical continuum. Table 2 summarises eligibility criteria.

**Table 2**

*Inclusion and Exclusion Criteria for Study Selection*

	Inclusion	Exclusion
Publication type	Published and unpublished empirical studies	Conference posters, abstracts, reviews and proposals
Participants	Participants 18 years and over	Participants under 18 years
Measures	Included a measure of attachment style, psychosis, and at least one potential mechanism in this relationship	Did not measure attachment style, psychosis, or at least one potential mechanism in this relationship
Analyses	Examined the effect of potential mechanism(s) in the relationship between attachment style and psychosis	Did not examine the effect of potential mechanism(s) in the relationship between attachment style and psychosis

### 1.3.3 Study Selection, Data Extraction, and Analysis Plan

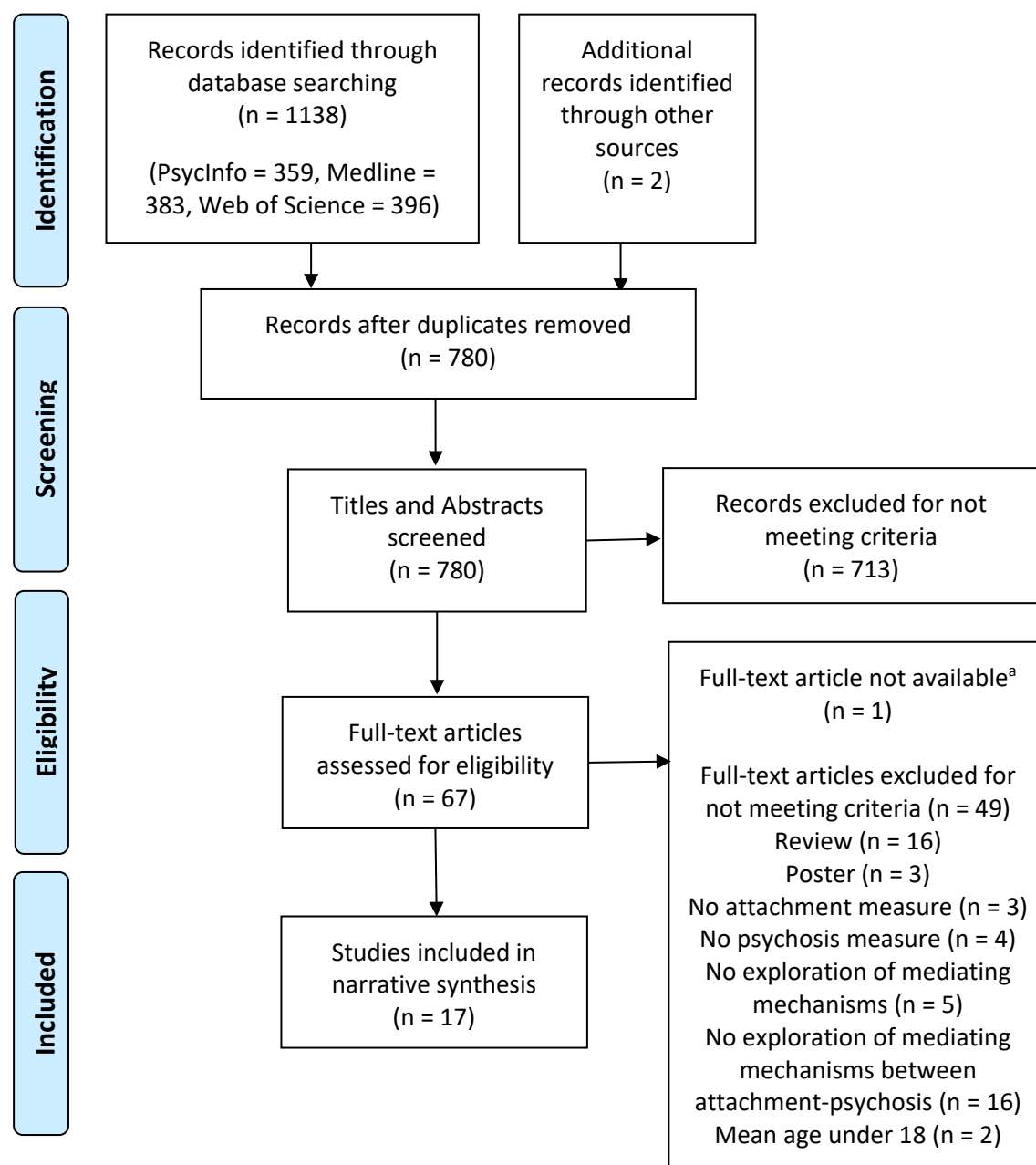
Results from the main and grey literature searches were collated using referencing software. Duplicates were removed and titles and abstracts were screened against the eligibility criteria. Ten percent of abstracts were double rated by a second independent reviewer ( $n = 78$ ), with good agreement (93.59%). The full texts for eligible papers were then obtained and screened. Supervisors were involved in decisions at this stage, with excellent agreement (100%).

Once the final papers were identified, reference lists were examined and a forward search was conducted using the Web of Science platform to identify studies that had cited the final papers. These two steps did not yield any additional relevant material. Figure 1 outlines the paper selection procedure.



Figure 1

PRISMA Diagram for Paper Selection



<sup>a</sup>University librarians were unable to locate the full-text and there were no available correspondence details for author or journal.

Once the data had been extracted, results were synthesised into a coherent textual narrative regarding mediating mechanisms. In line with a previous systematic review (Williams et al., 2018), all mediators were identified and then grouped into ‘families’ of mediators. This process was facilitated in discussion with the author’s supervisors. It was not possible to complete a meta-analysis due to the high degree of variance in study design, hypothesised mediators, outcome measures, data analyses, and statistics reported (cf. Haidich, 2010).

### 1.3.4 Quality Assessment

A recent systematic review examining mediators in the relationship between childhood adversities and psychosis (Williams et al., 2018) adapted The Effective Public Health Practice Project tool (EPHPP; Thomas, 2003) to enable quality assessment of studies using mediation. The present review used the adapted EPHP, given the focus on mediation analysis and the relevance of the previous review.

The adapted EPHPP assesses five domains: (1) selection bias, (2) confounders, (3) data collection methods, (4) withdrawals and drop-outs, and (5) data analysis. Papers are rated “strong”, “moderate”, or “weak” on each domain and assigned an overall global rating (strong = no weak rating; moderate = one weak rating; weak = two or more weak ratings). Selection bias is categorised as strong when participants are very likely to be representative of the population (i.e. randomly selected), and when greater than 80% of selected individuals have agreed to participate. Selection bias is categorised as moderate when participants are somewhat likely to be representative of the population (e.g. referred from source systematically), and when 60 – 79% of selected individuals have agreed to participate. Selection bias is categorised as weak when unlikely to be representative of the population (e.g. self-selected), or when under 60% of selected individuals have agreed to participate. For self-selecting samples, the percentage of participants who agreed to participate is not applicable. Confounders is strong if two or more are controlled for, moderate if one is controlled for, and weak if none are controlled for. Data collection is strong for valid and reliable measures, moderate for valid but not reliable measures, and weak for measures without demonstrated validity / reliability. Withdrawals and dropouts is strong for an 80% follow-up rate, moderate for 60 – 79%, and weak when this is lower or not reported. This is not applicable for studies collecting data at one time point (Thomas, 2003). Data analysis (to test mediation) is strong for explicit testing of direct and indirect effects (e.g. Preacher & Hayes, 2004), moderate for regression methods with additional testing of indirect effects (e.g. Sobel test), and weak for sole use of regression (e.g. Baron & Kenny, 1986).

Quality assessment was undertaken by the main researcher and an independent rater, with good agreement (93.2%). Discrepancies were agreed through discussion, and with supervisors. In terms of overall quality, twelve studies received a weak rating and five studies received a moderate rating (see Appendix A). Studies were not excluded based on quality rating as an aim of this review is to evaluate the quality of relevant literature.

## **1.4 Results**

### **1.4.1 Study Characteristics**

Seventeen studies met inclusion criteria, exploring potential mediating mechanisms in the relationship between attachment style and psychosis. The majority of these explored mediating mechanisms between attachment style and clinical / non-clinical paranoia, and others explored the impact on psychosis type experiences more generally or on symptom distress. Table 3 summarises the extracted data.

**Table 3***Summary of Study Data Extraction*

Author(s), date, country	Sample (M = mean, SD = standard deviation)	Design and analysis	Attachment measure	Mediator or mechanism measure(s)	Psychosis measure(s)	Main (relevant) findings
Ascone et al. (2020); Germany	Psychotic disorder ( $n = 60$ ). Recruited from inpatient, outpatient, and community. Aged 18 - 65 years ( $M = 40.2$ , $SD = 11.7$ ). 63.3% female. Healthy controls ( $n = 40$ ).	Cross-sectional; SEM	Relationship Scales Questionnaire	Cognitive Emotion Regulation Questionnaire	Paranoia Checklist	Attachment anxiety and paranoia fully mediated by hyperactivating affect regulation strategies in psychosis sample ( $B = .24$ , $p = .02$ ), but not in healthy controls. Attachment avoidance and paranoia not mediated by blaming others. Attachment did not correlate with self-blame.
Castilho et al. (2017); Portugal	Psychotic disorder ( $n = 37$ ). Recruited from outpatient and inpatient. Aged 19 – 52 years ( $M = 37.14$ , $SD = 7.27$ ). 18.92% female.	Cross-sectional; Mediation (Baron & Kenny, 1986)	Experiences in Close Relationships-Relationship Structure	Acceptance and Action Questionnaire -II	Paranoia Checklist	Attachment anxiety (in relation to mother) and paranoid ideation frequency partially mediated by experiential avoidance, relationship reduced from $\beta = 2.84$ , $p < .05$ , to $\beta = 1.42$ , $p > .05$ with experiential avoidance. No other attachment style associated with experiential avoidance or paranoia.
Cole et al. (2017); UK	Individuals hearing voices in community ( $n = 180$ ). Aged 18 – 65 years ( $M = 36.65$ , $SD = 11.06$ ). 62% female.	Cross-sectional; Path analysis	Experiences in Close Relationships-Revised	Brief Core Schema Scale; Beliefs about Voices Questionnaire -Revised	Hamilton Program for Schizophrenia Voices Questionnaire	Attachment style and voice distress mediated by (i) negative self and other schema, and (ii) negative self and other schema and persecutory beliefs about voices ( $\chi^2 = 11.38$ , $p = .08$ ).

Dominguez-Pereira (2019); USA	In or previous romantic relationship ( $n = 210$ ). Recruited from community. Aged 19 – 74 years ( $M = 36.8$ , $SD = 11.64$ ). 75.7% female.	Cross-sectional; Mediation (Baron & Kenny, 1986), normal theory test	Experiences in Close Relationships	Fear of Intimacy Scale	Multi-dimensional Jealousy Scale	Attachment anxiety and suspicious jealousy mediated by fear of intimacy ( $B = .06$ , $p = .005$ ). Attachment avoidance and suspicious jealousy not mediated by fear of intimacy.
Gumley, Schwannauer, et al. (2014); UK	Schizophrenia or related diagnosis ( $n = 68$ ). Recruited from inpatient and outpatient. Age range not reported ( $M = 24.64$ years, $SD = 7.08$ ). 31.6% female.	12-month cohort study; Path analysis	Adult Attachment Interview	DUP; Positive and Negative Syndrome Scale	Positive and Negative Syndrome Scale	Attachment and positive symptoms at 12 months fully mediated by insight and DUP ( $\chi^2 = 13.82$ , $p = .06$ ), not by baseline positive symptoms. Attachment and negative symptoms at 12 months partially mediated by insight, DUP, and baseline negative symptoms ( $\chi^2 = 9.89$ , $p = .09$ ).
Hajduk and Heretik (2016) <sup>a</sup> ; Slovakia	Students ( $n = 176$ ). Aged 18 – 40 years ( $M = 21.62$ , $SD = 2.55$ ). 68.8% female.	Cross-sectional; Mediation (Baron & Kenny, 1986)	Relationship Questionnaire	Rosenberg Self-esteem Scale; Depression, Anxiety and Stress Scale	Paranoia Scale	Attachment anxiety and subclinical paranoia partially mediated by emotional distress, relationship reduced from $B = 1.13$ , $p < .001$ to $B = .58$ , $p < .01$ with emotional distress. Attachment avoidance and subclinical paranoia not mediated by emotional distress. Attachment and subclinical paranoia not mediated by self-esteem. Controlled for gender and relationship status.
Hugill et al. (2017); UK	First-time primary caregivers in community ( $n = 134$ ). $M = 31$ years, range, $SD$	Cross-sectional; Mediation (Preacher &	Experiences of Close Relationships Scale-Short Form	Parental Stress Scale; Parenting Sense of	Schizotypal Personality Questionnaire -Brief Revised	Attachment anxiety and schizotypy mediated by parenting stress ( $B = .36$ ), medium effect ( $b = .11$ ). Attachment avoidance and schizotypy mediated by parenting stress ( $B = .37$ ), medium effect ( $b = .10$ ).

	not reported. 94% female.	Hayes, 2004)		Competence Scale		Attachment and schizotypy not mediated by parental competence. No significant difference when controlling for multiple confounders.
Jones (2015); UK	First-episode psychosis with clinical diagnosis ( $n = 51$ ). Recruited from outpatient. Aged 16 – 35 years ( $M = 22.45$ , $SD = 4.29$ ). 41.2% female.	Cross-sectional; Mediation (Preacher & Hayes, 2008)	Relationship Questionnaire	Regulation of Emotion Questionnaire	Positive and Negative Syndrome Scale	Dismissing attachment and positive symptoms partially mediated by internal functional strategies ( $\beta = -.15$ ). Fearful/secure attachment and positive symptoms not mediated by affect regulation. Fearful attachment and hallucinations mediated by internal dysfunctional strategies ( $\beta = .30$ ). Secure attachment and hallucinations fully mediated by less internal dysfunctional strategies ( $\beta = -.16$ ). Dismissing attachment and hallucinations not mediated by affect regulation.
Marlowe et al. (2020b); Australia	General population recruited through university and social media ( $n = 298$ ). Aged 18 – 64 years ( $M = 33.08$ , $SD = 10.65$ ). 74.83% female.	Cross sectional; Hierarchical multiple regression (Baron & Kenny, 1986)	Psychosis Attachment Measure	Ontological Insecurity Scale (OIS)	Community Assessment of Psychiatric Experiences	Attachment (anxiety and avoidance) and positive psychotic-like experiences mediated by OIS, relationship became insignificant with OIS (avoidance reduced from $\beta = .15$ to $\beta = .06$ ; anxiety reduced from $\beta = .37$ to $\beta = .07$ ). Attachment and negative psychotic-like experiences not mediated by OIS. Controlled for demographics and mental health history.
Martinez et al. (2020); UK	General population ( $n = 1,121$ ). Aged 18 – 86 years ( $M = 47.8$ , $SD = 17.2$ ). 50.7% female.	Cross-sectional; SEM	Relationship Questionnaire	Self-esteem Rating Scale-Short Form; Facial Trust Detection Task	Paranoia and Deservedness Scale-Revised	Attachment anxiety and paranoia mediated by negative self-esteem $\beta = .064$ , $p < .001$ and mistrust bias $\beta = .003$ , $p < .001$ . Attachment avoidance and paranoia mediated by mistrust bias $\beta = .003$ , $p < .001$ , not self-esteem.

Pickering et al. (2008); UK	Students ( $n = 503$ ). Aged 18 - 63 years ( $M = 20.9$ , $SD = 5.22$ ). 70% female.	Cross-sectional; Mediation (Baron & Kenny, 1986), Sobel test	Relationship Questionnaire	Self-Esteem Rating Scale; Negative Events Scale; Locus of Control Scale	Persecution and Deservedness Scale	Attachment anxiety and paranoia partially mediated by negative self-esteem (Sobel's $z = 10.57$ , $p < .001$ ), anticipation of threat ( $z = 6.83$ , $p < .001$ ) and powerful others ( $z = 5.99$ , $p < .01$ ). Attachment avoidance and paranoia partially mediated by negative self-esteem ( $z = 5.45$ , $p < .001$ ), anticipation of threat ( $z = 3.19$ , $p < .001$ ) and powerful others ( $z = 2.41$ , $p < .01$ ).
Pilton et al. (2016); UK	Psychotic disorder with voices ( $n = 55$ ). Recruited from outpatient and community. Aged 21 – 66 years ( $M = 42.16$ , $SD = 11.33$ ). 20% female.	Cross-sectional; Mediation (Preacher & Hayes, 2004)	Psychosis Attachment Measure	Beliefs about Voices Questionnaire -Revised; Voice and You	Psychotic Symptom Rating Scales– Auditory Hallucinations Scale	Anxious attachment and voice-related distress mediated by voice-malevolence ( $B = .15$ , $p = .03$ ), voice-omnipotence ( $B = .14$ , $p = .02$ ) and voice-resistance ( $B = .21$ , $p = .01$ ), not hearer-distance or voice-dominance. No association between avoidant attachment and voice distress.
Robson and Mason (2015); UK	Current voice hearers in community ( $n = 44$ ). Aged above 18 years ( $M = 39.6$ , $SD = 11.7$ ). 66% female.	Cross-sectional; Mediation (Preacher & Hayes, 2004)	Psychosis Attachment Measure	Beliefs About Voices Questionnaire – Revised; Voice and You; Persecution and Deservedness Scale	Self-reported voice distress	Attachment anxiety and voice related distress fully mediated through voice dominance ( $B = .09$ ), voice hearer distance ( $B = .07$ ), voice omnipotence ( $B = .08$ ), voice malevolence ( $B = .08$ ), voice resistance ( $B = .06$ ), persecution ( $B = .09$ ) and deservedness of persecution ( $B = .05$ ), and partially mediated through voice intrusiveness ( $B = .05$ ), $ps < .01$ . Attachment avoidance and voice related distress fully mediated through voice dominance ( $B = .11$ ), voice intrusiveness ( $B = .08$ ), voice omnipotence ( $B = .11$ ), voice malevolence ( $B = .09$ ), persecution ( $B = .13$ ) and deservedness of persecution ( $B = .09$ ), $ps < .01$ , not voice resistance or hearer distance.

Scott et al. (2020); Australia	Schizophrenia spectrum disorder and voices ( $n = 140$ ). Recruited from inpatient, outpatient, and community. Aged 18 - 66 ( $M = 36.7$ , $SD = 12.83$ ). 43% female.	Cross-sectional; SEM	Psychosis Attachment Measure	Brief Core Schema Scale	Self-reported negative voice frequency	Attachment anxiety and negative voice hearing content mediated through negative self-schema $ps < .001$ . Attachment avoidance and negative voice hearing content not mediated through negative self-schema.
Sood and Newman-Taylor (2020); UK	High non-clinical paranoia, students / general population ( $n = 117$ ). Aged 18 - 65 years ( $M = 21.6$ , $SD = 6.07$ ). 71.79% female.	Randomised experiential design; Mediation (Hayes, 2018)	Experiences in Close Relationships	Cognitive Fusion Questionnaires	Adapted Paranoia Checklist	Attachment imagery and paranoia mediated by cognitive fusion ( $B = 2.64$ , $CI [1.01, 4.66]$ ). Controlled for time 1 variables (paranoia and fusion).
Udachina and Bentall (2014); UK	Students ( $n = 302$ ). $M = 22.01$ years. Age range & $SD$ not reported. 74.17% female.	Cross-sectional; SEM	Relationship Questionnaire	Acceptance and Action Questionnaire -II; Self-Esteem Rating Scale-Short Form	Persecution and Deservedness Scale; Persecutory Ideation Questionnaire	Attachment and paranoia mediated by (i) negative self-esteem and (ii) negative self-esteem and experiential avoidance $ps < .001$ . Well-fitting model $TLI = .96$ .
Wickham et al. (2015); UK	Schizophrenia spectrum disorder ( $n = 176$ ). Recruited from inpatient, outpatient and community. Aged 17 - 77 years ( $M = 38.23$ , $SD = 11.78$ ). 30.11% female.	Cross-sectional; Mediation (Preacher & Hayes, 2008)	Relationship Questionnaire	Self-esteem Rating Scale; Locus of Control Scale	Persecution and Deservedness Scale (PaDS); Positive and Negative Syndrome Scale (PANSS)	Attachment anxiety and paranoia partially mediated by negative self-esteem using PaDS ( $\beta = .14$ , $p < .001$ ) and PANSS ( $\beta = .09$ , $p = .006$ ). Attachment avoidance and paranoia fully mediated by negative self-esteem using PaDS ( $\beta = .11$ , $p = .001$ ) and PANSS ( $\beta = .07$ , $p = .01$ ). Controlled for age, gender, and hallucinations. Attachment did not correlate with hallucinations.

Note. SEM = Structural Equation Modelling. DUP = Duration of Untreated Psychosis.



<sup>a</sup>This paper is written in Slovak. An author of the paper translated the results section to English and answered questions to enable data extraction and quality assurance however, the full-text has not been accessed for this systematic review.

All studies, with the exception of Pickering et al. (2008), were carried out between 2014 and 2020, demonstrating an increased interest in this area. Most ( $n = 15$ ) are published in peer-reviewed journals. Two are unpublished doctoral theses (Jones, 2015; Dominguez-Pereira, 2019), one of which (Jones, 2015) was located through grey literature searches. Studies originated mainly from the United Kingdom ( $n = 11$ ), and a minority from other European countries (Portugal, Germany, Slovakia;  $n = 3$ ), Australia ( $n = 2$ ), and the United States of America ( $n = 1$ ).

Most studies ( $n = 15$ ) utilised a cross-sectional design, collecting data at one time point. The remaining studies utilised longitudinal (Gumley, Schwannauer, et al., 2014) and experimental designs (Sood & Newman-Taylor, 2020). Twelve used methods to test direct and indirect effects (e.g. Preacher & Hayes, 2004). Five inferred mediation through the use of regression (following Baron & Kenny, 1986), and two of these used additional inferential methods (e.g. the Sobel test).

### **1.4.2 Participant Characteristics**

The 17 studies included 3672 participants with a reported mean age of 32.4 years ( $SD = 9.5$ ), ranging from 16 – 86 years. There was a reasonable balance of gender representation, with 56.24% of participants identifying as female. There were more females in non-clinical (73.8%) than clinical samples (35.45%). The majority (78.35%) of participants identified as White, though information on ethnic origin was unavailable for nine studies.

Participants reported a range of psychosis experiences across the clinical and non-clinical continuum. Seven studies recruited participants with a psychosis-related clinical diagnosis from inpatient mental health settings, community mental health settings, and the general population ( $n = 587$ ). Of these, 384 (65%) were schizophrenia-related diagnoses, 152 (26%) were psychotic disorder diagnoses, and 51 (9%) experienced first-episode psychosis. Two studies recruited individuals with current voice hearing from the general population (mainly charities), without the criteria for a diagnosis ( $n = 224$ ). Sood and Newman-Taylor (2020) recruited individuals with high non-clinical paranoia from a mainly student population ( $n = 117$ ). The remaining seven studies recruited from the general population without criteria for psychotic experiences ( $n = 2744$ ), four of which recruited university students.

### **1.4.3 Measures of Attachment**

Eight instruments were used to measure attachment style (see Table 4), five of which were variations of the Experiences in Close Relationship questionnaire measures. Fourteen studies used dimensional measures of attachment anxiety and avoidance (Brennan et al., 1998). The remaining

studies used categorical measures (Gumley, Schwannauer, et al., 2014; Jones, 2015; Udachina & Bentall, 2014) which some argue to be less reliable and valid than dimensional tools (Fraley & Shaver, 2000).

Most measures explored attachment in relation to close / key others, though Castilho et al. (2017) measured attachment in relation to mother, father, romantic partner, and best friend. All studies utilised self-report measures with the exception of Gumley, Schwannauer, et al. (2014), who used a semi-structured interview to explore more unconscious processes (George et al., 1985). All studies used valid and reliable measurements of attachment, obtaining strong quality ratings in this domain.

**Table 4**

*Attachment Outcome Measures*

No. of studies used	Attachment measure	Authors	Type	Dimensions	Categories
6	Relationship Questionnaire (RQ)	Bartholomew and Horowitz (1991)	4-item self-report questionnaire	Attachment anxiety, attachment avoidance	Secure, preoccupied, dismissing, fearful
4	Psychosis Attachment Measure (PAM)	Berry et al. (2006)	16-item self-report questionnaire	Attachment anxiety, attachment avoidance	-
2	Experiences in Close Relationships (ECR)	Brennan et al. (1998)	36-item self-report questionnaire	Attachment anxiety, attachment avoidance	Dismissing, fearful-avoidant, preoccupied, secure
1	Experiences in Close Relationships - Short Form (ECR-S)	Wei et al. (2007)	12-item self-report questionnaire	Attachment anxiety, attachment avoidance	-
1	Experiences in Close Relationships - Revised (ECR-R)	Fraley et al. (2000)	36-item self-report questionnaire	Attachment anxiety, attachment avoidance	-
1	Experiences in Close Relationships - Relationship Structures (ECR-RS)	Fraley et al. (2011)	9-item self-report questionnaire	Attachment anxiety, attachment avoidance	-

1	Relationships Scales Questionnaire (RSQ)	Griffin and Bartholomew (1994)	30-item self-report questionnaire	Attachment anxiety, attachment avoidance	Dismissing, fearful, preoccupied, secure Freely autonomous and secure, dismissing-insecure, preoccupied-insecure
1	Adult Attachment Interview (AAI)	George et al., (1985)	20 question semi-structured interview	-	

#### 1.4.4 Measures of Psychosis

Thirteen instruments were used to measure psychosis (see Table 5). Thirteen studies measured psychosis symptoms, three measured voice-related distress, and one measured negative voice hearing content. Of the studies measuring psychosis symptoms, nine measured paranoia / suspicious thinking and four measured more general positive and negative symptoms. Most used valid and reliable measures ( $n = 13$ ), obtaining strong quality ratings. Two studies adapted valid and reliable measure and obtained moderate ratings (Dominguez-Pereira, 2019; Martinez et al., 2020), and two used non-validated self-reported estimates and obtained weak ratings (Robson & Mason, 2015; Scott et al., 2020).

**Table 5**

#### *Psychosis Experiences Outcome Measures*

No. of studies used	Psychosis type measure	Authors	Type	Construct
4	Persecution and Deservedness Scale (PaDS)	Melo et al. (2009)	10 item self-report questionnaire	Paranoia and perceived deservedness of persecution
3	The Positive and Negative Syndrome Scale (PANSS)	Kay et al. (1987)	30-item semi-structured interview	Clinical psychotic symptom severity
2	Paranoia Checklist (PC)	Freeman et al. (2005)	18-item self-report questionnaire	Paranoia frequency
1	Adapted Paranoia Checklist	Lincoln et al. (2010)	18-item self-report questionnaire	State paranoia
1	Paranoia Scale (PS)	Fenigstein and Venable (1992)	20-item self-report questionnaire	Paranoia

1	The Persecutory Ideation Questionnaire (PIQ)	McKay et al. (2006)	10-item self-report questionnaire	Persecutory ideation
1	Multidimensional Jealousy Scale (MJS)	Pfeiffer and Wong (1989)	24-item self-report questionnaire	Suspicious jealousy
1	Schizotypal Personality Questionnaire – Brief Revised (SPQ-BR)	Cohen et al. (2010)	32-item self-report questionnaire	Schizotypal traits (e.g. odd beliefs)
1	Community Assessment of Psychiatric Experiences Questionnaire (CAPE-42)	Stefanis et al. (2002)	42-item self-report questionnaire	Positive and negative psychotic-like experiences
1	The Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ)	van Lieshout and Goldberg (2007)	9-item self-report questionnaire	Voice frequency, content and distress
1	Psychotic Symptom Rating Scales-AH (PSYRATS-AH)	Haddock et al. (1999)	11-item self-report questionnaire	Severity and distress of hallucinations
1	Self-reported voice distress	-	-	Voice distress
1	Self-reported percentage of negative voice	-	-	Negative voice hearing content

#### 1.4.5 Measures of Mediators

A considerable range of mediators were explored across the studies (see Table 6). Most studies employed valid and reliable measures ( $n = 15$ ), obtaining strong quality ratings. Two studies adapted valid and reliable measures and therefore obtained moderate ratings (Ascone et al., 2020; Hajduk & Heretik, 2016).

**Table 6**

*Mediating Mechanisms Outcome Measures*

No. of studies used	Mediating mechanisms	Author(s)	Type	Construct
3	Beliefs about Voices Questionnaire-Revised	Chadwick et al. (2000)	35-item self-report questionnaire	Beliefs, Emotions, and behaviour in response to voices
2	Acceptance and Action Questionnaire-II	Bond et al. (2011)	7-item self-report questionnaire	Experiential avoidance

Chapter 1

2	Brief Core Schema Scale	Fowler et al. (2006)	24-item self-report questionnaire	Positive and negative beliefs about self and others
2	Voice and You (VAY)	Hayward et al. (2008)	28-item self-report questionnaire	Interpersonal relational aspects of voice(s)
2	Self-Esteem Rating Scale (SERS)	Nugent and Thomas (1993)	40-item self-report questionnaire	Positive and negative self-esteem
2	Levenson Locus of Control Scale, powerful others subscale	Levenson (1974)	24-item self-report questionnaire	Belief others are more powerful than self
2	Positive and Negative Syndrome Scale (PANSS)	Kay et al. (1987)	30-item semi-structured interview (1-item measures insight)	Psychotic symptomatology, including insight
2	Self-Esteem Rating Scale-Short Form (SERS-SF), negative subscale	Lecomte et al. (2006)	10-item self-report questionnaire	Negative self-esteem
1	Regulation of Emotion Questionnaire	Phillips and Power (2007)	21-item self-report questionnaire	Emotion regulation strategies
1	Cognitive Emotion Regulation Questionnaire	Garnefski and Kraaij (2007); Loch et al. (2011)	27-item self-report questionnaire	Cognitive emotion regulation strategies
1	Depression, Anxiety, and Stress Scale	Lovibond and Lovibond (1995)	42-item self-report questionnaire	Depression, anxiety and stress
1	Fear of Intimacy Scale	Descutner and Thelen (1991)	35-item self-report questionnaire	Fear of intimacy
1	Parental Stress Scale	Berry and Jones (1995)	18-item self-report questionnaire	Parenting stress
1	Parenting Sense of Competence Scale	Gibaud-Wallston and Wandersman (1978) in Johnston and Mash (1989)	16-item self-report questionnaire	Confidence and satisfaction with parenting
1	Rosenberg Self-esteem Scale	Rosenberg (1979)	10-item self-report questionnaire	Self-esteem

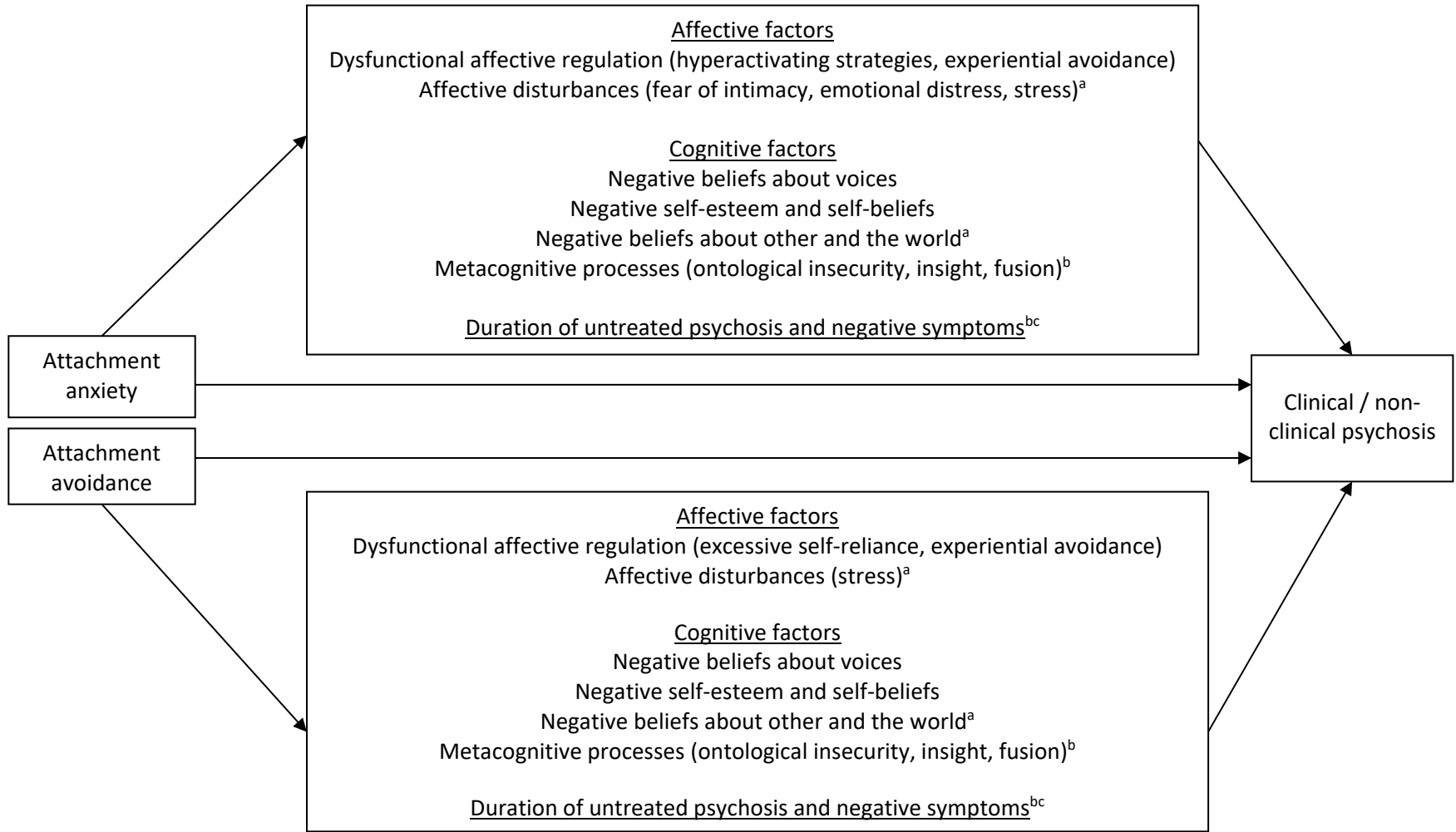
1	Negative Events Scale, anticipation of threat subscale	Corcoran et al. (2006); Kaney et al. (1997)	14-item self-report questionnaire	Anticipated frequency of negative events
1	Persecution and Deservedness Scale (PADS)	Melo et al. (2009)	10-item self-report questionnaire	Persecution and deservedness of persecution
1	Cognitive Fusion Questionnaires (CFQ)	Bolderston et al. (2019)	7-item self-report questionnaire	State cognitive fusion
1	Ontological Insecurity Scale (OIS-34)	Marlowe et al. (2020a)	34-item self-report questionnaire	Primary ontological insecurity, engulfment, implosion, and depersonalization
1	Duration of Untreated Psychosis	Skeate et al. (2002)	Semi-structured interview	Interval between onset of psychotic symptomatology and two months after antipsychotics
1	Facial Trust Detection Task	Oosterhof and Todorov (2008)	10 faces	Trustworthiness

## 1.5 Synthesis of Research Examining Mediators in the Relationship between Attachment and Psychosis

Figure 2 presents a summary of mediators in the relationship between attachment and psychosis, as found in the present review.

**Figure 2**

*Summary of the Mediating Mechanisms Underlying the Insecure Attachment and Psychosis Relationship*



<sup>a</sup>Evidence for non-clinical psychosis only

<sup>b</sup>Tentative evidence

<sup>c</sup>Evidence for clinical psychosis only



## 1.5.1 Affective Factors

### 1.5.1.1 Affective Dysregulation

Attachment style impacts affect regulation; specifically, attachment anxiety is associated with hyperactivating strategies (e.g. rumination) and attachment avoidance is associated with deactivating strategies (e.g. suppression of emotions) in both general population and clinical groups (Mikulincer and Shaver, 2007; Owens et al., 2013). Individuals with psychosis tend to use more maladaptive (e.g. suppression) and less adaptive strategies (e.g. cognitive reappraisal) than the general population (Livingstone et al., 2009). Importantly, affect regulation has been shown to predict increases in clinical and non-clinical psychosis, for example suppression predicted increases in hallucinations in individuals with a diagnosis of schizophrenia (Kimhy et al., 2020), and self-blame predicted paranoia in a non-clinical sample one month later (Westermann et al., 2013).

In the present review, four studies examined affective dysregulation, three of which recruited people with clinical levels of psychosis (Ascone et al., 2020; Castilho et al., 2017; Jones 2015) and one recruited university students (Udachina & Bentall, 2014). Ascone et al. (2020) also recruited healthy controls.

In terms of anxious attachment, Ascone et al. (2020) found that hyperactivating affect regulation (rumination, self-blame, and catastrophising) fully mediated the link between attachment anxiety and increased paranoia in the psychosis sample, but not in healthy controls. Similarly, more internal dysfunctional affect regulation (e.g. dwelling on thoughts and feelings) mediated the relationship between fearful attachment (negative view of self and other) and increased hallucinations, but not between fearful attachment and other positive symptoms (Jones, 2015). Experiential avoidance (unwillingness to experience and attempts to suppress feelings; Hayes et al., 2004) mediated the relationship between attachment anxiety and paranoia (Castilho et al., 2017), and Udachina and Bentall (2014) found in a path analysis that attachment insecurity (anxiety and avoidance) predicted increased negative self-esteem, which in turn predicted increased experiential avoidance and non-clinical paranoia.

In terms of avoidant-type attachment, the relationship between dismissing (avoidant) attachment and positive symptoms was partially mediated by more internal-functional affect regulation (e.g. putting situation into perspective; Jones, 2015). This was unexpected, as the strategy is considered adaptive. However, as individuals with an avoidant style are overly self-reliant and dismiss interpersonal support, excessive reliance on internal strategies may be maladaptive. As

## Chapter 1

noted above, experiential avoidance mediated the attachment insecurity (anxiety and avoidance) and non-clinical paranoia relationship (Udachina & Bentall, 2014). Affect regulation did not mediate the relationship between the dismissing (avoidant) attachment and hallucinations (Jones, 2015), and blaming others did not mediate the relationship between attachment avoidance and paranoia (Ascone et al., 2020).

The relationship between secure attachment and positive symptoms significantly reduced with the addition of affect regulation mediators indicating mediation, however inferential methods identified no specific mediators in the relationship between secure attachment and positive symptoms. The relationship between secure attachment and hallucinations was fully mediated by less internal dysfunctional regulation (e.g. keeping feelings locked up inside; Jones, 2015).

All but one study obtained a weak overall quality rating, with Jones (2015) obtaining a moderate score. This was largely due to the recruitment of self-selecting participants and not controlling for confounders. All but Castilho (2017) employed strong and reliable data analysis, however the use of post-hoc analyses by Ascone et al. (2020) increases the likelihood of false positive results. Overall, the results suggest that affect regulation plays a key role in mediating the relationship between attachment and psychosis, and that this differs by attachment style. Anxious attachment is associated with hyperactivating strategies such as rumination, with some support for the role of experiential avoidance, resulting in increased psychosis experiences. Avoidant attachment is associated with deactivating strategies such as excessive self-reliance and experiential avoidance, again resulting in increased psychosis experiences.

### **1.5.1.2 Affective Disturbances**

The meta-analysis completed by Gumley, Taylor and colleagues (2014) found that insecure attachment is associated with greater affective problems in individuals with psychosis. In the present review, three studies examined the mediating role of affective disturbances, all of which recruited non-clinical participants.

Increased fear of intimacy mediated the relationship between attachment anxiety and suspicious jealousy (Dominguez-Pereira, 2019), and increased emotional distress partially mediated the relationship between attachment anxiety and subclinical paranoia (Hajduk & Heretik, 2016). Fear of intimacy and emotional distress did not mediate the avoidant attachment and psychosis-type experiences relationship. Parenting stress mediated the relationship between attachment anxiety and avoidance, and schizotypy in first-time primary caregivers (Hugill et al., 2017).

Hugill et al. (2017) obtained an overall moderate quality rating and the remaining two studies obtained weak ratings. Hajduk and Heretik (2016) was the only study to employ weak data

analysis, though controlled for confounders as did Hugill et al. These results suggest that affective disturbances play a role in mediating the attachment and psychosis relationship, with stronger evidence for the relationship between attachment anxiety and non-clinical psychosis. Study replication with clinical samples is needed.

## **1.5.2 Cognitive Factors**

### **1.5.2.1 Beliefs About Symptoms**

Appraisal of symptoms influences psychotic experiences (Chadwick & Birchwood, 1994), for example holding beliefs that voices are malicious and omnipotent is associated with hallucination severity in people with a diagnosis of schizophrenia (Chawla et al., 2019). Individuals high in attachment anxiety are more likely to believe that their voice(s) are powerful, comply with demands, and relate to voice(s) from a dependent position (Berry et al., 2017). Those high on attachment avoidance are more likely to view their voice(s) as malevolent and attempt to suppress them and resist demands (Berry et al., 2017).

In the present review, three studies investigated the role of beliefs about auditory hallucinations in the relationship between attachment and voice-related distress. Two recruited current voice hearers from the general population (Cole et al., 2017; Robson & Mason, 2015) and one recruited individuals with a clinical diagnosis of psychosis (Pilton et al., 2016).

The relationship between anxious attachment and voice-related distress was mediated by voice malevolence, omnipotence, and resistance in both clinical and non-clinical samples (Pilton et al. 2016, Robson & Mason, 2015), and by voice intrusiveness, dominance, and hearer-distance in the non-clinical sample (Robson & Mason, 2015). Pilton et al. (2016) found no evidence for voice dominance or hearer-distance as mediators.

The relationship between attachment avoidance and voice-related distress was mediated by voice dominance, intrusiveness, omnipotence, and malevolence, but not resistance or hearer-distance in the clinical sample (Pilton et al. 2016). Robson and Mason (2015) found no correlation between avoidant attachment and voice-related distress.

Cole et al. (2017) found that the relationships between both attachment avoidance and anxiety, and voice distress were mediated by negative self and other schema and then persecutory beliefs about voices (malevolence and omnipotence) in their path analysis.

## Chapter 1

All three studies obtained a weak overall quality rating for their use of self-selecting samples and not controlling for confounders, however all employed robust data analysis. These results suggest beliefs about voices mediate the attachment and psychosis relationship in both clinical and non-clinical samples, with no significant difference between attachment styles.

### 1.5.2.2 Self-Beliefs and Self-Esteem

There is good evidence that attachment anxiety is associated with low self-esteem and negative self-beliefs, though findings are less consistent for attachment avoidance, likely due to the tendency for this group to suppress negative self-information (see Mikulincer & Doron, 2016). Negative self-beliefs and low self-esteem have been shown to play a role in the onset, experience, and maintenance of psychosis (e.g. Bentall et al., 2008; Krabbendam et al., 2002; Stowkowy & Addington, 2012). Importantly, an experience sampling study found decreases in self-esteem predicted immediate increases in paranoia (Thewissen et al., 2008).

In the present review, nine studies investigated the mediating effect of self-esteem or self-beliefs. Three recruited university students (Hajduk & Heretik, 2016; Pickering et al., 2008; Udachina & Bentall, 2014), two recruited from the general population (Hugill et al., 2017; Martinez et al., 2020), two recruited voice hearers from the community (Cole et al., 2017; Robson & Mason, 2015), and two recruited individuals with a schizophrenia-related diagnosis (Scott et al. 2020; Wickham et al., 2015).

Five of the nine studies explored self-esteem. Three studies found that negative self-esteem mediated the relationship between attachment anxiety and avoidance, and increased paranoia in clinical (Wickham et al., 2015) and non-clinical samples (Pickering et al., 2008; Udachina & Bentall, 2014). Martinez et al. (2020) found that negative self-esteem mediated the relationship between attachment anxiety (but not attachment avoidance) and paranoia. Hajduk and Heretik (2016) found no evidence that self-esteem mediated the attachment and paranoia relationship.

Four of the nine studies explored self-beliefs. In path analyses, negative self-schema mediated the relationship between attachment anxiety and avoidance, and voice-related distress (Cole et al., 2017), and between attachment anxiety (but not attachment avoidance) and negative voice hearing content (Scott et al., 2020). Beliefs of deserving persecution fully mediated the relationship between attachment anxiety and avoidance, and voice-related distress (Robson & Mason, 2015). Sense of parental competence did not mediate the relationship between attachment and schizotypy in first time primary caregivers (Hugill et al., 2017).

Hugill et al. (2017) and Wickham et al. (2015) obtained moderate quality ratings, and all others obtained weak ratings. All but Hajduk and Heretik (2016) scored at least moderate for data

analysis. Scott et al. (2020) and Robson and Mason (2015) obtained weak ratings for their use of non-validated measures. Wickham et al. and Hajduk and Heretik both controlled for confounders. These results suggest that self-esteem and self-beliefs play a role in mediating the attachment and psychosis relationship. Unexpectedly, only two studies found that this was dependent on attachment style (Martinez et al., 2020; Scott et al., 2020).

### **1.5.2.3 Beliefs about Others and the World**

Insecure attachment (anxiety and avoidance) is associated with unstable and / or negative beliefs about others and the world, especially in those with avoidant attachment due to the tendency for this group to strive for independence (Mikulincer et al., 2003). Negative self and other schemas correlate with psychosis, and mistrust of others predicts psychotic experience in people with a diagnosis of schizophrenia (Bortolon et al., 2013).

Four studies were identified which investigated the mediating role of other or world beliefs. Two recruited current voice hearers from the community (Cole et al., 2017; Robson & Mason, 2015), one recruited university students (Pickering et al., 2008), and one recruited from the general population (Martinez et al., 2020).

Negative other schema / beliefs mediated the relationship between attachment anxiety and avoidance, and voice related distress (Cole et al., 2017; Robson & Mason, 2015). Mistrust of others, perceptions of others as more powerful than the self, and anticipation of negative events, all mediated the relationship between attachment anxiety and avoidance, and paranoia (Martinez et al., 2020; Pickering et al., 2008).

All studies obtained a weak overall quality rating but scored at least moderate for data analysis. Robson and Mason (2015) obtained weak ratings for the use of non-validated measures. These results suggest that beliefs about others and the world play a role in mediating the attachment and psychosis relationship, and this was not dependent on attachment style. Study replication with clinical samples is needed.

### **1.5.2.4 Meta-Cognitive Beliefs and Processes**

People with psychosis report more unhelpful metacognitive beliefs than healthy controls (Morrison et al., 2007; Morrison & Wells, 2003). In the present review, three studies explored meta-cognitive beliefs and processes, recruiting a student / general sample (Marlowe et al., 2020b), high non-clinical paranoia sample (Sood & Newman-Taylor, 2020), and individuals with a schizophrenia-related diagnosis (Gumley, Schwannauer, et al., 2014).

## Chapter 1

Ontological insecurity (experiencing the self as lacking in coherence, separate from the body, others, and the world) mediated the relationship between attachment style and positive (but not negative) psychotic-type experiences (Marlowe et al., 2020b). Cognitive fusion mediated the relationship between attachment and paranoia in an experimental study using attachment imagery priming (Sood & Newman-Taylor, 2020). Insight mediated the relationship between attachment and positive and negative symptoms at 12 months in the one longitudinal study, using path analysis (Gumley, Schwannauer, et al., 2014).

Marlowe et al. (2020b) obtained a weak overall quality rating and employed weak data analysis, whereas the other two studies obtained moderate quality ratings, utilising strong designs and statistical analyses. These findings suggest that metacognitive processes play a role in the attachment and psychosis relationship, though study replication for each variable is needed. These studies did not explore differences between attachment styles.

### **1.5.3 Duration of Untreated Psychosis and Negative Psychotic Symptoms**

Duration of untreated psychosis (DUP; the interval between psychosis onset and commencement of treatment) is a strong predictor of future psychotic symptom severity (Drake et al., 2000). Just one study examined the role of DUP and, using path analysis, found that this fully mediated the relationship between attachment, and positive and negative symptoms at 12 months (Gumley, Schwannauer, et al., 2014). Differences in attachment style were not explored. The same study also found that baseline negative symptoms partially mediated the relationship between attachment and negative (but not positive) symptoms at 12 months. This study obtained a moderate quality rating and utilised a longitudinal design, but requires replication.

## **1.6 Discussion**

The aim of this systematic review was to examine and assess the quality of the literature investigating mediating mechanisms in the relationship between attachment and psychotic experiences, and to present a guide for future inquiry.

### **1.6.1 Overview of Findings**

The results suggest that four variables or groups of variables mediate the relationship between attachment and psychosis: 1) affective factors, 2) cognitive factors, 3) DUP, and 4) negative psychotic symptoms. Most studies tested affective and cognitive factors, and so there is stronger evidence for these. Study replication is needed for DUP and negative symptoms before conclusions can be drawn about the role of these factors.

Attachment theory assumes that anxious and avoidant attachment styles lead to increased mental health difficulties through affect dysregulation (Mikulincer & Shaver, 2012). Attachment anxiety is associated with hyperactivating strategies (e.g. catastrophising), and attachment avoidance is associated with deactivating strategies (e.g. suppression; Mikulincer & Shaver, 2007). Both strategies are associated with greater psychotic experiences such as hallucinations and suspiciousness (Dozier & Lee, 1995), as hyperactivating strategies intensify negative feelings, and deactivating strategies prohibit the expression and management of emotions (Mikulincer & Shaver, 2012), resulting in exacerbation of psychosis (Berry et al., 2020).

The present review identified two subcategories of affective factors: affective dysregulation and affective disturbances, consistent with Williams et al.'s (2018) review of the relationship between childhood adversity and psychosis. Hyperactivating strategies (rumination, catastrophising, dwelling on thoughts and feelings) as well as experiential avoidance mediated the relationship between attachment anxiety and psychosis, whereas deactivating strategies, including experiential avoidance and excessive internal strategies (e.g. coping with problems alone), mediated the relationship between attachment avoidance and psychosis. Secure attachment was associated with less psychotic symptoms through less dysfunctional affect regulation.

Affect disturbances (stress, emotional distress, fear of intimacy) mediated the relationship between attachment and non-clinical psychosis, with stronger evidence for attachment anxiety than avoidance. In line with attachment theory, it is likely that affective dysregulation and disturbance are not independent, with hyperactivating strategies intensifying emotion, and deactivating strategies suppressing emotion, which would explain the differential effects.

Attachment insecurity is also assumed to lead to increased mental health difficulties through dysfunctional cognitive processes (Mikulincer & Shaver, 2012). Insecurely attached individuals are prone to unhelpful cognitive processes such as self-criticism, self-doubt, and setting unrealistically high self-standards, all of which are risk factors for mental ill-health (Mikulincer & Shaver, 2012). The present review found four subcategories of cognitive factors, with strong evidence for the mediating role of beliefs about symptoms; self-beliefs and self-esteem; and beliefs about others and the world. Tentative evidence was found for the mediating role of metacognitive processes (cognitive fusion, ontological insecurity, insight).

Attachment theory assumes that self-beliefs differ by attachment style, specifically that those with an anxious attachment rely on others rather than the self at times of distress which is reflected in negative self-beliefs, whereas those with an avoidant attachment are reluctant to rely

## Chapter 1

on others, reflected in exaggeratedly positive self-beliefs (Mikulincer & Shaver, 2007). In the present review self-beliefs did not discriminate between attachment styles. Mikulincer and Shaver (2007) argue that avoidantly attached individuals hold underlying negative self-beliefs, and that positive self-beliefs are a surface level defence strategy in order to hold aversive underlying self-beliefs out of conscious awareness. In support of this, there is evidence that such individuals appraise themselves more positively following threatening events (e.g. Hart et al., 2005). In one review, around half of the studies found negative associations between avoidant attachment and self-esteem, suggesting these defences are not always successful (Mikulincer & Doron, 2016). This suggests that both anxiously and avoidantly attached individuals may struggle to maintain a stable and positive self-view, which would explain the lack of systematic differences in self-beliefs by attachment style in the present review. The present review also found no differences between attachment styles in beliefs about others, the world, and symptoms. Studies exploring metacognitive processes did not examine differences by attachment style.

The cognitive and affective factors found by the review are congruent with current cognitive behavioural models of positive symptoms and associated distress (e.g. Morrison, 2001). Cognitive behavioural theory assumes that early adverse experiences (such as those that lead to insecure attachment) contribute to the development of negative beliefs about the self, others, and the world, and emotional responses, which in turn increases vulnerability to distressing appraisals about ambiguous events, such as hallucinatory experiences and interactions with others.

DUP and negative psychotic symptoms were examined in just one study. Insecure attachment predicted increased psychotic symptomology through longer DUP and negative symptoms at baseline. This suggests that individuals with insecure attachment are less likely to seek support or encounter difficulties when attempting to do so (possibly due to their negative symptoms), which increases future symptomology. This study did not explore differences by attachment style, though previous research has found that attachment anxiety is associated with increased help-seeking, whereas attachment avoidance is associated with reduced help-seeking (Vogel & Wei, 2005). The combination of negative symptoms and avoidant attachment is likely to be particularly problematic for people with psychosis.

It could be argued that the negative symptoms mediator overlaps with previously identified mediators, namely affective and cognitive factors. The study investigating negative symptoms did not control for confounders (e.g. cognitive or affective factors) and the negative symptom measure assessed constructs including blunted affect, emotional withdrawal, difficulty in abstract thinking, and stereotyped thinking (Gumley, Schwannauer, et al., 2014). Further investigation into the independent contribution of negative symptoms is needed.



### **1.6.2 Strengths**

This comprehensive review is the first to examine mediating mechanisms between attachment style and psychosis. Articles were included regardless of publication status, year of publication, and language, and the main researcher liaised with authors regarding translation when articles were not available in English (Hajduk & Heretik, 2016). The search strategy was strong and sensitive, utilising subject headings and incorporating screening of references and subsequent citations. All mediating mechanisms were included regardless if they were psychological in nature. Attempts to include all relevant material is a strength of the review and likely reduced publication bias and yielded a representative examination of the literature.

The use of the EPHPP quality assessment tool, which was developed for the public health sector to yield high quality systematic reviews and has proven reliability and validity (Thomas et al., 2004), also allows for comparison with the conceptually linked review examining childhood trauma and psychosis (Williams et al., 2018).

### **1.6.3 Limitations**

Many studies were of weak quality, largely due to the use of self-selecting participants, and not controlling for confounders which may have influenced or accounted for observed effects (Kazdin, 2007). Studies consisted mostly of cross-sectional, correlational designs which gathered data at one time point. While this is appropriate for initial exploration of mediating mechanisms, it is not possible to draw firm conclusions about causality, for which longitudinal or experimental methods are required (Kazdin, 2007).

While participants were recruited from a variety of settings with a range of psychotic experiences, most identified as White and all studies were conducted in developed countries, making it difficult to generalise results across socio-economic and cultural groups.

As most studies were cross-sectional, the section 'withdrawals and dropouts' on the EPHPP quality assessment tool was largely scored as 'not applicable'. This is a limitation of the tool and may have reduced the validity of the quality assessment. However, the adapted EPHPP was designed specifically for mediation studies and therefore all sections other than 'withdrawals and dropouts' were applicable to all studies. It also allowed for assessment of aspects argued to be important in identifying reliable results in mediation analysis, for example method of data analysis and confounders

Finally, only 10% of article title and abstracts were double screened meaning potentially relevant articles may have been missed. However, agreement of double screening ratings was high and discrepancies were largely due to the main researcher, in comparison to the second reviewer, being more inclusive of articles. Reference lists and subsequent citations were also searched.

#### 1.6.4 A Guide to Future Inquiry

Future studies should address the quality concerns raised in this review by using randomised or systematic sampling, controlling for confounders, employing robust statistical mediation analyses, and utilising longitudinal or experimental designs. It is essential that research is replicated in a wider range of countries and across ethnic groups. In order to progress the field and improve outcomes for people with psychosis, we now need to prioritise a combination of replication, experimental, and clinical outcome studies (see Table 7).

**Table 7**

*Research Priorities in Understanding Causal Mechanisms in the Attachment-Psychosis Relationship, and Impact of Clinical Interventions*

Study type	Research questions
Replication / extension studies (Ensuring study quality by controlling for confounders and recruiting representative participants)	<ul style="list-style-type: none"> <li>Do affective disturbances and beliefs about others and the world mediate the relationship between attachment (anxiety and avoidance) and psychosis in clinical samples? (<i>Currently only non-clinical evidence</i>).</li> <li>Do metacognitive processes (ontological insecurity, insight, fusion), duration of untreated psychosis, and negative symptoms mediate the relationship between attachment (anxiety and avoidance) and psychosis in clinical samples? (<i>Currently only evidence from one study for each mediator</i>).</li> <li>Do beliefs about voices, others, and the world mediate the relationship between attachment (anxiety and avoidance) and psychosis in clinical samples? (<i>Currently only weak evidence</i>).</li> </ul>
Experimental / longitudinal studies	<ul style="list-style-type: none"> <li>Do affective regulation strategies, affective disturbances, negative beliefs about voices, negative self-esteem and self-beliefs, negative other and world beliefs, and ontological insecurity mediate the relationship between attachment (anxiety and avoidance) and psychosis in experimental or longitudinal studies?</li> </ul>

Clinical outcome studies	<ul style="list-style-type: none"> <li>• Can people with psychosis and attachment anxiety learn strategies to regulate and reduce the intensity of their emotions, and does this reduce psychosis and associated intensity of distress?</li> <li>• Can people with psychosis and attachment avoidance learn to improve their emotional expression and practise accepting support from others, and does this reduce psychosis and associated intensity of distress?</li> <li>• Can people with psychosis and insecure attachment (anxious and avoidant) learn to reframe unhelpful beliefs about symptoms, negative self-esteem, and negative self, other, and world beliefs, and does this reduce psychosis and associated intensity of distress?</li> </ul>
--------------------------	--

---

Replication / extension studies are required where just one study has been completed to date, all relevant studies have been rated as weak overall using the EPHPP, or mechanisms have only been demonstrated with non-clinical samples. Experimental / longitudinal studies are needed to determine temporal relationships and causal mechanisms where initial studies have collected data at just one time point. Clinical outcome research should explore the impact of psychological interventions for psychosis that target affective and cognitive factors calibrated by attachment style.

#### **1.6.5 Clinical Implications**

Individuals with high levels of attachment anxiety or attachment avoidance are likely to be at greater risk of increased psychotic experiences through affective factors, cognitive factors, DUP, and negative psychotic symptoms.

CBT is a first line recommended treatment for psychosis (NICE, 2014), and focuses predominantly on alleviating distress through cognitive and behavioural change methods, for example reappraising relationships with voices and facing feared situations (Morrison & Barratt, 2010). The results of the present review supports this focus, having identified cognitive factors as key mediating mechanisms. Affective factors and attachment style are not specifically identified as direct targets for change in CBT for psychosis (Morrison & Barratt, 2010). Based on the current review, affective factors and attachment style are also likely to be valuable treatment targets. Indeed, preliminary evidence suggests that targeting affect regulation benefits people with psychosis, and that while trait attachment style may be a relatively stable construct (Bowlby, 1969/1982), attachment priming and affect regulation skills training may be effective ways to facilitate these changes (Newman-Taylor, 2020; Pitfield et al., 2020; Silva et al., 2020)

Therapies for psychosis may benefit from calibrating cognitive and affective interventions by attachment style (cf. Bucci et al., 2015; Williams et al., 2018). People high in attachment anxiety

## Chapter 1

are likely to engage in hyperactivating strategies and experience and report higher affective disturbances. These individuals may benefit from support to regulate and reduce the intensity of their emotions, and learn to have confidence in their ability to manage difficult experience. By contrast, people high in attachment avoidance are likely to be overly self-reliant on internal affect regulation strategies, struggle to seek or accept help from others, and not experience or report affective disturbances. These individuals may therefore benefit from learning to recognise and express emotional experiences, and practise accepting support from others.

No differences in cognitive processes by attachment style were found. Individuals with psychosis and insecure attachment (regardless of type) may benefit from exploring and reframing unhelpful beliefs about symptoms, negative self-esteem, and negative self, other, and world beliefs. The tentative evidence for the role of unhelpful metacognitive processes, DUP, and negative symptoms require replication before drawing clinical implications in this context.

### **1.6.6 Conclusions**

This systematic review identified 17 studies that investigated mediating mechanisms in the relationship between attachment style and clinical / non-clinical psychosis. The findings indicate that insecure attachment leads to increased psychosis via four variables or categories of variables. Strong evidence was found for affective and cognitive factors, and preliminary evidence for DUP and negative symptoms. Unlike cognitive factors, affective factors differed by attachment style. The review has clear implications for future research and psychological therapies.

## **Chapter 2 Pathways from Insecure Attachment to Paranoia: The Mediating Role of Emotion Regulation**

The following paper has been prepared in line with the 'Behavioural and Cognitive Psychotherapy' journal author guidelines.

## 2.1 Abstract

Paranoia is common across the clinical and non-clinical spectrum. There is strong evidence of a relationship between insecure attachment and increased paranoia, but little is known about the mechanisms underlying this relationship. Insecure attachment is associated with emotion dysregulation, and emotion dysregulation is associated with paranoia. Given the potential implications for strengthening cognitive behavioural therapy for psychosis, this study aimed to determine if emotion dysregulation mediates the attachment and paranoia relationship. Sixty-two individuals with elevated levels of paranoia were recruited from NHS services across the south of England and the community. Correlational and mediation analyses (Hayes, 2018) were conducted on trait attachment, emotion regulation, and current paranoia variables, which were collected at one time point. As predicted, emotion dysregulation mediated the association between attachment avoidance and paranoia, and between attachment anxiety and paranoia. Emotion suppression did not mediate the association between attachment avoidance and paranoia, possibly due to power. Attachment avoidance correlated with deactivating emotion regulation strategies (e.g. lack of emotional awareness) and attachment anxiety correlated with hyperactivating emotion regulation strategies (e.g. impulse control difficulties). Both deactivating and hyperactivating strategies correlated with paranoia. Emotion dysregulation is not routinely targeted in cognitive behavioural therapy for psychosis. This study suggests that incorporating emotion regulation strategies in therapy is likely to be beneficial. Research should now investigate if emotion regulation interventions are effective in reducing paranoia in non-clinical and clinical groups.

## 2.2 Background

Paranoia is defined as beliefs of persecution, conspiracy, and threat in the absence of supporting evidence (Freeman, 2007), and exists within both non-clinical and clinical populations, ranging on a continuum from mild suspiciousness to intense distressing delusions (Freeman et al., 2005; Johns & van Os, 2001). In clinical populations, paranoia is a key symptom of psychosis and is typically associated with schizophrenia-type diagnoses (Cooke, 2014). Clinical paranoia is associated with a range of negative outcomes such as poor treatment response, isolation, emotional distress, and poor quality of life (Freeman, 2016). Given the impact of paranoia, it is imperative that we understand the factors that lead to its development and maintenance, and ensure these are targeted in psychological interventions.

Cognitive Behavioural Therapy (CBT) focuses on cognitive and behavioural change strategies (Morrison & Barratt, 2010) and is currently recommended for individuals experiencing or at risk of

psychosis, including those experiencing paranoia (NICE, 2014). Evidence of effectiveness is inconsistent and a recent meta-analysis found that CBT for psychosis yielded no improvement in quality of life and only a small reduction in distress, which became non-significant when adjusted for possible publication bias (Laws et al., 2018). This suggests that some factors involved in the maintenance of psychosis are not targeted by CBT and warrant further research. One area likely to be therapeutically beneficial is the role of attachment (Berry et al., 2020).

### **2.2.1 Attachment**

Attachment theory assumes that early relationships with primary caregivers influence beliefs about self, others, and the world, as well as emotion regulation, into adulthood (Bowlby, 1969/1982). Attachment style is typically conceptualised along two dimensions: attachment anxiety and attachment avoidance (Brennan et al., 1998). Individuals scoring low on both dimensions are said to have a secure attachment, and tend to hold reasonably positive self and other beliefs and use effective emotion regulation strategies, as a result of responsive caregiving (Mikuliner & Shaver, 2016). Individuals scoring highly on either attachment anxiety or avoidance are said to have an insecure attachment (Brennan et al., 1998). Attachment anxiety typically follows inconsistent caregiving, and is associated with negative representations of the self, and a strong desire for connection coupled with a fear of rejection (Mikuliner & Shaver, 2016). Individuals with high levels of attachment anxiety tend to rely on hyperactivating emotion regulation strategies, such as catastrophising emotion, in an attempt to gain a response from attachment figures (Mikuliner & Shaver, 2016). Attachment avoidance typically follows rejecting caregiving and is associated with negative representations of others and a compulsive self-reliance (Mikuliner & Shaver, 2016). Individuals with high levels of attachment avoidance tend to adopt deactivating emotion regulation strategies, such as emotional suppression, to avoid further rejection from attachment figures (Mikuliner & Shaver, 2016). Both hyperactivating and deactivating strategies function to reduce the emotional pain associated with the unavailability of attachment figures (Mikulincer & Shaver, 2007).

Insecure attachment is associated with increased clinical paranoia, with a recent systematic review finding significant associations in 11 out of the 12 identified studies (Lavin et al., 2020). Insecure attachment is also associated with non-clinical paranoia (Berry et al., 2006; Pickering et al., 2008). A recent meta-analysis found strong associations between both attachment anxiety and avoidance, and paranoia, with no difference between clinical and non-clinical samples

(Murphy et al., 2020). Experimental studies have also found that priming insecure attachment increases level of paranoia (Hutton et al., 2017; Sood & Newman-Taylor, 2020).

While there is strong evidence of a relationship between attachment style and paranoia, little is known about the mediating mechanisms underlying this relationship. Read and Gumley (2008) propose that attachment predicts psychosis via a range of mediating mechanisms, including emotion regulation.

### **2.2.2 Emotion Regulation**

Hyperactivating (e.g. catastrophising) and deactivating emotion regulation strategies (e.g. suppression) are typically used by those with insecure attachments (Mikulincer and Shaver, 2007; Owens et al., 2013), and are associated with increased psychosis symptomology, including suspiciousness (Dozier & Lee, 1995). This is supported by longitudinal research; for example suppression predicted increases in paranoia in individuals with psychosis in experience sampling studies (Kimhy et al., 2020; Nittel et al., 2018), and self-blaming predicted non-clinical paranoia one month later (Westermann et al., 2013). In addition, an experimental study found that increases in paranoia after a social exclusion task were accounted for by lower levels of functional (e.g. acceptance) and higher levels of dysfunctional emotion regulation strategies (e.g. catastrophising and blaming others), in individuals at high risk of psychosis (Lincoln et al., 2018). Correlational research shows that dysfunctional emotion regulation (e.g. impulse control difficulties, catastrophising) is associated with paranoia when controlling for a range of variables (Westermann & Lincoln, 2011; Westermann et al., 2013). Importantly, preliminary intervention studies have found that emotion regulation skills training may be an effective way to reduce paranoia in psychosis (Silva et al., 2020).

There is some evidence that dysfunctional emotion regulation mediates the relationship between attachment and paranoia in clinical (Ascone et al., 2020; Castilho et al., 2017; Jones, 2015) and non-clinical samples (Udachina & Bentall, 2014). In these studies, hyperactivating emotion regulation (e.g. rumination, catastrophising, self-blame, and dwelling on thoughts and feelings) and experiential avoidance mediated the anxious attachment and psychosis relationship, and deactivating emotion regulation (e.g. over-reliance on internal strategies), including experiential avoidance, mediated the avoidant attachment and psychosis relationship. Many of these studies used weak data analysis, did not control for confounders, and / or employed post-hoc analyses, which effect the reliability of results.

The research to date indicates that CBT for psychosis yields just moderate effects, warranting research into other factors that contribute to the development and maintenance of psychosis /



paranoia. Research suggests that insecure attachment is associated with both emotional dysregulation and paranoia, and that emotion dysregulation is associated with paranoia. Using strong research methodology and data analysis to explore if global emotion regulation mediates the relationship between trait attachment and paranoia would help to isolate mediators, which may be amenable to change in therapy. Previous research has recommended exploring emotional suppression as a mediator between the attachment avoidance and paranoia relationship, as this is assumed to be a key strategy associated with this attachment style (Ascone et al., 2020).

### **2.2.3 Current study**

The current study aims to test the following hypotheses:

H1: Emotion dysregulation (as measured by the Difficulties in Emotion Regulation Scale [DERS], Gratz & Roemer, 2004) will mediate the relationship between attachment anxiety (as measured by the Psychosis Attachment Measure [PAM], Berry, et al., 2006), and paranoia (as measured by the Revised Green et al. Paranoid Thoughts Scale [R-GPTS], Freeman et al., 2019)

H2: Emotion dysregulation (as measured by the DERS), will mediate the relationship between attachment avoidance (as measured by the PAM) and paranoia (as measured by the R-GPTS)

H3: Emotional suppression (as measured by the Emotion Regulation Questionnaire [ERQ], Gross & John, 2003), will mediate the relationship between attachment avoidance (as measured by the PAM) and paranoia (as measured by the R-GPTS)

Exploratory analyses will also be conducted to examine associations between attachment style and emotion regulation strategies, and will explore the following research questions:

RQ1: Is attachment anxiety (as measured by the PAM) associated with hyperactivating emotion regulation (difficulties engaging in goal directed behaviour, impulse control difficulties, and limited access to effective emotion regulation strategies [as measured by the DERS])?

RQ2: Is attachment avoidance (as measured by the PAM), associated with deactivating emotion regulation strategies (non-acceptance of emotions, lack of emotional awareness, and lack of emotional clarity [as measured by the DERS]) and suppression (as measured by the ERQ)?

The current study aims to address limitations of past research by using strong data analysis, controlling for confounders, and employing a priori analysis.

## **2.3 Method**

### **2.3.1 Design**

A cross-sectional design was used, collecting data at one time point in line with previous research in this area (e.g. Ascone et al., 2020). Cross-sectional analysis is justified by the theoretical rationale for the temporal ordering of the variables (Fairchild & McDaniel, 2017) as outlined above (i.e. enduring trait attachment predicts current emotion regulation and paranoia, and emotion regulation predicts paranoia). The predictor variable (attachment) is assumed to develop in childhood and remain broadly consistent over-time, with the PAM found to be stable in individuals with psychosis (Berry et al., 2008).

### **2.3.2 Participants**

Individuals with elevated levels of paranoia were recruited across a broad spectrum of symptom severity and diagnostic status. Participants were recruited from NHS outpatient settings as well as community settings for individuals experiencing paranoia / psychosis (e.g. voluntary charities and online support groups for people with psychosis). Recruiting participants from both NHS and community settings is in line with the continuum model of psychosis (Johns & van Os, 2001), as well as previous research exploring mediating mechanisms between attachment style and psychosis, allowing for comparison across studies (e.g. Ascone et al., 2020; Pilton et al., 2016; Scott et al., 2020; Wickham et al., 2015).

Inclusion criteria were that participants were over 18 years of age, were fluent in English language (as questionnaires are written and standardised in English), had capacity to give informed consent, and experienced paranoia at the time of the study. Experience of paranoia was assessed using the R-GPTS (Freeman et al., 2019), screening for individuals scoring in at least the elevated range on either subscale (Reference >9; Persecution >4). Participants were excluded if they were under 18 years of age, were unable to speak fluent English, lacked capacity to consent to participate in the study, or were not experiencing paranoia at the time of the study (i.e. scored under the R-GPTS elevated cut-off).

### **2.3.3 Procedure**

The study protocol was preregistered in July 2020 on OSF Registries ([osf.io/5emjf](https://osf.io/5emjf)). Early Intervention for Psychosis services and Community Mental Health Teams in the South of England were contacted and provided with the study information. Clinicians were asked to review their caseloads to identify and approach potentially eligible participants for initial consent. The main

researcher then contacted potential participants to discuss the study. The study adhered to NHS guidelines for COVID-19 secure contact (via telephone or face-to-face). An online version of the study was advertised to relevant support networks (e.g National Paranoia Network, Mind Charities, Intervoice) for community participants who accessed the study remotely (see Appendix B).

After reading an information sheet (see Appendices C and D) and providing informed consent (see Appendices E and F), all participants completed the questionnaires in the following order: R-GPTS, PAM, DERS, ERQ, and were then debriefed (see Appendices G and H). Participants recruited from the community were offered the opportunity to be entered into a draw to win one of three £50 Amazon vouchers. Participants recruited from the NHS received a reimbursement of £10 (either cash or voucher) for their time and any incurred travel expenses.

### **2.3.4 Measures**

#### **2.3.4.1 Demographic Questionnaire**

This self-report measure gathered information on age, gender, ethnicity, time since onset of paranoia, and any formal mental health diagnoses received.

#### **2.3.4.2 Paranoia**

The R-GPTS (Freeman et al., 2019) is a self-report measure of paranoia. The scale consists of 18 items; eight items measure ideas of social reference and ten items measure persecutory ideation. Each item is rated on a 5-point Likert scale from 1: not at all to 4: totally, and scores can be summed to yield two subscales or a total score. Higher scores reflect higher levels of paranoia. The scale has excellent reliability ( $\alpha > .90$ ; Freeman et al., 2019). Internal consistency for the current sample was also excellent ( $\alpha = .91$ ).

#### **2.3.4.3 Attachment**

The PAM (Berry et al., 2006) is a 16-item self-report questionnaire assessing trait attachment anxiety and attachment avoidance. Each item is rated on a 4-point Likert scale from 0: not at all to 3: very much. Each dimension yields a total score, with higher scores reflecting greater attachment anxiety and attachment avoidance. In a population of individuals with psychosis, internal consistency was good for anxiety ( $\alpha = .82$ ) and acceptable for avoidance ( $\alpha = .76$ ; Berry et al., 2008). Internal consistency for the current sample was good for both attachment anxiety ( $\alpha = .81$ ) and attachment avoidance ( $\alpha = .83$ ).

#### **2.3.4.4 Emotion Regulation**

The DERS (Gratz & Roemer, 2004) is a 36-item self-report questionnaire assessing trait emotion regulation strategies. The measure yields a global score and six subscale scores: difficulties engaging in goal directed behaviour when upset, impulse control difficulties, limited access to effective emotion regulation strategies, non-acceptance of emotional responses, lack of emotional awareness, and lack of emotional clarity. The first three strategies were grouped as 'hyperactivating', as these function to increase emotional arousal, and the latter three strategies as 'deactivating', as these function to decrease emotional arousal (cf. Mikulincer & Shaver, 2003). Individuals score items on a 5-point Likert scale from 1: almost never to 5: almost always, with higher scores reflecting greater difficulties with emotion regulation. Internal consistency of the DERS is excellent ( $\alpha = .93$ ), with individual subscales all rated as good or above ( $\alpha > .80$ ; Gratz & Roemer, 2004). In the current sample, internal consistency of the total scale was excellent ( $\alpha = .96$ ). All individual subscales were rated as good or above ( $\alpha > .83$ ), with the exception of emotional awareness which was acceptable ( $\alpha = .71$ ).

The ERQ (Gross & John, 2003) is a self-report trait measure of cognitive reappraisal and expressive suppression. The four-item expressive suppression subscale was used in the current study. Individuals score items on a 7-point Likert scale ranging from 1: strongly disagree to 7: strongly agree. The expressive suppression scale has acceptable internal consistency ( $\alpha = .73$ ; Gross & John, 2003). In the current sample internal consistency was also acceptable ( $\alpha = .77$ ).

#### **2.3.5 Ethical considerations**

Ethical approval was granted by the University of Southampton Ethics and Research Governance Committee (ERGO ID: 53616; 56538.A2), Health Research Authority / Research Ethics Committee (IRAS ID: 276512), and local NHS Trust Research and Development Department (see Appendix J). Data protection and confidentiality procedures were followed. In terms of risk of participation, only standardised measures were used with no known adverse effects, and shorter versions were used where possible. Participants were informed that questionnaires may touch on sensitive topics (e.g. nature of suspicious thoughts and relationships with others). Relevant sources of support were provided.

#### **2.3.6 Statistical Analyses**

Microsoft Excel was used to collate data and the Statistical Package for the Social Sciences (SPSS) 26 for Windows was used for data analysis. There were four occurrences of missing data by four

different participants. As there was only one item rating missing for each participant, these were assigned based on the average of scores in the relevant subscale (Tabachnik & Fidell, 2013).

Mediation analyses were conducted using PROCESS (Model 4; Hayes, 2018). Inspection of histograms and normality tests revealed that some variables were not normally distributed, though this does not affect mediation which is not based on assumptions of normality (Hayes, 2018). Differences in categorical demographic data (gender, recruitment pathway, diagnosis) on the dependent variable (R-GPTS) were explored using independent t-tests / one-way ANOVAs. Following protocols in previous research in the area (Hugill et al., 2017), demographic variables with significant differences in levels of paranoia were controlled for in separate mediation analyses, and compared to the models which did not control for covariates. Exploratory research questions were examined using correlational analyses.

## 2.4 Results

### 2.4.1 Sample characteristics

Seventy-one participants completed the study. A total of 62 participants scored in or above the elevated cut-off on the R-GPTS and were therefore included in the analyses. Demographic data for the included participants are presented in Table 8, which also shows that the sample reported levels of paranoia comparable to, or more severe than, previous studies recruiting clinical and community samples.

Significant differences were found in level of paranoia (R-GPTS) by gender ( $t(60) = 2.05, p = .04$ ) and recruitment pathway ( $t(60) = 3.69, p < .001$ ). Females scored higher than men, and participants recruited from the community scored higher than those recruited from the NHS. Mediation analyses was therefore conducted which controlled for gender and recruitment pathway, and this was in turn compared to the initial mediation analyses. No significant differences were found in level of paranoia by diagnosis status ( $F(2, 59) = 3.07, p = .05$ ). Age and years of suspicious thinking did not correlate with level of paranoia (R-GPTS).

**Table 8**

*Demographic Data and Descriptive Statistics (N = 62)*

Variable	Descriptive statistic	Comparison figure
Gender: <i>n</i> (%)		
Female	35 (56.5)	

## Chapter 2

Male	27 (43.5)	
Age of participant in years: mean, (SD), range	37.02, (12.71), 18 - 62	
Ethnicity: <i>n</i> (%)		
White British	50 (80.65)	
Asian	4 (6.45)	
White American	2 (3.23)	
White and Black mixed background	2 (3.23)	
White other background	2 (3.23)	
Any other mixed background	2 (3.23)	
Suspicious thinking in years: mean, (SD), range	15.77, (13.66), 1 - 50	
Self-reported mental health diagnosis: <i>n</i> (%)		
Yes	43 (69.35)	
No	15 (24.19)	
Not sure	4 (6.45)	
Self-reported diagnosis type: <i>n</i> (%)		
Depression	14 (20.97)	
Anxiety	13 (17.74)	
Schizophrenia	10 (16.13)	
Emotionally Unstable Personality Disorder	8 (12.90)	
Psychosis	5 (8.06)	
Post-Traumatic Stress Disorder	5 (8.06)	
Bipolar	3 (4.84)	
Delusional Disorder	1 (1.61)	
Attachment Disorder	1 (1.61)	
Attachment anxiety – PAM: mean, (SD)	14.53 (5.61)	10.9 (6.5) <sup>a</sup>
Attachment avoidance – PAM: mean (SD)	14.37 (5.59)	15.2 (5.2) <sup>a</sup>
Paranoia – Persecution R-GPTS: mean (SD)	20.66 (9.87)	13.7 (13.0) <sup>b</sup>
Paranoia – Social Reference R-GPTS: mean (SD)	18.11 (7.67)	15.8 (7.42) <sup>b</sup>
Paranoia – Total R-GPTS: mean (SD)	38.76 (15.80)	-
Emotion dysregulation: DERS, mean, (SD)	110.74 (30.74)	101.9 (27.) <sup>c</sup>
Emotion suppression: ERQ, mean, (SD)	4.12 (1.48)	4.09 (1.42) <sup>d</sup>

<sup>a</sup>44 adults with voices recruited from community settings, most had contact with mental health services (Robson & Mason, 2015).

<sup>b</sup>1804 adults with psychotic disorder recruited from clinical settings (Freeman et al., 2019). Score ranges for R-GPTS Persecution: average (0–4), elevated (5–10), moderately severe (11–17), severe (18–27), very severe (28+). Cut offs for Persecution: 11 = clinical persecutory ideation, 18 = persecutory delusion. Score ranges for R-GPTS Social Reference: average (0–9), elevated (10–15), moderately severe (16–20), severe (21–24), very severe (25+).

<sup>c</sup>994 adults with mental health difficulties recruited from clinical settings (Fowler et al., 2016), with non-clinical samples evidencing scores below 75 (Gratz & Roemer, 2004).

<sup>d</sup>44 adults with schizophrenia recruited from clinical and community settings (Kimhy et al., 2012).

### 2.4.2 Mediation Analyses

Mediation analyses were conducted to determine if emotion dysregulation mediated the relationship between attachment style and paranoia. Three models were tested, consistent with the hypotheses previously outlined (e.g. hypothesis 1 = model 1). Sample size was initially estimated using Klein's (2015) model of 20 participants per parameter, yielding a required sample of 60 participants. Additionally, power for the indirect effect of each model was determined post hoc using Monte Carlo simulations (10,000 replications and 20,000 draws), as recommended by Schoemann et al. (2017). The R application ([https://schoemanna.shinyapps.io/mc\\_power\\_med/](https://schoemanna.shinyapps.io/mc_power_med/); Schoemann et al., 2017) revealed that a sample size of 62 was sufficient to achieve the conventional desired power level of .80 (Schoemann et al., 2017) in mediation models one and two. A sample size of 62 yielded .85 power for model one and .95 power for model two. However, model three was significantly underpowered, with a sample size of 62 yielding .14 power. To achieve .80 power in model three, a sample size of 825 is required.

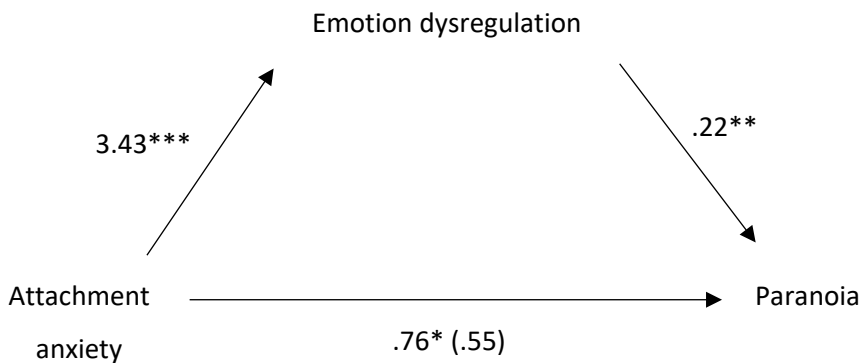
Mediation is considered significant if the 95% confidence interval does not cross the zero value (Hayes, 2018). The percentile bootstrap CI is the recommended method for inferring indirect effects as it balances validity and power considerations (Hayes 2018).

For model one, as expected, the total effect of attachment anxiety on paranoia was positive and significant,  $b = 1.31$ ,  $SE = .32$ , 95% CI [.66, 1.95]. When accounting for the mediator (emotional dysregulation) there was no longer a significant relationship between attachment anxiety and paranoia,  $b = .55$ ,  $SE = .39$ , 95% CI [-.22, 1.32]. There was a significant positive relationship between attachment anxiety and emotion dysregulation,  $b = 3.43$ ,  $SE = .55$ , 95% CI [2.32, 4.53], and between emotion dysregulation and paranoia,  $b = .22$ ,  $SE = .07$ , 95% CI [.08, .36]. In line with the hypothesis, the indirect effect was significant, suggesting emotional dysregulation mediates the relationship between attachment anxiety and paranoia  $b = .76$ ,  $\beta = .27$ , bootstrapped  $SE = .29$ , bootstrapped 95% CI [.22, 1.37], see Figure 3. Those scoring higher on attachment anxiety had increased emotional dysregulation, which predicted greater paranoia. Overall, attachment anxiety and emotional dysregulation explained 33% of variance in levels of paranoia.

#### Figure 3

*Mediation Model Testing if Emotion Dysregulation Mediates the Relationship between*

*Attachment Anxiety and Paranoia*

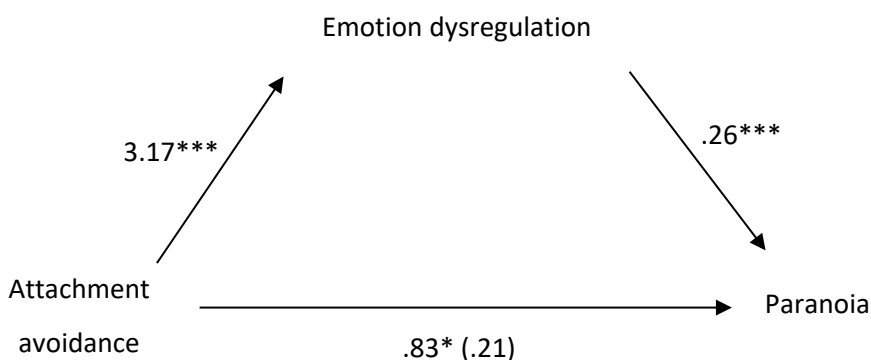


*Note.* Path coefficients are unstandardised regression coefficients. The value in parentheses is the direct effect (*c'*) of attachment anxiety on paranoia. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

For model two, as expected, the total effect of attachment avoidance on paranoia was positive and significant,  $b = 1.04$ ,  $SE = .34$ , 95% CI [.36, 1.72]. When accounting for the mediator (emotional dysregulation) there was no longer a significant relationship between attachment avoidance and paranoia,  $b = .21$ ,  $SE = .37$ , 95% CI [-.54, .96]. There was a significant positive relationship between attachment avoidance and emotion dysregulation,  $b = 3.17$ ,  $SE = .58$ , 95% CI [2.01, 4.33], and between emotion dysregulation and paranoia,  $b = .26$ ,  $SE = .07$ , 95% CI [.13, .40]. In line with the hypothesis, the indirect effect was significant, suggesting that emotional dysregulation mediates the relationship between attachment anxiety and paranoia,  $b = .83$ ,  $\beta = .29$ , bootstrapped  $SE = .26$ , bootstrapped 95% CI [.35, 1.39], see Figure 4. Those scoring higher on attachment avoidance had increased emotional dysregulation, which predicted more paranoia. Overall, attachment avoidance and emotional dysregulation explained 31% of variance in levels of paranoia.

**Figure 4**

*Mediation Model Testing if Emotion Dysregulation Mediates the Relationships between Attachment Avoidance and Paranoia*



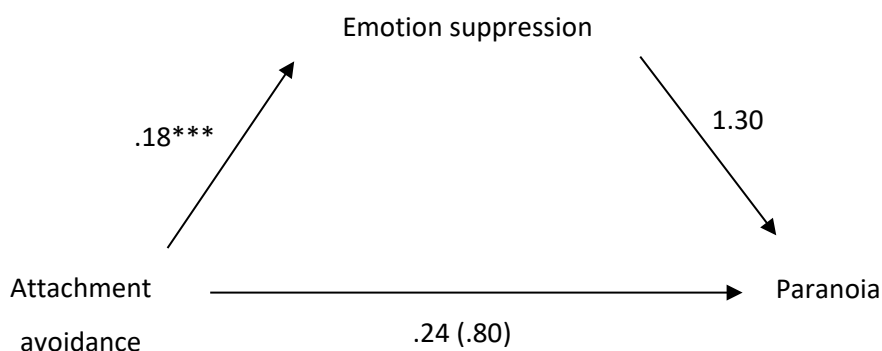


*Note.* Path coefficients are unstandardised regression coefficients. The value in parentheses is the direct effect ( $c'$ ) of attachment avoidance on paranoia. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

For model three, the total effect of attachment avoidance on paranoia was positive and significant,  $b = 1.04$ ,  $SE = .34$ , 95% CI [.36, 1.72]. When accounting for the mediator (emotional suppression) there was no longer a significant relationship between attachment avoidance and paranoia,  $b = .80$ ,  $SE = .47$ , 95% CI [-.14, 1.74]. There was a significant positive relationship between attachment avoidance and emotional suppression,  $b = .18$ ,  $SE = .02$ , 95% CI [.13, .23]. There was no significant relationship between emotional suppression and paranoia,  $b = 1.30$ ,  $SE = 1.77$ , 95% CI [-2.24, 4.84]. Contrary to prediction, the indirect effect was not significant, suggesting emotional suppression does not mediate the relationship between attachment avoidance and paranoia,  $b = .24$ ,  $\beta = .08$ , bootstrapped  $SE = .34$ , bootstrapped 95% CI [-.41, .96], see Figure 5. Overall, attachment avoidance and emotional suppression explained 14% of variance in levels of paranoia.

### Figure 5

*Mediation Model Testing if Emotion Suppression Mediates the Relationships between Attachment Avoidance and Paranoia*

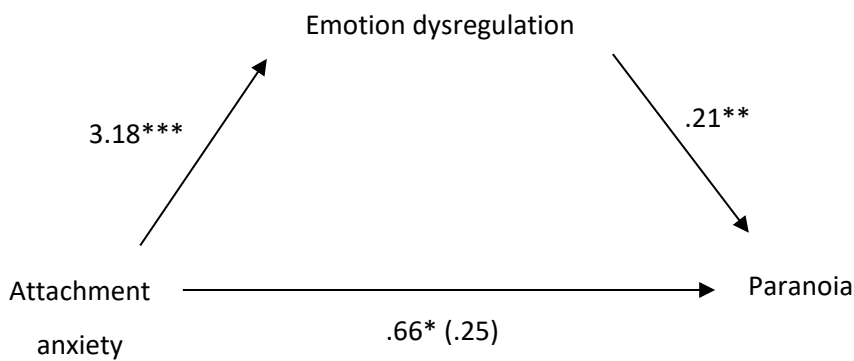


*Note.* Path coefficients are unstandardised regression coefficients. The value in parentheses is the direct effect ( $c'$ ) of attachment avoidance on paranoia. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Significant mediation models were re-tested controlling for the demographic variables found to exert effects on levels of paranoia (gender and recruitment pathway). Results are represented in Figures 6 and 7, differing minimally from those already reported (see Figures 3 and 4). Indirect effects on paranoia remained significant for attachment anxiety  $b = .66$ ,  $\beta = .23$ , bootstrapped  $SE = .24$ , bootstrapped 95% CI [.22, 1.15] and attachment avoidance  $b = .62$ ,  $\beta = .22$ , bootstrapped  $SE = .23$ , bootstrapped 95% CI [.19, 1.13]. The variance accounted for in paranoia increased to 38% in both models, when covariates were added.

### Figure 6

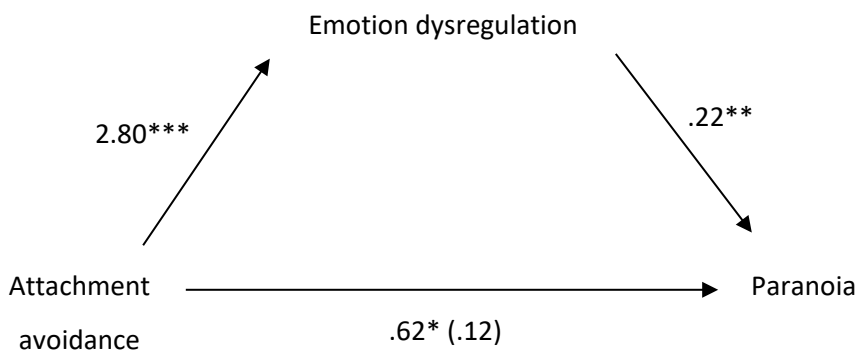
*Mediation Model testing if Emotion Dysregulation Mediates the Relationships between Attachment Anxiety and Paranoia, controlling for Gender and Recruitment Pathway*



*Note.* Path coefficients are unstandardised regression coefficients. The value in parentheses is the direct effect (*c'*) of attachment anxiety on paranoia. \**p*<.05, \*\**p*<.01, \*\*\**p*<.001.

**Figure 7**

*Mediation Model testing if Emotion Dysregulation Mediates the Relationships between Attachment Avoidance and Paranoia, controlling for Gender and Recruitment Pathway*



*Note.* Path coefficients are unstandardised regression coefficients. The value in parentheses is the direct effect (*c'*) of attachment avoidance on paranoia. \**p*<.05, \*\**p*<.01, \*\*\**p*<.001.

**2.4.3 Correlation Analyses**

Table 9 gives the correlation coefficients between attachment anxiety, hyperactivating emotion regulation measures, and paranoia. In line with RQ 1, there was a positive association between attachment anxiety and these strategies (difficulties engaging in goal-directed behaviours when upset, impulse control difficulties, and lack of access to emotion regulation strategies). All hyperactivating strategies correlated with level of paranoia.

**Table 9**

*Correlation Matrix for Attachment Anxiety and Emotion Regulation (Pearson's *r*)*

Variable	1	2	3	4	5
----------	---	---	---	---	---

1. Attachment anxiety	-	.43 <sup>***</sup>	.55 <sup>***</sup>	.54 <sup>***</sup>	.46 <sup>***</sup>
2. Difficulties engaging with goals	-	-	.44 <sup>***</sup>	.62 <sup>***</sup>	.42 <sup>***</sup>
3. Impulse	-	-	-	.72 <sup>***</sup>	.46 <sup>***</sup>
4. Lack of strategies	-	-	-	-	.48 <sup>***</sup>
5. Paranoia	-	-	-	-	-

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Table 10 gives the correlation coefficients between attachment avoidance, deactivating emotion regulation measures, and paranoia. In line with RQ 2, there was a positive association between attachment avoidance and these strategies (emotional non-acceptance, lack of emotional awareness, lack of emotional clarity, and emotional suppression). All deactivating strategies correlated with level of paranoia.

**Table 10**

*Correlation Matrix for Attachment Avoidance and Emotion Regulation (Pearson's  $r$ )*

Variable	1	2	3	4	5	6
1. Attachment avoidance	-	.54 <sup>***</sup>	.39 <sup>**</sup>	.47 <sup>***</sup>	.69 <sup>***</sup>	.37 <sup>**</sup>
2. Non-acceptance	-	-	.34 <sup>**</sup>	.66 <sup>***</sup>	.39 <sup>**</sup>	.57 <sup>***</sup>
3. Lack of awareness	-	-	-	.54 <sup>***</sup>	.43 <sup>***</sup>	.27 <sup>*</sup>
4. Lack of clarity	-	-	-	-	.32 <sup>*</sup>	.38 <sup>**</sup>
5. Suppression	-	-	-	-	-	.32 <sup>*</sup>
6. Paranoia	-	-	-	-	-	-

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## 2.5 Discussion

The study aimed to determine if emotion dysregulation mediated the relationship between attachment and paranoia, and to explore associations between attachment styles and specific emotion regulation strategies. The results suggest that emotion dysregulation mediates the relationship between attachment anxiety and paranoia, and between attachment avoidance and paranoia in those with elevated levels of paranoia. The results support theories which suggest that emotion dysregulation contributes to the maintenance of paranoia (e.g. Freeman & Garety, 2014; Freeman et al., 2002), and builds on these theories by showing that attachment style affects

## Chapter 2

emotion dysregulation and therefore severity of paranoia (cf. Mikulincer & Shaver, 2012). These results are in line with previous research showing that attachment impacts emotion regulation (e.g. Owens et al., 2013) and paranoia (e.g. Murphy et al., 2020), and emotion regulation impacts paranoia (e.g. Lincoln et al., 2018). In addition, it contributes to the growing evidence that emotion regulation mediates this attachment and paranoia relationship (Ascone et al., 2020; Castilho et al., 2017; Jones, 2015; Udachina & Bentall, 2014) and addressed limitations of this past research by using strong data analysis, controlling for confounders, and employing a priori analysis.

These findings suggest that emotion regulation may be a valuable target in CBT for psychosis characterised by paranoia. Emotion regulation is not currently targeted in recommended CBT interventions (Morrison & Barratt, 2010), and attention to emotion regulation may improve the currently modest outcomes for CBT for psychosis (Laws et al., 2018). Indeed, preliminary research has shown that emotion regulation skills training is an effective intervention for reducing paranoia (Silva et al., 2020). This adds to the growing evidence that CBT interventions targeting specific maintenance factors associated with particular symptoms, such as paranoia, are likely to improve clinical outcomes for people with psychosis (e.g. Freeman et al., 2015).

Despite being correlated with both variables, emotion suppression did not mediate the relationship between attachment avoidance and paranoia. This was unexpected, as previous research has found that individuals with an avoidant attachment often use emotion suppression (Mikulincer & Shaver, 2019), and emotion suppression increases paranoia (Nittel et al., 2018). This mediation model was significantly underpowered (Schoemann et al., 2017), which increases the likelihood of a Type II error. The lack of power in this model was partly due to the small relationship between the mediator (suppression) and dependent variable (paranoia), which conflicts with previous research finding a strong relationship between these variables (e.g. Nittel et al., 2018). Importantly, the suppression measure (ERQ) used in the current study consists of several negatively worded questions, which can cause participant confusion (Johnson et al., 2004; Patten, 1998). It is recommended to replicate the study with an alternative, positively worded measure.

Attachment anxiety correlated with hyperactivating emotion regulation strategies (difficulties engaging with goals when upset, impulse control difficulties, lack of strategies) and attachment avoidance correlated with deactivating emotion regulation strategies (non-acceptance, lack of awareness, lack of clarity, suppression). This is in line with previous research (Mikulincer and Shaver, 2007; Owens et al., 2013). These dysfunctional emotion regulation strategies correlated with paranoia, which again corroborates previous findings which suggest dysfunctional emotion

regulation increases level of paranoia (e.g. Westermann & Lincoln, 2011; Westermann et al., 2013).

An unexpected finding was that the community sample had on average higher levels of paranoia than the clinical sample (see Appendix J). Many of the clinical participants were recruited from Early Intervention in Psychosis teams, which focus on the early detection and treatment of psychosis to reduce symptoms and improve functioning. Anecdotally, many participants under these teams reported to be feeling well, and it may have been that clinicians referred individuals into the study when they were towards the end of their time with the team and experiencing lower levels of paranoia. Additionally, many in the community sample reported diagnoses and previous contact with services, so may have been living with elevated and distressing levels of paranoia.

### **2.5.1 Strengths and Limitations**

The results are a clinically relevant addition to the existing literature exploring attachment, emotion regulation, and paranoia. A strength of the study was the use of recruitment pathways from NHS and community settings to form a large sample of people with elevated paranoia. Mean scores on the R-GPTS suggest participants scored on average in the 'moderately severe' range for ideas of social reference, and the 'severe' range for persecution, and mean scores were above the recommended clinical cut off to discriminate persecutory delusions. Additionally, scores on the R-GPTS in the current study are comparable to studies which included clinical samples. This suggests the sample on average experienced clinical levels of paranoia. The study also employed strong data analysis and controlled for potential confounding variables in the mediation analysis.

The results should be considered within the study's limitations. The study was cross-sectional which limits the degree to which causal inferences can be made, though there is a strong theoretical basis for the temporal ordering of the variables (Fairchild & McDaniel, 2017). While the sample had a reasonable balance of gender and wide age range, participants were majority White British (80.65%), limiting the generalisability of the results. Further, mediation model three was significantly underpowered and used a questionnaire with negatively worded questions which may have caused confusion. While relevant variables were controlled for in mediation analysis there may have been other confounding variables which were not measured, such as mood. These variables are not likely to be mutually exclusive (i.e. emotion regulation impacts emotional state).

### **2.5.2 Future Research and Clinical Implications**

Future research should employ longitudinal or experimental designs to explore if emotion dysregulation mediates the relationship between attachment and paranoia, whilst controlling for relevant confounders (including affective symptoms). The study did not explore differences in emotion regulation between attachment styles, and further research could use a priori analysis to explore if hyperactivating emotion regulation strategies mediate the attachment anxiety and paranoia relationship, and if deactivating emotion regulation strategies mediate the attachment avoidance and paranoia relationship. Future research should ensure that the emotion regulation measures, including the measure of emotional suppression, are accessible and clear for participants. Intervention studies are then needed to explore the impact of emotion regulation skills training for individuals with paranoia, and specifically, whether those high in attachment anxiety benefit from emotion regulation skills training to reduce hyperactivating strategies (i.e. develop strategies to reduce emotional arousal and impulsivity), and whether those high in attachment avoidance benefit from emotion regulation skills training to reduce deactivating strategies (i.e. gain awareness and acceptance of emotions).

In terms of clinical implications, routine assessment of individuals' trait attachment style and emotion regulation strategies would help to guide formulation and treatment planning in cognitive behavioural therapy for psychosis. Clinical assessment and discussion of how people manage distress, and whether / how they seek help from family and friends at these times, would be valuable in gauging possible attachment style in clinical practice. This would inform therapeutic work (e.g., being able to anticipate that someone would struggle to ask for help if moving into crisis), and could be augmented with measures such as the PAM (Berry et al., 2006), PAM-R (Pollard et al., 2020), or Experiences in Close Relationship Scale (Brennan et al. 1998). People with attachment anxiety are likely to benefit from skills to reduce emotional arousal, whereas those with attachment avoidance are likely to benefit from skills to articulate and express emotional arousal.

### **2.5.3 Conclusions**

The results of the study found that dysfunctional emotion regulation mediates the relationship between insecure attachment (anxiety / avoidance) and paranoia in a sample with largely clinical levels of paranoia. This extends existing research on attachment, emotion regulation, and paranoia. No support was found for emotional suppression as a mediator between attachment avoidance and paranoia contrary to hypothesis, though this may be due to the lack of statistical power and / or negatively worded questions within the questionnaire. The results also show that

hyperactivating emotion regulation is associated with attachment anxiety and paranoia, and deactivating emotion regulation is associated with attachment avoidance and paranoia. Research should now investigate if attachment-based emotion regulation interventions are effective in reducing elevated levels of paranoia.

## Appendix A Quality Assessment Ratings

Author(s)	Selection bias	Confounders	Data collection			Withdrawals and dropouts	Analysis	Global
			IV	DV	M			
Ascone et al. (2020)	W	W	S	S	M	N/A	S	W
Castilho et al. (2017)	W	W	S	S	S	N/A	W	W
Cole et al. (2017)	W	W	S	S	S	N/A	S	W
Dominguez-Pereira (2019)	W	W	S	M	S	N/A	M	W
Gumley, Schwannauer, et al. (2014)	M	W	S	S	S	S	S	M
Hajduk and Heretik (2016)	W	S	S	S	M	N/A	W	W
Hugill et al. (2017)	W	S	S	S	S	N/A	S	M
Jones (2015)	M	W	S	S	S	N/A	S	M
Marlowe et al. (2020b)	W	S	S	S	S	N/A	W	W
Martinez et al. (2020)	W	W	S	M	S	N/A	S	W
Pickering et al. (2008)	W	W	S	S	S	N/A	M	W



Pilton et al. (2016)	W	W	S	S	S	N/A	S	W
Robson and Mason (2015)	W	W	S	W	S	N/A	S	W
Scott et al. (2020)	W	W	S	W	S	N/A	S	W
Sood and Newman-Taylor (2020)	W	S	S	S	S	N/A	S	M
Udachina and Bentall (2014)	W	W	S	S	S	N/A	S	W
Wickham et al. (2015)	W	S	S	S	S	N/A	S	M

---

*Note.* S = strong, M = moderate, W = weak



## Appendix B Social Media Advertisement

**Study Title:** Understanding Suspicious Thinking in the Community

**ERGO number:** 56538

**Version:** 2; 14/07/2020

I'm a clinical psychology doctoral student from the University of Southampton conducting research for my thesis.

Do you tend to be wary or suspicious of other people? Are you 18+ years old? Do you have 15 minutes to spare? If so, you could take part.

**All participants will be entered into a draw to win one of three £50 Amazon vouchers!**

The study will take around 15 minutes and examine impact of suspicious thinking; full details are provided if you follow the link >>> [\\*study link here\\*](#)

Thank you.

## Appendix C Participant Information Sheet for NHS

### Recruitment

**Study Title:** Understanding suspicious thinking (Does Emotion Regulation Mediate the Relationship between Attachment Style and Paranoia)

**Researcher:** Olivia Partridge, Trainee Clinical Psychologist

**ERGO number:** 53616

[29/05/2020] [Version 2]

[Ergo number 53616/IRAS number 276512]

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

#### What is the research about?

Thank you for considering taking part in this research project. I am a Trainee Clinical Psychologist at the University of Southampton and this project will be my Doctorate thesis. The aim of this study is to investigate suspicious thinking. This study is sponsored by the University of Southampton

#### Why have I been asked to participate?

You have been considered as a candidate to take part in this study as you are receiving input from the Early Intervention Psychosis Team or the Community Mental Health team, and may be experiencing difficulty trusting others or suspicious thinking.

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

If you consent to take part in this project, you will have contact with a researcher in line with current guidelines (either over the phone or face-to-face). The researcher will explain the study and give you the opportunity to ask any questions. If you meet the inclusion criteria and you are happy to proceed, you will be asked to complete a demographic sheet and four questionnaires, which should take no more than 35 minutes. You will be reimbursed with £10 for your time and any travel expenses you may have incurred.

#### Are there any benefits in my taking part?

There would be no direct benefit but you would be contributing to the evidence base, exploring factors that may influence levels of suspicious thinking.

#### Are there any risks involved?

The questionnaires have the potential to touch on sensitive topics including the nature of suspicious thoughts and relationships with others. However, these are standardised measures and there are no known adverse effects of completing them. If completing these questionnaires evoked any distress and you require some support, please contact your GP, the community mental health team or early intervention team you are receiving support from, or Samaritans (116

123).The number of questionnaires has been kept to a minimum to reduce the burden of participating.

#### **What data will be collected?**

The demographic sheet will ask for your gender, age, ethnicity, time since onset of any symptoms of psychosis and whether you have received a formal mental health diagnosis. This will help us describe in general terms who took part in the study and understand the scope of the study's findings. This information will not be shared with anyone outside the research team. The questionnaires will assess your thinking (e.g. I often heard people referring to me), how you manage emotions (e.g. I keep my emotions to myself) and relationships (e.g. I try and cope with stressful situations on my own).

#### **Will my participation be confidential?**

Your participation and the information we collect about you during the research will be kept strictly confidential. Questionnaire data will not include any identifiable information about you and will be kept separate to the consent form you signed. Questionnaire data will be moved to a computer which will be password protected. Consent forms will be kept in locked cabinets. Please note, your personal medical notes will not be accessed and you will not be contacted in the future for follow up.

Confidentiality will only be broken if you disclose information that indicates you or someone else are at risk of harm. In such instances, this information will be shared with the appropriate agencies (e.g. your GP, care coordinator, social services, police, as necessary). We will aim to involve you as much as possible in this process. This process is important to safeguard both you and the people around you.

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

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to participate.

#### **What happens if I change my mind?**

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights (or routine care as a patient) being affected.

If for any reason you decide that you no longer want to take part in the study, all you need to do is let me know. You do not have to provide me with a reason and this will not impact your ability to access support from the team. If you withdraw from the study, we will keep anonymised information about you that we have already obtained for the purposes of achieving the objectives of the study only.

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

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you. The results of this study will be part of my Doctorate thesis and submitted to the University of Southampton and, if appropriate, in a peer-reviewed journal.

If you would like to receive the results of the study, please let me know and you will receive a letter or email summarising the findings.

#### **Where can I get more information?**

If you have any further questions, please contact me on [ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk).

Please note: this email address is not to be used in the case of an emergency. If you are worried about immediate risk of harm to self or others, please contact your care coordinator or local crisis team.

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

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions. If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)).

### **Who has reviewed this study?**

The East of Scotland Research Ethics Service REC 1, which has responsibility for scrutinising all proposals for medical research on humans, has examined the proposal and has raised no objections from the point of view of research ethics. It is a requirement that your records in this research, together with any relevant medical records, be made available for scrutiny by monitors from University of Southampton and Southern Health NHS Foundation Trust, whose role is to check that research is properly conducted and the interests of those taking part are adequately protected. These people have a duty to keep your information strictly confidential.

### **Data Protection Privacy Notice**

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at <http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf>

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you (consent forms) for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer ([data.protection@soton.ac.uk](mailto:data.protection@soton.ac.uk)).

**Thank you for taking the time to read the information sheet and considering taking part in the research.**

## **Appendix D     Participant Information Sheet for Community Recruitment**

**Study Title:** Understanding suspicious thinking in the community

**Researcher:** Olivia Partridge, Trainee Clinical Psychologist

**ERGO number:** 56538

[14/07/2020] [Version 2]

[Ergo number 56538]

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to indicate your consent.

### **What is the research about?**

Thank you for considering taking part in this research project. I am a Trainee Clinical Psychologist at the University of Southampton and this project will be my Doctorate thesis. The aim of this study is to investigate suspicious thinking. This study is sponsored by the University of Southampton.

### **Why have I been asked to participate?**

You have been considered as a candidate to take part in this study, as you may be experiencing difficulty trusting others or suspicious thinking.

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

You will be asked to complete a demographic sheet and four questionnaires, which should take around 15 minutes.

### **Are there any benefits in my taking part?**

You would be contributing to the evidence base, exploring factors that may influence levels of suspicious thinking. You can also choose to be entered into a draw to win one of three £50 Amazon vouchers.

### **Are there any risks involved?**

The questionnaires have the potential to touch on sensitive topics including the nature of suspicious thoughts and relationships with others. However, these are standardised measures and there are no known adverse effects of completing them. If completing the questionnaires does evoke distress and you require support, please contact your GP or Samaritans (116 123). The number of questionnaires has been kept to a minimum to reduce the burden of participating.

### **What data will be collected?**

The demographic sheet will ask for your gender, age, ethnicity, time since onset of any symptoms of psychosis and whether you have received a formal mental health diagnosis. This will help us describe in general terms who took part in the study and understand the scope of the study's



findings. This information will not be shared with anyone outside the research team. The questionnaires will assess your thinking, feelings and relationships.

If you would like to be entered into the draw for the Amazon voucher, you are invited to provide an email address at the end of the study.

### **Will my participation be confidential?**

Your participation and the information we collect about you during the course of the research will be kept strictly confidential. Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

You will be asked to enter your email address if you would like to be entered into the draw for the Amazon voucher. We will separate your email address from your questionnaire responses when we take the first steps in analysing the data, and it will be kept securely on a password-protected University computer. Your email address will be deleted after the draw has taken place. You will not be contacted in the future for follow up.

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

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to indicate consent to show you have agreed to participate.

### **What happens if I change my mind?**

You have the right to change your mind and withdraw at any time. If for any reason you decide that you no longer want to take part in the study, all you need to do is exit the study. If you withdraw from the study after completion, we will keep anonymised information about you that we have already obtained for the purposes of achieving the objectives of the study only.

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

Research findings made available in any reports or publications will not include information that can directly identify you. The results of this study will constitute part of my Doctorate thesis and will be submitted to the University of Southampton and, if appropriate, the findings will be prepared for publication in a peer-reviewed journal.

If you would like to receive the results of the study please email me at [ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk). You will have to provide contact details which will be kept securely and separate to questionnaire responses, and destroyed after the findings have been sent to you.

### **Where can I get more information?**

If you have any further questions, please contact me on [ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk).

Please note: this email address is not to be used in the case of an emergency, please contact your GP if you require support.

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

If you have a concern about any aspect of this study, you should email [ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk) who will do their best to answer your questions. If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)).

### **Data Protection Privacy Notice**

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please email [ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk) if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data wouthen you take part in one of our research projects and can be found at <http://www.southampton.ac.uk/assets/sharepoint/intranet/Is/Public/Research%20and%20Integri%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf>

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer ([data.protection@soton.ac.uk](mailto:data.protection@soton.ac.uk)).

**Thank you for taking the time to read the information sheet and considering taking part in the research.**

## Appendix E      Consent Form for NHS Recruitment

**Study title:** Understanding suspicious thinking (Does Emotion Regulation Mediate the Relationship between Attachment Style and Paranoia)

**Researcher name:** Olivia Partridge, Trainee Clinical Psychologist

**ERGO number:** 53616

Participant Identification Number:

***Please initial the boxes if you agree with the statements:***

I have read and understood the information sheet ( <i>29/05/2020/version 2</i> ) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw at any time for any reason without my medical care or participation rights being affected. I understand that the information collected about me up to the point of withdrawing may still be used for the purposes of achieving the objectives of the study only.	

## Appendix F Consent Form for Community Recruitment

**Study title:** Understanding suspicious thinking in the community

**Researcher name:** Olivia Partridge, Trainee Clinical Psychologist

**ERGO number:** 56538

Version 2; 14/07/2020

I have read and understood the information sheet (14/07/2020/version 2).

I agree to take part in this research project and agree for my data to be used for the purpose of this study.

I understand my participation is voluntary and I may withdraw at any time for any reason without my participation rights being affected. I understand that the information collected about me after I have completed the study will be used for the purposes of achieving the objectives of the study only.

Please tick (check) this box to indicate that you agree with the statements above and consent to taking part in this survey.

## Appendix G Debrief Form for NHS Recruitment

### Understanding Suspicious Thinking (Does Emotion Regulation Mediate the Relationship between Attachment Style and Paranoia)

#### Debriefing Statement (*written*)

**ERGO ID:** 53616

The aim of this research was to explore three related factors: our relationships with others, how we manage emotions, and our thoughts about being wary of others. It is expected that if people struggle in their relationships with others, they may also struggle to manage difficult emotions, which may in turn make it more likely for them to be wary of others. Your data will help our understanding of the factors that influence thoughts about being wary of others, which may in turn inform treatment options. Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception.

You can keep a copy of this summary if you wish. Please provide the researcher with your email address if you wish to have a summary of research findings once the project is completed,

If you have any further questions please contact Olivia Partridge at [ojp1g12@soton.ac.uk].

Thank you for your participation in this research.

Signature \_\_\_\_\_ Date \_\_\_\_\_

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

If completing these questionnaires evoked any distress and you require some support, please contact your GP, the community mental health team or early intervention team you are receiving support from, or Samaritans (116 123).

## Appendix H Debrief Form for Community Recruitment

### Understanding Suspicious Thinking in the Community

**Debriefing Statement** (Version no 1, 23/04/2020)

**ERGO ID:** 53616

The aim of this research was to explore the relationship between attachment style, emotion regulation and suspicious thinking. It is expected that emotion regulation may mediate the link between attachment style and suspicious thinking. Your data will help our understanding of the factors that influence suspicious thinking, which may in turn inform treatment options. Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception.

You can keep a copy of this summary if you wish. If you have any further questions please contact Olivia Partridge at [ojp1g12@soton.ac.uk]. Please also email Olivia if you wish to receive a summary of the research findings once the project is complete.

Thank you for your participation in this research.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)).

If completing these questionnaires evoked any distress and you require some support, please contact your GP or Samaritans (116 123).

## Appendix I Ethical Approval

53616 - Does Emotion Regulation Mediate the Relationship Between Attachment Style and Paranoia

Submission Overview	Submission Questionnaire	Attachments	History
---------------------	--------------------------	-------------	---------

Details

<b>Status</b>	Approved
<b>Category</b>	Category <span style="color: purple;">A*</span>
<b>Submitter's Faculty</b>	Faculty of Environmental and Life Sciences (FELS)

The end date for this study is currently 30 September 2021

[Request extension](#)

*If you are making any other changes to your study please create an amendment using the button below.*

Latest Review Comments

05/05/2020 15:15:29 - RIG: Approved

*No comments*



Dr Katherine Newman-Taylor  
Associate Professor  
University of Southampton  
University of Southampton  
Building 44 Highfield Campus  
Southampton  
SO17 1BJ

Email: [approvals@hra.nhs.uk](mailto:approvals@hra.nhs.uk)  
[HCRW.approvals@wales.nhs.uk](mailto:HCRW.approvals@wales.nhs.uk)

10 June 2020

Dear Dr Newman-Taylor

**HRA and Health and Care  
Research Wales (HCRW)  
Approval Letter**

**Study title:** Does Emotion Regulation Mediate the Relationship between Attachment Style and Paranoia?  
**IRAS project ID:** 276512  
**Protocol number:** 53616  
**REC reference:** 20/ES/0057  
**Sponsor:** University of Southampton

I am pleased to confirm that [HRA and Health and Care Research Wales \(HCRW\) Approval](#) has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

**How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?**

HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.



Please see [IRAS Help](#) for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

**How should I work with participating non-NHS organisations?**

HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to [obtain local agreement](#) in accordance with their procedures.

**What are my notification responsibilities during the study?**

The standard conditions document "[After Ethical Review – guidance for sponsors and investigators](#)", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The [HRA website](#) also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

**Who should I contact for further information?**

Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **276512**. Please quote this on all correspondence.

Yours sincerely,  
Alex Thorpe

Approvals Manager

Email: [approvals@hra.nhs.uk](mailto:approvals@hra.nhs.uk)

*Copy to: Dr Alison Knight, Sponsor's Representative*


**East of Scotland Research Ethics Service (EoSRES)**
**Research Ethics Service**

**Please note:** This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

Tayside medical Science Centre  
Residency Block Level 3  
George Pirie Way  
Ninewells Hospital and Medical School  
Dundee DD1 9SY

Dr Katherine Newman-Taylor  
Associate Professor  
University of Southampton  
University of Southampton  
Building 44 Highfield Campus  
Southampton  
SO17 1BJ

Date: 08 June 2020  
Your Ref: LR/20/ES/0057  
Our Ref: LR/20/ES/0057  
Enquiries to: Mrs Lorraine Reilly  
Direct Line: 01382 383878  
Email: [eosres.tayside@nhs.net](mailto:eosres.tayside@nhs.net)

Dear Dr Newman-Taylor

**Study title:** Does Emotion Regulation Mediate the Relationship between Attachment Style and Paranoia?  
**REC reference:** 20/ES/0057  
**Protocol number:** 53616  
**IRAS project ID:** 276512

Thank you for uploading a copy of the revised protocol. I can confirm the REC has received the documents listed below and that these comply with the approval conditions detailed in our letter dated 05 June 2020

**Documents received**

The documents received were as follows:

Document	Version	Date
Research protocol or project proposal [Protocol (highlighted changes)]	4	05 June 2020

**Approved documents**

The final list of approved documentation for the study is therefore as follows:

Document	Version	Date
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Insurance letter]		06 May 2020
IRAS Application Form [IRAS_Form_04062020]		04 June 2020
IRAS Checklist XML [Checklist_05062020]		05 June 2020
Letter from sponsor [Sponsor Letter from University]		05 May 2020
Non-validated questionnaire [Demographic Information Sheet]	2	23 April 2020
Other [Email clarification for IRAS A72 - number of sites]		14 May 2020
Other [Participant Debrief Form (highlighted changes)]	2	29 May 2020



Other [Provisional Opinion Response]		01 June 2020
Participant consent form [Highlighted changes]	3	29 May 2020
Participant information sheet (PIS) [Highlighted changes]	2	29 May 2020
Research protocol or project proposal [Protocol (highlighted changes)]	4	05 June 2020
Summary CV for Chief Investigator (CI) [Chief investigator CV]		07 May 2020
Summary CV for student [Student CV]	1	15 March 2020
Summary CV for supervisor (student research) [Dr Maguire]		17 December 2018
Validated questionnaire [Difficulty in emotion regulation scale (DERS)]		
Validated questionnaire [Emotion Regulation Questionnaire (ERQ)]		
Validated questionnaire [Psychosis Attachment Measure (PAM-SR)]		
Validated questionnaire [Paranoid Thought Scale]		

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

<b>20/ES/0057</b>	<b>Please quote this number on all correspondence</b>
-------------------	---

Yours sincerely



**Mrs Lorraine Reilly**  
**REC Manager**

Email: eosres.tayside@nhs.net

Copy to: Dr Alison Knight



Appendix I

**From:** Wyton, Lee <[Lee.Wyton@southernhealth.nhs.uk](mailto:Lee.Wyton@southernhealth.nhs.uk)>

**Sent:** 03 July 2020 11:07

**To:** Partridge O.J. <[ojp1g12@soton.ac.uk](mailto:ojp1g12@soton.ac.uk)>

**Cc:** McCarthy, Joanne <[Joanne.McCarthy@southernhealth.nhs.uk](mailto:Joanne.McCarthy@southernhealth.nhs.uk)>; Newman-Taylor K.J.

<[K.Newman-Taylor@soton.ac.uk](mailto:K.Newman-Taylor@soton.ac.uk)>; rgoinfo <[rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)>

**Subject:** RE: Understanding suspicious thinking NHS R&D C&C approval

**Importance:** High

Dear Olivia,

This email confirms that Southern Health NHS Foundation Trust has the capacity and capability to deliver the above referenced study. Please find attached our signed, agreed Organisation Information Document as confirmation and dated 3<sup>rd</sup> July 2020.

Please note the applicable areas of agreement to the Organisation Information Document:

Appendix 1: General Provisions	OID used
Appendix 2: Finance Provisions	Does not apply
Appendix 3: Material Transfer Provisions,	Does not apply
Appendix 4: Data Processing Agreement,	Does not apply
Appendix 5: Data Sharing Agreement	Does not apply
Appendix 6: Intellectual Property Rights	Does not apply

We agree to start this study on a date to be agreed when you as sponsor give the green light to begin. Please could you confirm this date to the R&D office [research@southernhealth.nhs.uk](mailto:research@southernhealth.nhs.uk)

The Research and Development Department has received a copy of the HRA approval letter dated **10<sup>th</sup> June 2020** and is assured that governance criteria have been satisfied for NHS confirmation of capacity and capability to be granted at Southern Health NHS Foundation Trust.

- It is a condition of this confirmation that you confirm by e-mail the date that the first participant is consented into your study. Please could you confirm this date to the R&D office [research@southernhealth.nhs.uk](mailto:research@southernhealth.nhs.uk)
- This Trust confirmation (and your ethics and HRA approval) only applies to the current protocol. Any changes to the protocol can only be initiated following further approval from the REC and HRA via an amendment submission; the R&D office should be informed of these changes.
- This confirmation is conditional on members of the research team being substantively employed by the Trust or having appropriate Honorary Research

contracts in place commensurate with their role and research activity before they start data collection. Please contact the R&D office to discuss requirements for any new members of the research team.

If you wish to discuss any of these conditions further, please do not hesitate to contact me

Kind regards,

**Lee Wyton**

**Research Governance Officer**

Southern Health NHS Foundation Trust

**Email:** [lee.wyton@southernhealth.nhs.uk](mailto:lee.wyton@southernhealth.nhs.uk)

**PID:** [l.wyton@nhs.net](mailto:l.wyton@nhs.net)

**Tel:** 02380 475826 or 07920806858

## 56538.A2 - Understanding Suspicious Thinking in the Community (Amendment 2)

- Submission Overview**
- Submission Questionnaire
- Attachments
- History

Details

<b>Status</b>	Approved
<b>Category</b>	Category <span style="color: green;">C</span>
<b>Submitter's Faculty</b>	Faculty of Environmental and Life Sciences (FELS)

The end date for this study is currently 30 September 2021

[Request extension](#)

*If you are making any other changes to your study please create an amendment using the button below.*

Latest Review Comments

15/07/2020 21:09:08 - Committee: Approved

*No comments*

## Appendix J Descriptive Statistics for Clinical and Community Participants

Variable	Community (n = 42)	Clinical (n = 20)
Gender, <i>n</i> (%)		
Female	28 (66.7)	7 (35)
Male	14 (33.3)	13 (65)
Age of participant in years, mean, (SD), range	38.12, (12.76), 18 - 59	34.70, (12.60), 19 - 62
Suspicious thinking in years, mean, (SD), range	18.58, (14.59), 2 - 50	9.88, (9.28), 1 - 32
Mental health diagnosis, <i>n</i> (%)		
Yes	29 (69)	14 (70)
No	9 (21.5)	6 (30)
Not sure	4 (9.5)	0 (0)
Attachment anxiety PAM, mean, (SD)	16.31 (5.05)	10.80 (4.92)
Attachment avoidance PAM, mean (SD)	15.55 (5.14)	11.90 (5.82)
Paranoia Persecution R-GPTS, mean (SD)	23.33 (9.00)	15.05 (9.43)
Paranoia, Social Reference R-GPTS, mean (SD)	20.07 (7.05)	14.00 (7.43)
Paranoia Total R-GPTS, mean (SD)	43.40 (13.88)	29 (15.43)
Emotion dysregulation DERS, mean, (SD)	118.67 (27.94)	94.10 (30.33)
Emotion suppression ERQ, mean, (SD)	4.26 (1.43)	3.83 (1.59)





## List of References

- Andrew, A., Knapp, M., McCrone, P., Parsonage, M., & Trachtenberg, M. (2012). *Effective Interventions in Schizophrenia: The Economic Case*. Rethink Mental Illness.  
<http://eprints.lse.ac.uk/47406/>
- Ascone, L., Schlier, B., Sundag, J., & Lincoln, T. M. (2020). Pathways from insecure attachment dimensions to paranoia: The mediating role of hyperactivating emotion regulation versus blaming others. *Psychology and Psychotherapy-Theory Research and Practice*, 93(1), 72–87. <https://doi.org/10.1111/papt.12208>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61(2), 226–244.  
<https://doi.org/10.1037/0022-3514.61.2.226>
- Bentall, R. P., Rowse, G., Kinderman, P., Blackwood, N., Howard, R., Moore, R., Cummins, S., & Corcoran, R. (2008). Paranoid delusions in schizophrenia spectrum disorders and depression: The transdiagnostic role of expectations of negative events and negative self-esteem. *The Journal of nervous and mental disease*, 196(5), 375–383.  
<https://doi.org/10.1097/NMD.0b013e31817108db>
- Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, 12(3), 463–472.  
<https://doi.org/10.1177/0265407595123009>

## List of References

- Berry, K., Barrowclough, C., & Wearden, A. (2007). A review of the role of adult attachment style in psychosis: Unexplored issues and questions for further research. *Clinical Psychology Review, 27*(4), 458–475. <https://doi.org/https://doi.org/10.1016/j.cpr.2006.09.006>
- Berry, K., Barrowclough, C., & Wearden, A. (2008). Attachment theory: A framework for understanding symptoms and interpersonal relationships in psychosis. *Behaviour Research and Therapy, 46*(12), 1275–1282. <https://doi.org/https://doi.org/10.1016/j.brat.2008.08.009>
- Berry, K., Bucci, S., & Danquah, A. N. (2020). *Attachment theory and psychosis: Current perspectives and future directions*. Routledge/Taylor & Francis Group.
- Berry, K., Varese, F., & Bucci, S. (2017). Cognitive attachment model of voices: Evidence base and future implications. *Frontiers in Psychiatry, 8*, 111. <https://doi.org/10.3389/fpsy.2017.00111>
- Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. *Personality and Individual Differences, 41*(4), 707–718. <https://doi.org/10.1016/j.paid.2006.03.009>
- Boland, A., Cherry, G., & Dickson, R. (2017). *Doing a Systematic Review: A Student's Guide*. SAGE Publications.
- Bolderston, H., Gillanders, D. T., Turner, G., Taylor, H. C., Mhaoileoin, D. N., & Coleman, A. (2019). The initial validation of a state version of the Cognitive Fusion Questionnaire. *Journal of Contextual Behavioral Science, 12*, 207–215. <https://doi.org/https://doi.org/10.1016/j.jcbs.2018.04.002>
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42*(4), 676–688. <https://doi.org/https://doi.org/10.1016/j.beth.2011.03.007>

- Bortolon, C., Capdevielle, D., Boulenger, J. P., Gely-Nargeot, M. C., & Raffard, S. (2013). Early maladaptive schemas predict positive symptomatology in schizophrenia: A cross-sectional study. *Psychiatry Research, 209*(3), 361–366.  
<https://doi.org/10.1016/j.psychres.2013.03.018>
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. Basic Books.
- Bowlby, J. (1969/1982). *Attachment and loss, volume 1: Attachment*. Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In W. S. Rholes & J. A. Simpson (Eds.), *Attachment theory and close relationships* (pp. 46–76). The Guilford Press.
- Bucci, S., Roberts, N. H., Danquah, A., & Berry, K. (2015). Using attachment theory to inform the design and delivery of mental health services: A systematic review of the literature. *Psychology and Psychotherapy, Theory, Research and Practice, 88*, 1-20.  
<https://doi.org/10.1111/papt.12029>
- Carr, S. C., Hardy, A., & Fornells-Ambrojo, M. (2018). Relationship between attachment style and symptom severity across the psychosis spectrum: A meta-analysis. *Clinical Psychology Review, 59*, 145–158. <https://doi.org/10.1016/j.cpr.2017.12.001>
- Castilho, P., Martins, M. J., Pinto, A. M., Viegas, R., Carvalho, S., & Madeira, N. (2017). Understanding the effect of attachment styles in paranoid ideation: The mediator role of experiential avoidance. *Journal of Contextual Behavioral Science, 6*(1), 42–46.  
<https://doi.org/10.1016/j.jcbs.2016.11.007>
- Chadwick, P., & Birchwood, M. (1994). The omnipotence of voices: A cognitive approach to auditory hallucinations. *British Journal of Psychiatry, 164*(2), 190-201.  
<https://doi:10.1192/bjp.164.2.190>

## List of References

- Chadwick, P., Lees, S., & Birchwood, M. (2000). The revised Beliefs About Voices Questionnaire (BAVQ-R). *British Journal of Psychiatry*, *177*(3), 229–232.  
<https://doi.org/10.1192/bjp.177.3.229>
- Chawla, N., Deep, R., Khandelwal, S. K., & Garg, A. (2019). Beliefs about voices and their relation to severity of psychosis in chronic schizophrenia patients. *Indian Journal of Psychiatry*, *61*(5), 465–471. [https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_573\\_18](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_573_18)
- Cohen, A., Matthews, R., Najolia, G., & Brown, L. (2010). Toward a more psychometrically sound brief measure of schizotypal traits: Introducing the SPQ-Brief Revised. *Journal of Personality Disorders*, *24*, 516–537. <https://doi.org/10.1521/pedi.2010.24.4.516>
- Cole, E. R., Strauss, C., Fife-Schaw, C., & McCarthy-Jones, S. (2017). Echoes of others: A path analytic examination of an interpersonal-cognitive model of voice-related distress. *Psychology and Psychotherapy-Theory Research and Practice*, *90*(4), 617–632.  
<https://doi.org/10.1111/papt.12129>
- Cooke, A. (2014). *Understanding psychosis and schizophrenia*. The British Psychological Society.  
<https://www.bps.org.uk/what-psychology/understanding-psychosis-and-schizophrenia>
- Corcoran, R., Cummins, S., Rowse, G., Moore, R., Blackwood, N., Howard, R., Kinderman, P., & Bentall, R. (2006). Reasoning under uncertainty: Heuristic judgments in patients with persecutory delusions or depression. *Psychological Medicine*, *36*, 1109–1118.  
<https://doi.org/10.1017/S003329170600794X>
- Descutner, C. J., & Thelen, M. H. (1991). Development and validation of a Fear-of-Intimacy Scale. *Psychological Assessment*, *3*(2), 218–225. <https://doi.org/10.1037/1040-3590.3.2.218>
- Dominguez-Pereira, G. (2019). *Attachment style, fear of intimacy, and romantic jealousy* [Unpublished doctoral thesis]. Fielding Graduate University.
- Dozier, M., & Lee, S. W. (1995). Discrepancies between self- and other-report of psychiatric symptomatology: Effects of dismissing attachment strategies. *Development and Psychopathology*, *7*(1), 217–226. <https://doi.org/10.1017/S095457940000643X>

- Drake, R. J., Haley, C. J., Akhtar, S., & Lewis, S. W. (2000). Causes and consequences of duration of untreated psychosis in schizophrenia. *The British Journal of Psychiatry*, *177*, 511–515.  
<https://doi.org/10.1192/bjp.177.6.511>
- Fairchild, A. J., & McDaniel, H. L. (2017). Best (but oft-forgotten) practices: mediation analysis. *The American Journal of Clinical Nutrition*, *105*(6), 1259–1271.  
<https://doi.org/10.3945/ajcn.117.152546>
- Fenigstein, A., & Venable, P. A. (1992). Paranoia and self-consciousness. *Journal of Personality and Social Psychology*, *62*, 129–138. <https://doi.org/10.1037//0022-3514.62.1.129>
- Fowler, D., Freeman, D., Smith, B., Kuipers, E., Bebbington, P., Bashforth, H., Coker, S., Hodgekins, J., Gracie, A., Dunn, G., & Garety, P. (2006). The Brief Core Schema Scales (BCSS): Psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. *Psychological Medicine*, *36*(6), 749–759.  
<https://doi.org/10.1017/S0033291706007355>
- Fowler, J. C., Clapp, J. D., Madan, A., Allen, J. C., & Oldham, J. M., & Frueh, B. C. (2016). Emotion dysregulation as a cross-cutting target for inpatient psychiatric intervention. *Journal of Affective Disorders*, *206*. <https://doi.org/10.1016/j.jad.2016.07.043>.
- Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology*, *4*(2), 132–154. <https://doi.org/10.1037/1089-2680.4.2.132>
- Fraley, R. C., Heffernan, M. E., Vicary, A. M., & Brumbaugh, C. C. (2011). The Experiences in Close Relationships-Relationship Structures Questionnaire: A method for assessing attachment orientations across relationships. *Psychological Assessment*, *23*(3), 615–625.  
<https://doi.org/10.1037/a0022898>
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350–365. <https://doi.org/10.1037//0022-3514.78.2.350>

## List of References

- Freeman, D. (2007). Suspicious minds: The psychology of persecutory delusions. *Clinical Psychology Review, 27*(4), 425–457.  
<https://doi.org/https://doi.org/10.1016/j.cpr.2006.10.004>
- Freeman, D. (2016). Persecutory delusions: A cognitive perspective on understanding and treatment. *The Lancet Psychiatry, 3*(7), 685–692. [https://doi.org/10.1016/S2215-0366\(16\)00066-3](https://doi.org/10.1016/S2215-0366(16)00066-3)
- Freeman, D., Dunn, G., Startup, H., Pugh, K., Cordwell, J., Mander, H., Černis, E., Wingham, G., Shirvell, K., & Kingdon, D. (2015). Effects of cognitive behaviour therapy for worry on persecutory delusions in patients with psychosis (WIT): A parallel, single-blind, randomised controlled trial with a mediation analysis. *The Lancet Psychiatry, 2*(4), 305–313. [https://doi.org/10.1016/S2215-0366\(15\)00039-5](https://doi.org/10.1016/S2215-0366(15)00039-5)
- Freeman, D., & Garety, P. (2014). Advances in understanding and treating persecutory delusions: A review. *Social Psychiatry and Psychiatric Epidemiology, 49*, 1179–1189.  
<https://doi.org/10.1007/s00127-014-0928-7>
- Freeman, D., Garety, P., Bebbington, P., Smith, B., Rollinson, R., Fowler, D., Kuipers, E., Ray, K., & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. *The British Journal of Psychiatry: The Journal of Mental Science, 186*, 427–435.  
<https://doi.org/10.1192/bjp.186.5.427>
- Freeman, D., Garety, P.A., Kuipers, E., Fowler, D., & Bebbington, P.E. (2002). A cognitive model of persecutory delusions. *British Journal of Clinical Psychology, 41*. 331–347. <https://doi.org/10.1348/014466502760387461>
- Freeman, D., Loe, B. S., Kingdon, D., Startup, H., Molodynski, A., Rosebrock, L., Brown, P., Sheaves, B., Waite, F., & Bird, J. C. (2019). The Revised Green et al., Paranoid Thoughts Scale (R-GPTS): Psychometric properties, severity ranges, and clinical cut-offs. *Psychological Medicine, 1–10*. <https://doi.org/DOI: 10.1017/S0033291719003155>
- Garnefski, N., & Kraaij, V. (2007). The Cognitive Emotion Regulation Questionnaire: Psychometric features and prospective relationships with depression and anxiety in adults. *European*

- Journal of Psychological Assessment*, 23(3), 141–149. <https://doi.org/10.1027/1015-5759.23.3.141>
- George, C., Kaplan, N., & Main, M. (1985). *The adult attachment interview protocol* [Unpublished Manuscript]. Department of Psychology, University of California.
- Gillath, O., Karantzas, G., & Fraley, F. C. (2016). *Adult attachment: A concise introduction to theory and research*. Academic Press. <https://doi.org/10.1016/C2013-0-09705-8>
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41–54. <https://doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Griffin, D. W., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology*, 67(3), 430–445. <https://doi.org/10.1037/0022-3514.67.3.430>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Gumley, A. I., Schwannauer, M., Macbeth, A., Fisher, R., Clark, S., Rattrie, L., Fraser, G., McCabe, R., Blair, A., Davidson, K., & Birchwood, M. (2014). Insight, duration of untreated psychosis and attachment in first-episode psychosis: Prospective study of psychiatric recovery over 12-month follow-up. *British Journal of Psychiatry*, 205(1), 60–67. <https://doi.org/10.1192/bjp.bp.113.126722>
- Gumley, A. I., Taylor, H. E. F., Schwannauer, M., & MacBeth, A. (2014). A systematic review of attachment and psychosis: Measurement, construct validity and outcomes. *Acta Psychiatrica Scandinavica*, 129(4), 257–274. <https://doi.org/https://doi.org/10.1111/acps.12172>

## List of References

- Haddock, G., McCarron, J., Tarrrier, N., & Faragher, E. B. (1999). Scales to measure dimensions of hallucinations and delusions: The Psychotic Symptom Rating Scales (PSYRATS). *Psychological Medicine, 29*(4), 879–889. <https://doi.org/10.1017/s0033291799008661>
- Haidich, A. B. (2010). Meta-analysis in medical research. *Hippokratia, 14*(Suppl. 1), 29–37.
- Hajduk, M., & Heretik, A. (2016). Subclinical paranoia and its relation to emotional distress and adult attachment. *Ceskoslovenska Psychologie, 60*(1), 26–37.
- Hart, J., Shaver, P., & Goldenberg, J. (2005). Attachment, self-esteem, worldviews, and terror management: Evidence for a tripartite security system. *Journal of Personality and Social Psychology, 88*(6), 999–1013. [10.1037/0022-3514.88.6.999](https://doi.org/10.1037/0022-3514.88.6.999).
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis* (2nd ed.). Guilford Press.
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., Dykstra, T. A., Batten, S. V, Bergan, J., Stewart, S. H., Zvolensky, M. J., Eifert, G. H., Bond, F. W., Forsyth, J. P., Karekla, M., & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54*(4), 553–578. <https://doi.org/10.1007/BF03395492>
- Hayward, M., Denney, J., Vaughan, S., & Fowler, D. (2008). The Voice and You: Development and psychometric evaluation of a measure of relationships with voices. *Clinical Psychology & Psychotherapy, 15*, 45–52. <https://doi.org/10.1002/cpp.561>
- Hor, K., & Taylor, M. (2010). Suicide and schizophrenia: A systematic review of rates and risk factors. *Journal of Psychopharmacology, 24*(Suppl. 4), 81–90. <https://doi.org/10.1177/1359786810385490>
- Hugill, M., Fletcher, I., & Berry, K. (2017). Investigation of associations between attachment, parenting and schizotypy during the postnatal period. *Journal of Affective Disorders, 220*, 86–94. <https://doi.org/10.1016/j.jad.2017.05.040>



- Hutton, J., Ellett, L., & Berry, K. (2017). Adult attachment and paranoia: An experimental investigation. *Cognitive Behaviour Therapist, 10*.  
<https://doi.org/10.1017/S1754470X17000058>
- Jauhar, S., McKenna, P. J., Radua, J., Fung, E., Salvador, R., & Laws, K. R. (2014). Cognitive-behavioural therapy for the symptoms of schizophrenia: Systematic review and meta-analysis with examination of potential bias. *The British Journal of Psychiatry, 204*(1), 20–29.  
<https://doi.org/10.1192/bjp.bp.112.116285>
- Johns, L. C., & van Os, J. (2001). The continuity of psychotic experiences in the general population. *Clinical Psychology Review, 21*(8), 1125–1141.  
[https://doi.org/https://doi.org/10.1016/S0272-7358\(01\)00103-9](https://doi.org/https://doi.org/10.1016/S0272-7358(01)00103-9)
- Johnson, J. M., Bristow, D. N., & Schneider, K. C. (2004). Did you not understand the question or not? An investigation of negatively worded questions in survey research. *Journal of Applied Business Research, 20*(1), 75-86. <https://doi.org/10.19030/jabr.v20i1.2197>
- Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology, 18*(2), 167–175. [https://doi.org/10.1207/s15374424jccp1802\\_8](https://doi.org/10.1207/s15374424jccp1802_8)
- Jones, C., Hacker, D., Meaden, A., Cormac, I., Irving, C. B., Xia, J, Zhao, S., Shi, C., & Chen, J. (2018). Is cognitive behavioural therapy as effective as other psychosocial treatments for people with schizophrenia. *Cochrane Database of Systematic Reviews, 11*.  
<https://doi.org/10.1002/14651858.CD008712.pub3>
- Jones, J. E. (2015). *The role of attachment, emotion regulation and recovery style in psychosis* [Unpublished doctoral thesis]. University of Birmingham.
- Kaney, S., Bowen-Jones, K., Dewey, M. E., & Bentall, R. P. (1997). Two predictions about paranoid ideation: Deluded, depressed and normal participants' subjective frequency and consensus judgments for positive, neutral and negative events. *The British Journal of Clinical Psychology, 36*(3), 349–364. <https://doi.org/10.1111/j.2044-8260.1997.tb01243.x>

## List of References

- Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The Positive and Negative Syndrome Scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, *13*(2), 261–276.  
<https://doi.org/10.1093/schbul/13.2.261>
- Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, *3*, 1–27.  
<https://doi.org/10.1146/annurev.clinpsy.3.022806.091432>
- Kimhy, D., Lister, A., Liu, Y., Vakhrusheva, J., Delespaul, P., Malaspina, D., Ospina, L. H., Mittal, V. A., Gross, J. J., & Wang, Y. (2020). The impact of emotion awareness and regulation on psychotic symptoms during daily functioning. *Npj Schizophrenia*, *6*(1), 1–7.  
<https://doi.org/10.1038/s41537-020-0096-6>
- Kimhy, D., Vakhrusheva, J., Jobson-Ahmed, L., Tarrier, N., Malaspina, D., & Gross, J. J. (2012). Emotion awareness and regulation in individuals with schizophrenia: Implications for social functioning. *Psychiatry research*, *200*(2-3), 193–201.
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Kooyman, I., Dean, K., Harvey, S., & Walsh, E. (2007). Outcomes of public concern in schizophrenia. *British Journal of Psychiatry*, *191*(Suppl. 50), 29–36. <https://doi.org/DOI:10.1192/bjp.191.50.s29>
- Korver-Nieberg, N., Berry, K., Meijer, C. J., & de Haan, L. (2014). Adult attachment and psychotic phenomenology in clinical and non-clinical samples: A systematic review. *Psychology and Psychotherapy*, *87*(2), 127–154. <https://doi.org/10.1111/papt.12010>
- Krabbendam, L., Janssen, I., Bak, M., Bijl, R. V., de Graaf, R., & van Os, J. (2002). Neuroticism and low self-esteem as risk factors for psychosis. *Social Psychiatry and Psychiatric Epidemiology*, *37*(1), 1–6. <https://doi.org/10.1007/s127-002-8207-y>
- Lavin, R., Bucci, S., Varese, F., & Berry, K. (2020). The relationship between insecure attachment and paranoia in psychosis: A systematic literature review. *British Journal of Clinical Psychology*, *59*(1), 39–65. <https://doi.org/10.1111/bjc.12231>

- Laws, K. R., Darlington, N., Kondel, T. K., McKenna, P. J., & Jauhar, S. (2018). Cognitive Behavioural Therapy for schizophrenia - outcomes for functioning, distress and quality of life: A meta-analysis. *BMC Psychology*, *6*(1), 1–10. <https://doi.org/10.1186/s40359-018-0243-2>
- Lecomte, T., Corbière, M., & Laisné, F. (2006). Investigating self-esteem in individuals with schizophrenia: Relevance of the Self-Esteem Rating Scale-Short Form. *Psychiatry Research*, *143*(1), 99–108. <https://doi.org/10.1016/j.psychres.2005.08.019>
- Levenson, H. (1974). Activism and Powerful Others: Distinctions within the Concept of Internal-External Control. *Journal of Personality Assessment*, *38*(4), 377–383. <https://doi.org/10.1080/00223891.1974.10119988>
- Lincoln, T. M., Lange, J., Burau, J., Exner, C., & Moritz, S. (2010). The effect of state anxiety on paranoid ideation and jumping to conclusions: An experimental investigation. *Schizophrenia Bulletin*, *36*(6), 1140–1148. <https://doi.org/10.1093/schbul/sbp029>
- Lincoln, T. M., Sundag, J., Schlier, B., & Karow, A. (2018). The relevance of emotion regulation in explaining why social exclusion triggers paranoia in individuals at clinical high risk of psychosis. *Schizophrenia Bulletin*, *44*(4), 757–767. <https://doi.org/10.1093/schbul/sbx135>
- Livingstone, K., Harper, S., & Gillanders, D. (2009). An exploration of emotion regulation in psychosis. *Clinical Psychology & Psychotherapy*, *16*(5), 418–430. <https://doi.org/https://doi.org/10.1002/cpp.635>
- Loch, N., Hiller, W., & Witthöft, M. (2011). Der Cognitive Emotion Regulation Questionnaire (CERQ). *Zeitschrift Für Klinische Psychologie Und Psychotherapie*, *40*(2), 94–106. <https://doi.org/10.1026/1616-3443/a000079>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)

## List of References

- Marlowe, N. I., Nicholson Perry, K., & Lee, J. (2020a). Ontological insecurity I: Psychometric development of a new measure and relationship to subclinical psychotic-like experiences. *Journal of Clinical Psychology, 76*(3), 423–439.  
<https://doi.org/https://doi.org/10.1002/jclp.22849>
- Marlowe, N. I., Nicholson Perry, K., & Lee, J. (2020b). Ontological insecurity II: Relationship to attachment, childhood trauma, and subclinical psychotic-like experiences. *Journal of Clinical Psychology, 76*(3), 440–460. <https://doi.org/10.1002/jclp.22905>
- Martinez, A. P., Agostini, M., Al-Suhibani, A., & Bentall, R. P. (2020). Mistrust and negative self-esteem: Two paths from attachment styles to paranoia. *Psychology and Psychotherapy: Theory, Research and Practice, 1*–16. <https://doi.org/10.1111/papt.12314>
- McKay, R., Langdon, R., & Coltheart, M. (2006). The Persecutory Ideation Questionnaire. *Journal of Nervous and Mental Disease, 194*(8), 628–631.  
<https://doi.org/10.1097/01.nmd.0000231441.48007.a5>
- Melo, S., Corcoran, R., Shryane, N., & Bentall, R. (2009). The Persecution and Deservedness Scale (PaDS). *Psychology and Psychotherapy, 82*, 247–260.  
<https://doi.org/10.1348/147608308X398337>
- Mikulincer, M. & Shaver, P. R. (2016). *Attachment in adulthood: Structure, dynamics, and change* (2nd ed.). The Guilford Press.
- Mikulincer, M., & Doron, G. (2016). Adult attachment and self-related processes. In A. Beck (Author) & M. Kyrios, R. Moulding, G. Doron, S. Bhar, M. Nedeljkovic, & M. Mikulincer (Eds.), *The Self in Understanding and Treating Psychological Disorders* (pp. 19–28). Cambridge University Press. <https://doi.org/10.1017/CBO9781139941297>
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. The Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry, 11*(1), 11–15. <https://doi.org/https://doi.org/10.1016/j.wpsyc.2012.01.003>

- Mikulincer, M., & Shaver, P. R. (2019). Attachment orientations and emotion regulation. *Current opinion in psychology*, 25, 6–10. <https://doi.org/10.1016/j.copsyc.2018.02.006>
- Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*, 27(2), 77–102. <https://doi.org/10.1023/A:1024515519160>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, 51(4), 264–269. <https://doi.org/10.7326/0003-4819-151-4-200908180-00135>
- Morrison, A. P. (2001). The interpretation of intrusions in psychosis: An integrative cognitive approach to hallucinations and delusions. *Behavioural and Cognitive Psychotherapy*, 29(3), 257–276. <https://doi.org/10.1017/S1352465801003010>
- Morrison, A. P., & Barratt, S. (2010). What are the components of CBT for psychosis? A Delphi study. *Schizophrenia Bulletin*, 36(1), 136–142. <https://doi.org/10.1093/schbul/sbp118>
- Morrison, A. P., & Wells, A. (2003). A comparison of metacognitions in patients with hallucinations, delusions, panic disorder, and non-patient controls. *Behaviour Research and Therapy*, 41(2), 251–256. [https://doi.org/10.1016/S0005-7967\(02\)00095-5](https://doi.org/10.1016/S0005-7967(02)00095-5)
- Morrison, A. P., French, P., & Wells, A. (2007). Metacognitive beliefs across the continuum of psychosis: Comparisons between patients with psychotic disorders, patients at ultra-high risk and non-patients. *Behaviour Research and Therapy*, 45(9), 2241–2246. <https://doi.org/10.1016/j.brat.2007.01.002>
- Murphy, R., Goodall, K. and Woodrow, A. (2020). The relationship between attachment insecurity and experiences on the paranoia continuum: A meta-analysis. *British Journal of Clinical Psychology*, 59(3), 290-318. <https://doi.org/10.1111/bjc.12247>
- National Institute for Health and Care Excellence. (2014). Psychosis and schizophrenia in adults: Prevention and management.

## List of References

- <https://www.nice.org.uk/guidance/cg178/resources/psychosis-and-schizophrenia-in-adults-prevention-and-management-pdf-35109758952133>
- Newman-Taylor, K. (2020). 'Felt security' as a means of facilitating imagery rescripting in psychosis: A clinical protocol and illustrative case study. *The Cognitive Behaviour Therapist*, *13*, e24. <https://doi.org/10.1017/S1754470X20000288>
- Nittel, C. M., Lincoln, T. M., Lamster, F., Leube, D., Rief, W., Kircher, T., & Mehl, S. (2018). Expressive suppression is associated with state paranoia in psychosis: An experience sampling study on the association between adaptive and maladaptive emotion regulation strategies and paranoia. *British Journal of Clinical Psychology*, *57*(3), 291–312. <https://doi.org/10.1111/bjc.12174>
- Nordentoft, M., Laursen, T. M., Agerbo, E., Qin, P., Høyer, E. H., & Mortensen, P. B. (2004). Change in suicide rates for patients with schizophrenia in Denmark, 1981-1997: Nested case-control study. *British Medical Journal*, *329*(7460), 261–264. <https://doi.org/10.1136/bmj.38133.622488.63>
- Nugent, W. R., & Thomas, J. W. (1993). Validation of a clinical measure of self-esteem. *Research on Social Work Practice*, *3*(2), 191–207. <https://doi.org/10.1177/104973159300300205>
- Oosterhof, N. N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences*, *105*(32), 11087–11092. <https://doi.org/10.1073/pnas.0805664105>
- Owens, K. A., Haddock, G., & Berry, K. (2013). The role of the therapeutic alliance in the regulation of emotion in psychosis: An attachment perspective. *Clinical Psychology & Psychotherapy*, *20*(6), 523–530. <https://doi.org/10.1002/cpp.1793>
- Paez, A. (2017). Gray literature: An important resource in systematic reviews. *Journal of Evidence-Based Medicine*, *10*(3), 233–240. <https://doi.org/https://doi.org/10.1111/jebm.12266>
- Patten, M. L. (1998). *Questionnaire Research*. Pyrczak Publishing.
- Pfeiffer, S. M., & Wong, P. T. P. (1989). Multidimensional Jealousy. *Journal of Social and Personal Relationships*, *6*(2), 181–196. <https://doi.org/10.1177/026540758900600203>

- Phillips, K. F. V., & Power, M. J. (2007). A new self-report measure of emotion regulation in adolescents: The Regulation of Emotions Questionnaire. *Clinical Psychology & Psychotherapy*, *14*(2), 145–156. <https://doi.org/10.1002/cpp.523>
- Pickering, L., Simpson, J., & Bentall, R. P. (2008). Insecure attachment predicts proneness to paranoia but not hallucinations. *Personality and Individual Differences*, *44*(5), 1212–1224. <https://doi.org/10.1016/j.paid.2007.11.016>
- Pilton, M., Bucci, S., McManus, J., Hayward, M., Emsley, R., & Berry, K. (2016). Does insecure attachment mediate the relationship between trauma and voice-hearing in psychosis? *Psychiatry Research*, *246*, 776–782. <https://doi.org/10.1016/j.psychres.2016.10.050>
- Pitfield, C., Maguire, T., & Newman-Taylor, K. (2020). Impact of attachment imagery on paranoia and mood: Evidence from two single case studies. *Behavioural and Cognitive Psychotherapy*, *48*(5), 572–583. <https://doi.org/10.1017/S1352465820000351>
- Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717–731. <https://doi.org/10.3758/BF03206553>
- Read, J., & Gumley, A. (2008). Can attachment theory help explain the relationship between childhood adversity and psychosis? *Attachment: New Directions in Psychotherapy and Relational Psychoanalysis*, *2*, 1–35.
- Robson, G., & Mason, O. (2015). Interpersonal processes and attachment in voice-hearers. *Behavioural and Cognitive Psychotherapy*, *43*(6), 655–668. <https://doi.org/10.1017/S1352465814000125>
- Rosenberg, M. (1979). *Conceiving the self*. Basic Books.
- Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*, 379–386. <https://doi.org/10.1177/1948550617715068>

## List of References

- Scott, M., Rossell, S. L., Meyer, D., Toh, W. L., & Thomas, N. (2020). Childhood trauma, attachment and negative schemas in relation to negative auditory verbal hallucination (AVH) content. *Psychiatry Research, 290*. <https://doi.org/10.1016/j.psychres.2020.112997>
- Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment and Human Development, 4*(2), 133–161. <https://doi.org/10.1080/14616730210154171>
- Silva, D., Maguire, T., McSherry, P., & Newman-Taylor, K. (2020). Targeting affect leads to reduced paranoia in people with psychosis: A single case series. *Behavioural and Cognitive Psychotherapy, 1*–12. <https://doi.org/10.1017/S1352465820000788>
- Skeate, A., Jackson, C., Wood, M. B., & Jones, C. (2002). Duration of untreated psychosis and pathways to care in first-episode psychosis: Investigation of help-seeking behaviour in primary care. *British Journal of Psychiatry, 181*(Suppl. 43), 73–77. <https://doi.org/10.1192/bjp.181.43.s73>
- Sood, M., & Newman-Taylor, K. (2020). Cognitive fusion mediates the impact of attachment imagery on paranoia and anxiety. *Cognitive Therapy and Research, 44*, 1150–1161. <https://doi.org/10.1007/s10608-020-10127-y>
- Stefanis, N. C., Hanssen, M., Smirnis, N. K., Avramopoulos, D. A., Evdokimidis, I. K., Stefanis, C. N., Verdoux, H., & van Os, J. (2002). Evidence that three dimensions of psychosis have a distribution in the general population. *Psychological Medicine, 32*(2), 347–358. <https://doi.org/10.1017/s0033291701005141>
- Stowkowy, J., & Addington, J. (2012). Maladaptive schemas as a mediator between social defeat and positive symptoms in young people at clinical high risk for psychosis. *Early Intervention in Psychiatry, 6*(1), 87–90. <https://doi.org/10.1111/j.1751-7893.2011.00297.x>
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Pearson.
- Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of Abnormal Psychology, 117*(1), 143–153. <https://doi.org/10.1037/0021-843X.117.1.143>



- Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing*, 1(3), 176–184. <https://doi.org/10.1111/j.1524-475X.2004.04006.x>
- Thomas, H (2003). Quality assessment tool for quantitative studies: Effective public health practice project. Retrieved from [https://merst.ca/wp-content/uploads/2018/02/quality-assessment-tool\\_2010.pdf](https://merst.ca/wp-content/uploads/2018/02/quality-assessment-tool_2010.pdf)
- Udachina, A., & Bentall, R. P. (2014). Developmental pathway to paranoia is mediated by negative self-concept and experiential avoidance. *Psychosis: Psychological Social and Integrative Approaches*, 6(2), 143–154. <https://doi.org/10.1080/17522439.2013.810301>
- van Lieshout, R., & Goldberg, J. (2007). Quantifying self-reports of auditory verbal hallucinations in person with psychosis. *Canadian Journal of Behavioural Science*, 39, 73–77. <https://doi.org/10.1037/cjbs2007006>
- van Os, J., Linscott, R. J., Myin-Germeys, I., Delespaul, P., & Krabbendam, L. (2009). A systematic review and meta-analysis of the psychosis continuum: Evidence for a psychosis proneness-persistence-impairment model of psychotic disorder. *Psychological Medicine*, 39(2), 179–195. <https://doi.org/10.1017/S0033291708003814>
- Vogel, D. L., & Wei, M. (2005). Adult attachment and help-seeking intent: The mediating roles of psychological distress and perceived social support. *Journal of Counseling Psychology*, 52(3), 347–357. <https://doi.org/10.1037/0022-0167.52.3.347>
- Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The Experiences in Close Relationship Scale (ECR)-short form: Reliability, validity, and factor structure. *Journal of Personality Assessment*, 88(2), 187–204. <https://doi.org/10.1080/00223890701268041>
- Westermann, S., & Lincoln, T. M. (2011). Emotion regulation difficulties are relevant to persecutory ideation. *Psychology and Psychotherapy: Theory, Research and Practice*, 84(3), 273–287. <https://doi.org/https://doi.org/10.1348/147608310X523019>

## List of References

- Westermann, S., Boden, M. T., Gross, J. J., & Lincoln, T. M. (2013). Maladaptive cognitive emotion regulation prospectively predicts subclinical paranoia. *Cognitive Therapy and Research*, 37(4), 881–885. <https://doi.org/10.1007/s10608-013-9523-6>
- Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: The mediating role of negative self-esteem. *Psychological Medicine*, 45(7), 1495–1507. <https://doi.org/10.1017/S0033291714002633>
- Williams, J., Bucci, S., Berry, K., & Varese, F. (2018). Psychological mediators of the association between childhood adversities and psychosis: A systematic review. *Clinical Psychology Review*, 65, 175–196. <https://doi.org/10.1016/j.cpr.2018.05.009>