The role of attachment and death anxiety in paranoid thinking.

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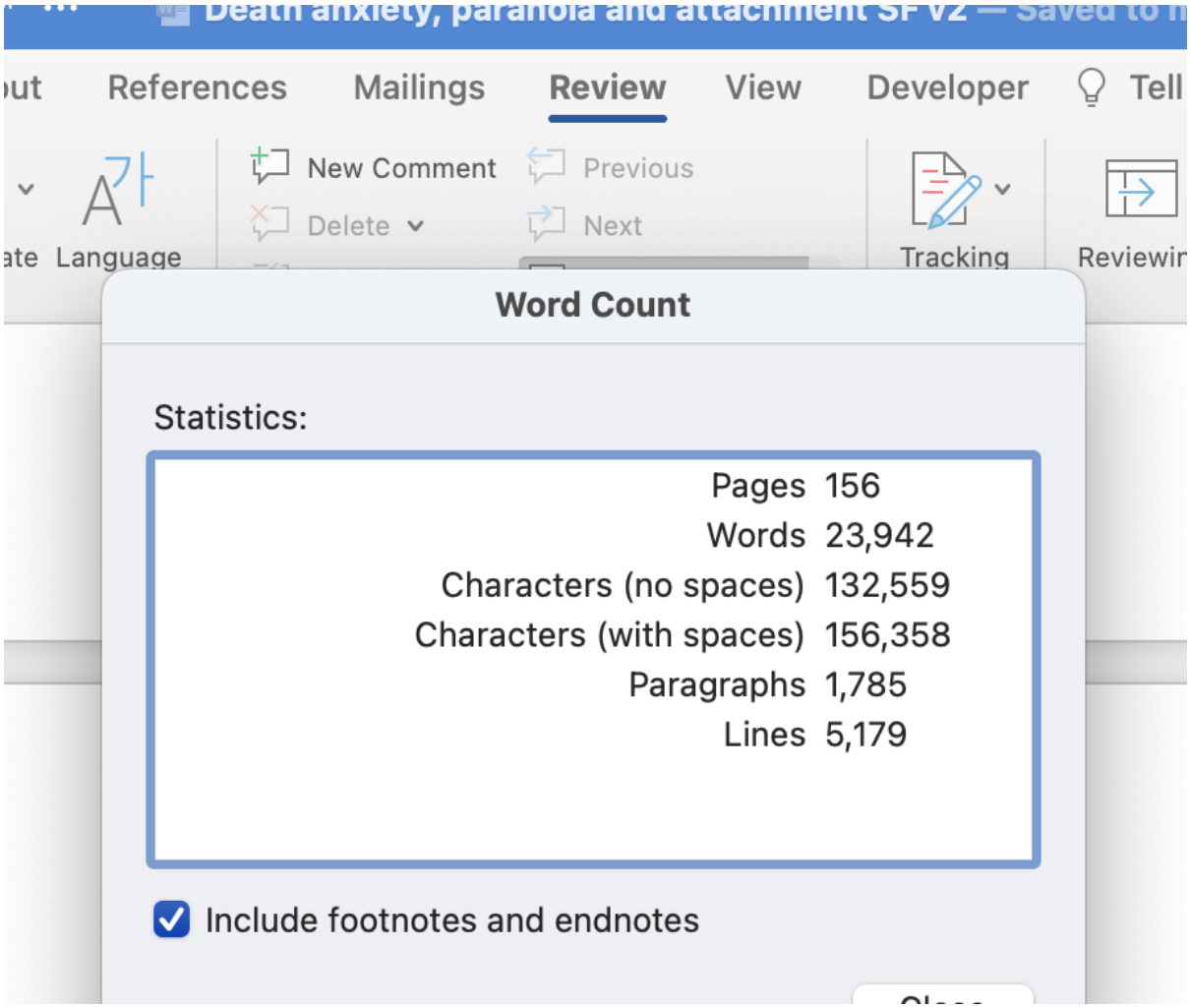
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Introduction Chapter

Overview of the Thesis

Psychosis refers to a number of experiences which are commonly reported by individuals who have receieved a diangosis of a mental health disorder such as schizophernia. Experiences of psychosis can be categorised as either negative, which includes difficulties expressing or experiencing emotions and poor motivation (Andreasen, 1982), or positive symptoms, experiences such as hearing voices or delusional thinking (Andreasen & Olsen, 1982). Prevalence rates for psychosis are estimated to be around 1% (Kendler et al., 1996), however, in the UK the direct and indirect costs remains high (Fineberg et al., 2013). Individuals experiencing psychosis often report significant distress which arises from a combination of previous adverse experiences, distress associated with systemic factors (such as difficult experiences while in hospital) and psychological distress related to their unusual experiences (Tan et al., 2014). Psychosis can contribute to increased feelings of shame (Carden et al., 2020) and stigma (Degnan et al., 2021). Individuals with psychosis often report social impairements (Chopra et al., 2008) and long-term disability (Wiersma et al., 2000). Recovery following an episode of psychosis is possible and more common than previously reported (Lally et al., 2017) and although some may continue to experience symptoms of psychosis, improved psychosocial functioning is achievable (Albert et al., 2011). Psychological interventions can be effective for individuals experiencing psychosis (Lincoln & Pedersen, 2019), however to develop effective interventions, researchers need to enhance our understanding of the aetiology of specific symptoms (Bentall, 1990).

A common symptom reported by people who experience psychosis is paranoia, a persons unfounded belief that they are at risk from harm (Johns et al., 2004; Moutoussis et al., 2007). Paranoid thinking is also reported by individuals who do not experience psychosis (Freeman et al., 2005), with large proportions of the general population reporting low level paranoia characterised by social fears and beliefs that the world is a threatening place, however, 10-20% report strongly held paranoid beliefs which are distressing (Freeman et al., 2005). The processes involved in paranoid thinking in both populations are believed to be

similar (Elahi et al., 2017). Generally, exploring the cognitive and affective processes in paranoid thinking has highlighted how certain psychological processes can elicit and maintain these types of beliefs (Bentall et al., 2009).

At present, interventions for individuals who experience paranoid ideation and are accessing mental health services include cognitive behaviour therapy for psychosis (CBTp) and antipsychotic medication (National Institute for Clinical Excellence, 2014). Although CBTp has a small to medium effect on delusions (Sitko et al., 2020), this change is rarely sustained at 47 week follow up (Mehl et al., 2015). Furthermore, antipsychotic medication has been subjected to much debate regarding its efficacy and it has also been associated with increased mortality (Weinmann et al., 2009). Taken together, interventions for paranoid beliefs are limited or associated with significant risks to physical health and for those not under the care of mental health services, they are largely unavailable. Therefore, it is necessary for researchers to continue exploring processes involved in paranoid thinking as it contributes to the development of novel interventions which could improve the lives of individuals who experience paranoia.

A novel transdiagnostic psychological process which has been associated with psychological distress is death anxiety (Menzies et al., 2019). Existential distress has been widely discussed in other academic areas, and research examining its role in psychological distress is in its infancy. Irvin Yalom argued that to some degree we all experience a fear of death, however for some individuals this fear “erupts into terror that negates all happiness and fulfilment” (Yalom, 2008, pg.2). Death anxiety has been associated with many mental health disorders (Abdel-Khalek, 1997; Birgit et al., 2018; Le Marne & Harris, 2016; Martz, 2004; Menzies & Dar-Nimrod, 2017; Menzies et al., 2020; Menzies et al., 2015; Noyes et al., 2002; Strachan et al., 2007). Furthermore, it is related to both severity of symptoms, distress, hospital admissions and number of mental health diagnoses (Menzies et al., 2019). More recently, research has highlighted death anxiety is higher in people who have been diagnosed with schizophrenia (SZ) (Öztürk et al., 2021). Furthermore, individuals with SZ tend to report significantly more negative beliefs about death (Mojahed & Nakhaei, 2022). Death anxiety

appears to be more strongly associated with positive symptoms rather than negtive symptoms and is also associated with increased distress and reduced psychosocial functioning (Öztürk et al., 2021).

The Terror Management Theory (TMT) states that because humans have the ability to recognise that we will one day die, we also have propensity to experience death anxiety and to manage this we have developed several defences (Greenberg et al., 1986; Pyszczynski et al., 1999). These defences include conforming and maintaing cultural worldviews, maintaining positive self-esteem and developing close relationships with others, together these defences enable us to feel that we are a valued member of this world and allow humans to symbolically transcend death (Greenberg et al., 1986; Mikulincer et al., 2003; Solomon et al., 2015). The development of these death anxiety defences is often guided by the presence of available caregivers, with early childhood attachments influencing the development of stable self-esteem and instilling cultural worldview norms throughout the child's early development (Mikulincer et al., 2003). When individuals are able to use these defences they can effectively manage death anxiety. However, some individuals fail to develop effective death anxiety buffers. If an individual experiences adversity or disrupted attachments during childhood it could result in impaired defences leaving them unable to effectively manage death anxiety (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019).

These processes are also important in maintaining psychological wellbeing. Like death anxiety, increased psychological distress is related to both low self-esteem and insecure attachment which is believed to develop as a result of childhood adversities (Mickelson et al., 1997). Individuals who experience paranoia often report increased incidents of childhood adversities (Shevlin et al., 2015), especially adversities which disrupt attachment relationships in early life (Bentall et al., 2012). Attachment insecurity is also associated with paranoid thinking (Lavin et al., 2020) and this relationship is mediated by low self-esteem (Wickham et al., 2015). Experiencing childhood adversities may influence the development of insecure attachment styles and negative self-esteem which leaves individuals less able to combat

death anxiety increasing the risk of psychological distress (Maxfield, John, & Pyszczynski, 2014; Yetzer & Pyszczynski, 2019) such as paranoid thinking.

This thesis explores the relationships between attachment experiences, paranoid ideation and death anxiety in clinical and non-clinical populations. Firstly, as attachment insecurity presents as a risk factor in psychological distress (Mickelson et al., 1997), specifically paranoid thinking (Murphy et al., 2020) and is theorized to impair the development of effective death anxiety defences (Maxfield et al., 2014; Mikulincer et al., 2003) we investigated the association between attachment styles and death anxiety. Although previous research has investigated the relationship between death anxiety and attachment styles, to our knowledge, there are no meta-analyses exploring the strength of this relationship.

Chapter 1 is a meta-analysis paper which investigated the relationship between attachment insecurity and death anxiety. The meta-analysis found that the association between death anxiety and attachment insecurity was small. Exploration of specific attachment styles highlighted a significant moderate association for attachment anxiety, whereas the association for attachment avoidance was small but still significant. These findings appear to suggest that generally, people's positive beliefs about themselves as worthy of relationships (low attachment anxiety) is more important in buffering death anxiety than positive beliefs about others (low attachment avoidance). Several subgroup analyses revealed important differences in the associations between different attachment styles and death anxiety. These differences may indicate that for some populations, secure attachment offers more protection against death anxiety than for others. The level of heterogenity was significant, and this may be associated with variations in methodological approaches and self-report measures of death anxiety and attachment, therefore caution is advised when interpreting the findings. Furthermore, there was some suggestion that the magnitude of the effect sizes may have been impacted by missing papers and the adjusted estimate was in fact larger than that reported in the review. The paper discusses how the findings of this review fit with the current empirical and theoretical literature and makes recommendations for future research aiming to investigate death anxiety and attachment.

The final chapter of this thesis explores the relationship between death anxiety, and other psychological processes, including attachment and self-esteem, in clinical and non-clinical paranoia. Research has highlighted an association between death anxiety and SZ (Mavrogiorgou et al., 2020; Mojahed & Nakhaei, 2022; Öztürk et al., 2021), however, it appears that no published research has specifically investigated the role of death anxiety in paranoid thinking. Sixty individuals with no previous experience of psychosis and 26 individuals who met the criteria for a psychosis spectrum disorder and accessing mental health services, completed self-report measures on paranoia, halluciantions, death anxiety, negative self-esteem, attachment insecurity and loneliness. The study hypothesised that in line with previous research, death anxiety would be higher in clinical participants compared to non-clinical participants. We hypothesized that death anxiety, attachment anxiety and negative self-esteem would predict paranoia in a combined (clinical and non-clinical) population. Clinical participants reported greater death anxiety, disorganised attachment, attachment anxiety and loneliness compared to non-clinical populations. Furthermore, death anxiety predicted paranoia, hallucinations and postive psychotic symptoms, however this failed to remain significant once attachment measures were entered into the model. We discuss the findings of the present study and consider the limitations within the chapter.

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Chapter 1: Meta Analyses

Title: A meta-analysis investigating the relationship between attachment and death anxiety.

Target Journal: Clinical Psychology Review (*See Appendix A for Clinical Psychology Review Submission Guidelines*)

Word Count: 7284

Abstract

Research has indicated that insecure attachment styles may be associated with death anxiety, but findings have been inconsistent. The current review is a meta-analysis of published studies which explores the strength of the relationship between death anxiety and attachment insecurity. Searches completed on PsycINFO, CINHAL, Embase and Web of Science identified 16 studies with extractable data. The association between death anxiety and composite measures of insecure attachment was small but significant (r = .24, $p < .001$). For attachment anxiety the association was moderate (r= .30, $p < .001$) whereas for attachment avoidance the association was small (r= .13, $p < .001$). Subgroup analysis yielded a stronger association for attachment avoidance for older adults who also had physical health difficulties (r= .25, $p < .001$). Future research investigating the relationship between attachment insecurity and death anxiety should measure attachment using separate continuums (attachment anxiety and attachment avoidance) as these constructs have different relationships with death anxiety. The findings of this study are discussed and applied to Terror Management Theory.

Keywords: Attachment, Death Anxiety, Attachment Anxiety, Attachment Avoidance

Highlights

- The pooled effect size for attachment insecurity and death anxiety was small but significant.
- The pooled effect size for attachment anxiety and death anxiety was moderate.
- The pooled effect size for attachment avoidance and death anxiety was small.
- The subgroup analysis revealed variations in the strength of association between different attachment styles and death anxiety depending upon age and population.

Introduction

Death Anxiety and Terror Management Theory (TMT).

The human gift of self-awareness comes at a cost, as we also possess the ability to recognise the limits of our mortality and that we will someday die (Solomon et al., 2015). This awareness alone is enough to trigger threat responses via activations of the amygdala (Quirin et al., 2012) and this existential fear is also known as death anxiety (Becker, 1973; Solomon et al., 2015). Humans are generally driven by self-preservation, thus to continue functioning despite the knowledge of our finitude it has been necessary to develop defences which are referred to as terror management by researchers (Greenberg et al., 1986; Greenberg et al., 1997). Terror Management Theory (TMT) was developed from the work of Ernst Becker (Becker, 1973), who argued individuals achieve symbolic immortality and transcend death by aligning themselves with cultural worldviews which enables them to be a part of something which cannot die (Greenberg et al., 1986; Greenberg et al., 1997). Cultural worldviews are generally inherited from an individual's caregivers and the culture which they are raised in (Solomon et al., 2015). They offer individuals a similar sense of security as attachment figures, but unlike parents, cultural world views have the capability to provide this ongoing security as attachment figures eventually die (Solomon et al., 2015). It is through conforming to these cultural worldviews that individuals ascertain self-esteem, and this enables people to feel that their existence is meaningful (Greenberg et al., 1986).

Researchers have explored other death anxiety defences, and close relationships are theorised to buffer death anxiety for several reasons (Mikulincer, Florian, et al., 2003). Close relationships are evolutionary viable as they provide infants protection during early development. They also affect internal working models which influence how individuals relate to themselves and others, as well as how they manage distress including existential distress (Bowlby, 1973; Mikulincer, Florian, et al., 2003). Close relationships are theorised to bolster other death anxiety defences, as they can provide validation that individuals are conforming to cultural worldviews, which also enhances self-esteem (Mikulincer, Florian, et al., 2003).

Furthermore, close relationships are believed to offer individuals protection against death anxiety because not only do they lead to symbolic immortality, connections with others also provides fulfilment and purpose (Mikulincer, 2019). These findings are supported by empirical research which has shown that following a death anxiety prime, people report increased commitment to romantic partners (Florian et al., 2002), seek closer proximity to individuals who resemble their parent (Cox et al., 2008), display an increased attraction and desire to meet with potential mates (Silveira et al., 2014). Furthermore, threats to close relationships have been associated with increased death thought accessibility (Mikulincer et al., 2002). When individuals are able to utilise close relationships as a death anxiety defence they also show a reduced reliance on worldview and self-esteem defences (Mikulincer, 2019). Studies have demonstrated that feeling securely connected with others reduces the need for reliance on other types of defences (Florian et al., 2002; Hirschberger et al., 2003). A recent systematic review supports the protective role of close relationships, but suggests that additional factors such as an individual's attachment style may moderate its effect (Plusnin et al., 2018).

Attachment

Our understanding of attachment and attachment styles originates from the work of John Bowlby, who hypothesized that animals have an innate evolutionary motivation to develop close relationships with attachment figures. These relationships can provide security from threats, especially during infancy when the capacity for self-protection is limited (Bowlby, 1973). Individuals who experience available caregivers develop a felt sense of security over time, which supports exploration of the environment. This internal sense of security is crucial to foster the acquisition of new skills and navigate life's challenges (Bowlby, 1988). These early attachment experiences during the critical period inform the development of templates of how an individual perceives themselves worthy of care and love from others as well as their perception of others ability to be dependable and safe. These templates are known as internal working models (IWMs; Bowlby, 1973). If individuals experience unavailable or abusive caregivers, they can develop negative IMWs. Through the exploration of infants' responses to

parental separation, Ainsworth and colleagues developed a nomenclature of different attachment styles (Ainsworth, 1969).

Previously, attachment styles have been measured and organised using four distinct categories: secure, insecure preoccupied, insecure avoidant, insecure fearful (Bartholomew, 1990). Within this model, people who have secure attachment styles report positive IWMs of themselves and others and people with insecure preoccupied attachment styles possess negative perceptions of themselves but hold positive beliefs about others leading them to feel unworthy of close relationships and fear rejection (Bartholomew, 1990). People with an insecure- fearful attachment report negative IMW of themselves and others, and insecure avoidant individuals report positive IWM of themselves and negative IWM of others (Bartholomew, 1990).

Attachment styles in adults can be measured by simply asking individuals to rate their levels of attachment anxiety and avoidance on separate continua (Fraley & Shaver, 2000). Attachment anxiety may originate from the experience during infancy of an unavailable caregiver, resulting in inconsistent care that leads the infant to develop hypervigilance and distress (Mikulincer, Shaver, et al., 2003). However, scoring high on avoidance, is associated with an individual's preference for independence and a dislike of close intimate relationships, and this may be the results of failed attempts in infancy to bid for attention or care which lead to detachment and distancing (Fraley & Shaver, 2000). Low scores of attachment avoidance and anxiety reflect a secure attachment style (Fraley & Shaver, 2000). Attachment styles in adulthood may influence how individuals manage threat and/or psychological distress (Mikulincer, Shaver, et al., 2003) as well as influencing close relationships.

Attachment and Death Anxiety.

An individual's attachment style has important implications for close relationships, with secure attachment being associated with larger social network size, increased relationship reciprocity (Fiori et al., 2011), increased sexual and marital satisfaction (Butzer & Campbell, 2008) and greater relationship satisfaction (Welch & Houser, 2010). Taken together, these factors

suggest that secure individuals tend to report greater and healthier close relationships compared to individuals with insecure attachments. If attachment styles influence how individuals develop and maintain close relationships, they may also influence their protective abilities against death anxiety (Plusnin et al., 2018).

Previous exploration of the association between death anxiety and attachment has shown that individuals who report increased attachment anxiety also report greater death anxiety following separation reminders (Mikulincer et al., 2002). It has been suggested that this may be due to an inability to maintain stable relationships, which impairs the individuals ability to develop effective defences to buffer death anxiety (Mikulincer et al., 2002). Furthermore, it appears that attachment styles influence the reliance upon different death anxiety buffers. Individuals who experience secure attachments tend to utilise close relationships buffers compared to insecure individuals who rely on and self-esteem and cultural worldview defences (Hart et al., 2005; Mikulincer & Florian, 2000).

Different types of attachment insecurity, anxious and/or avoidant, appear to exhibit different relationships with death anxiety (Mikulincer et al., 1990). Individuals with anxious attachments display higher levels of implicit and explicit death anxiety compared to those with secure or avoidant attachment styles (Mikulincer et al., 1990). Whereas attachment avoidance is associated with lower explicit death anxiety, but higher levels of implicit death anxiety (Mikulincer et al., 1990). Based on this evidence they suggest attachment styles influence the management of existential distress and these strategies appear to mirror those used to managing unavailable caregivers (Mikulincer et al., 1990).

The Current Study

Although there has been a previous meta-analysis which has explored the relationship between death anxiety and close relationships (in studies which have used a mortality salience experimental design in which people have been prompted to think about death, (Plusnin et al., 2018), to our knowledge, there has been no meta-analysis or systematic review that has

explored the relationship between attachment and death anxiety in studies using self-report death anxiety measures. Thus, the current meta-analysis attempts to explore both the strength and consistency of the association between death anxiety and attachment styles in studies of this kind.

Methods

Search Method

This review adhered to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement (PRISMA; (Moher et al., 2009) and was registered on PROSPERO (https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=284996). The search terms included the following: (death OR dying AND fear* OR anxiety) AND (attachment* OR "social connectedness" OR "close relationships") and their relevant Medical Subject Heading (MeSH). The searches were completed on PsycINFO, CINHAL, Embase, and Web of Science. No time limits were used. One study was identified by completing additional searches for eligible studies. These searches were completed in May 2022. The search identified 850 studies.

Study Selection

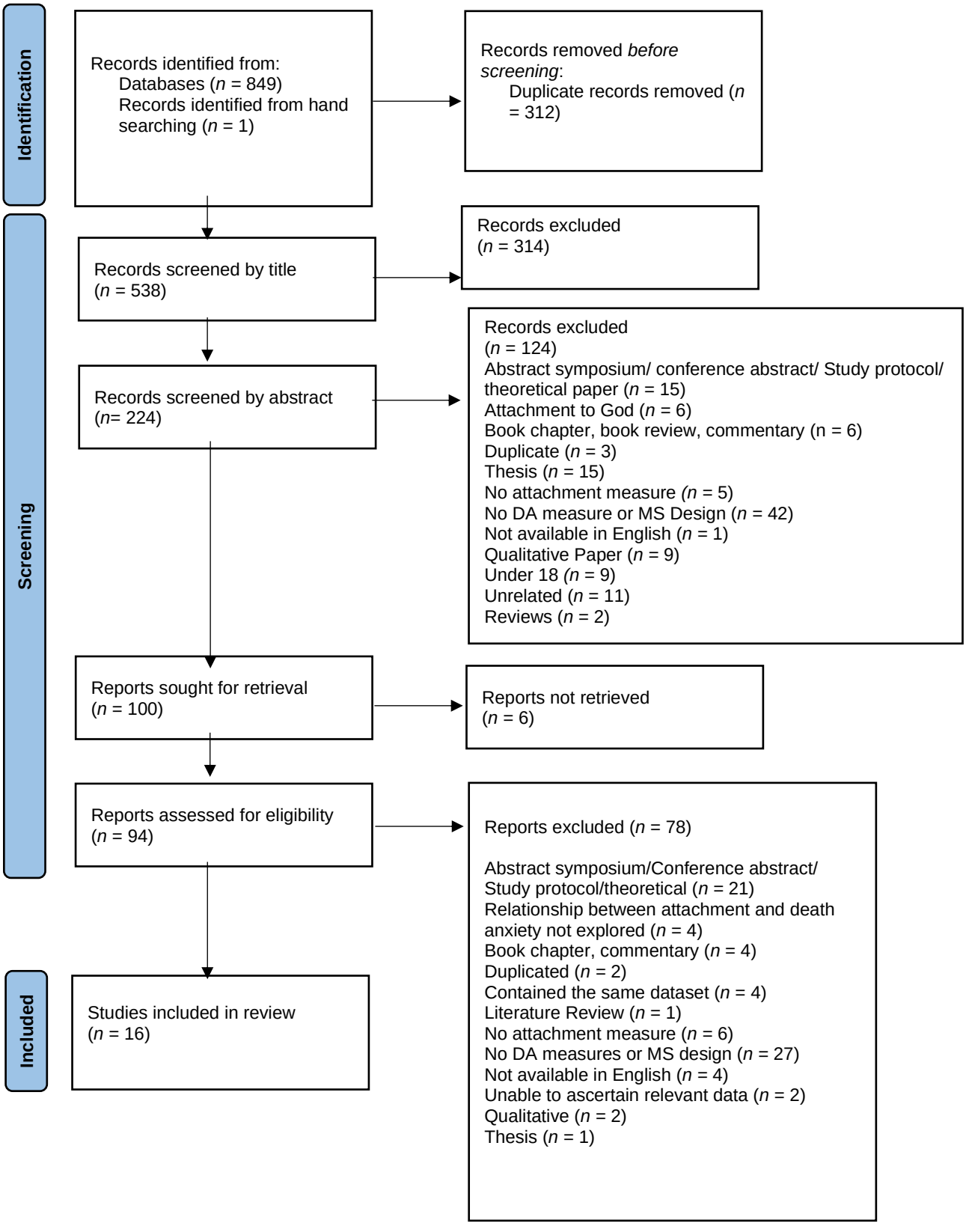
The inclusion criteria for the final pool of studies were: i) studies which investigated the longitudinal and/or cross-sectional association between death anxiety and attachment (e.g., correlation or between-group) ii) used a quantitative self-report measure of death anxiety or fear of death iii) used a quantitative measure of attachment; iv) participants were aged 18 or over; v) published in English; vi) published in a peer reviewed journal; and vii) the publication had extractable statistical data.

Data Extraction

The initial search yielded 849 and 1 results via hand searching. Duplicates were identified and removed. Following this, the lead author (SF) completed the titles, abstract and full text

searches (see Figure 1 for details about exclusions across the different stages of the process). Any disputes or questions were discussed with the research team. In case of disputes, the final decision was to be allocated to the principal investigators (RPB and PK). A second researcher (PdS) rated 10% of the titles and abstracts and full text articles to assess reliability of the process. The final pool of studies included 16 research papers that were identified and discussed with the research team. Following this, information was extracted and inputted into a proforma which included author, country, publication year, design, population, death anxiety measure, attachment measure, study findings, and the statistical information (see Table 1).

Figure 1. PRISMA diagram



Quality Assessment

Quality was assessed using The Effective Public Health Practice Project Tool (EPHPP; (Thomas et al., 2004). The EPHPP (See Appendix B for EPHPP tool) assesses and rates the studies across 7 areas. The following domains were assessed: study selection, study design, confounders, data collection methods, withdrawal and dropouts and analysis. For this review, blinding and intervention integrity were removed as they were not appropriate as most of the studies' designs were observational and non-interventional. A previous systematic review adapted the EPHPP tool in a similar way, furthermore they also adapted the study design section (Lavin et al., 2020) allocating cross-sectional designs a weak rating and longitudinal studies a moderate rating. We implemented this adaption as a high proportion of the studies were cross-sectional. The overall quality scores are calculated based upon 6 categories as analysis does not contribute to the overall rating (Thomas et al., 2004) and utilise the following criteria: weak, contains 2 week rating scores, moderate, contains 1 week rating score, strong, contain 0 week rating scores.

Effect Sizes

Firstly, an overall insecure attachment effect size was ascertained for each study to explore whether there was an association between attachment insecurity and death anxiety. Studies that reported correlation coefficients for different attachment categories (insecure anxious, insecure ambivalent) were combined to generate a single effect size for attachment insecurity. Four studies did not report correlation coefficients, therefore means, standard deviations (*SD*), and sample size of secure attachment and a combined insecure attachment (average of insecure ambivalent and insecure anxious) were used to calculate a combined insecure effect size for each of these studies. One study reported five factors of the death anxiety measure and therefore an average of these scores was calculated to ascertain an overall mean and *SD* for death anxiety (Florian & Mikulincer, 1998). Another study reported only beta coefficients (Berant & Pizem, 2015) and these were to calculate the effect size as on the whole this method has been found to be reliable (Peterson & Brown, 2005). One study reported attachment

anxiety and dependent attachment (trust in others) these measures were combined to generate a single effect size for attachment insecurity (Gama et al., 2012). Finally, another study used the Relationship Questionnaire (RQ) to calculate a measure of positive self (PS) and others (PO) where low scores of these indices reflect insecure attachment (Besser & Priel, 2008). In our meta-analysis, we opted to combine these two measures to create one overall insecure effect size. Correlation coefficients from the studies that reported a measure of attachment anxiety were extracted and used to calculate an effect size for insecure anxious attachment styles. Similarly, correlation coefficients from studies that reported a measure of attachment avoidance were extracted and used to calculate effect size for insecure avoidance attachment styles.

Statistical Analysis

Comprehensive Meta-Analysis (CMA version 3; (Borenstein et al., 2013) was used to complete our analysis. We explored the association between composite scores of insecure attachment and death anxiety. Subsequent analyses explored the association between death anxiety and insecure anxious and insecure avoidant styles. Furthermore, group comparisons were conducted to investigate the strength of the association between death anxiety and the composite measure of insecure attachment, attachment anxiety and attachment avoidance depending on the sample's population (clinical health, clinical mental health or non-clinical) and age (adult or older adult mean age >55).

Pearson's correlation coefficient was used to calculate the effect sizes as many of the studies explored the association between death anxiety and attachment styles reporting correlations coefficients. As variation across the study populations was expected 95% confidence intervals were calculated using a random effects model. The Cochran's Q test and I^2 were adopted to assess study heterogeneity. To assess publication bias, the funnel plot was examined along with Beggs and Mazumdar correlation, Eggers Test and the trim and fill procedure.

Results

Quality Assessment (EPHPP)

Fifteen studies were rated as weak, and 1 study was assessed as moderate in their methodological quality. Many the studies were cross-sectional, and therefore were assigned a weak rating for their study design (n=13). One study utilised baseline data from a randomised controlled trial, and two other studies used baseline data from pilot randomized controlled clinical trials therefore they were assigned a moderate rating for methodology. Only four studies controlled for confounding variables: gender, age, economic problems, medical diagnosis, and symptom burden. Of the 3 longitudinal studies, only two reported withdrawal and dropout information and these were rated as moderate as dropout was between 28% and 39%. Based on their appropriateness of analysis 12 studies were assigned a strong rating and 4 were rated as moderate (See Table 1 for Ratings)

Study Characteristics and measures

Table 2 contains the combined study characteristics and Table 3 contains demographic data and measures for the 16 studies.

Combined Insecure Attachment

The overall effect size for the pooled studies for combined insecure attachment was r=.24 (k= 16; 95% [CI 0.172, 0.301]; Z= 6.953; $p < .001$) which indicates a positive correlation of small effect. Heterogeneity across the studies was significant (Q [15] = 59.663; $p < .001$; $I^2 = 74.859$; $\tau^2 = 0.013$; SE = 0.008; variance = 0.000; $\tau = 0.113$). Upon further exploration of the scatter plot, we noticed that the estimate for the Besser (2006) study was an outlier. Therefore, we recalculated the overall effect-size with the study removed and the effect size reduced to r= .21 (k=15; 95% CI [0.158, 0.253]; Z= 8.234, $p < .001$) with a significant reduction in overall heterogeneity (Q[14] = 27.804; $p = .02$; $I^2 = 49.647$; τ^2=0.004, SE=0.003, variance = 0.000; $\tau = 0.064$). See Figure 1 for forest plot.

Table 1. Quality Assessment Table

Study	Selection Bias	Study Design	Confounders	Data Collection Methods	Withdrawals and Dropouts	Analysis	Overall Rating
An et al (2018)	Moderate	Moderate	Weak	Strong	Weak	Strong	Weak
Berant et al (2015)	Weak	Weak	Weak	Strong	NA	Strong	Weak
Besser et al (2008)	Weak	Weak	Strong	Strong	NA	Moderate	Weak
Bodner et al (2014)	Weak	Weak	Weak	Strong	NA	Moderate	Weak
Elphinstone et al (2019)	Weak	Weak	Weak	Moderate	NA	Moderate	Weak
Farias et al (2013)	Moderate	Weak	Weak	Moderate	NA	Strong	Weak
Florian et al (1998)	Weak	Weak	Weak	Moderate	NA	Strong	Weak
Gama et al (2012)	Moderate	Weak	Weak	Strong	NA	Strong	Weak
Menzies et al (2019)	Moderate	Weak	Weak	Moderate	NA	Moderate	Weak
Mikulincer et al (1990)	Weak	Weak	Weak	Strong	NA	Strong	Weak
Neel et al (2015)	Weak	Strong	Weak	Strong	Moderate	Strong	Weak
Phillipp et al (2021)	Moderate	Strong	Weak	Moderate	Moderate	Moderate	Moderate
Plusnin et al (2021)	Weak	Weak	Weak	Weak	NA	Moderate	Weak
Verin et al (2021)	Moderate	Weak	Weak	Strong	NA	Strong	Weak
Waskowic et al (2003)	Weak	Weak	Weak	Weak	NA	Moderate	Weak
Zuccala et al (2021)	Weak	Weak	Weak	Strong	NA	Strong	Weak

Table 2. Combined characteristics for 16 studies.

Study Characteristics		k=16
Sample Size	Total	4439
Age	Mean (SD)	41.21 (10.09)
Sex	Female (%)	2513 (56.60)
	Male (%)	1922 (43.30)
Population	Non-Clinical (%)	10 (62.5%)
	Clinical Health (%)	3 (18.75%)
	Clinical Mental Health (%)	3 (18.75%)
Design	CS	16 (100 %)

Table 3. Demographic information and measures.

Author and date	Design	Country	Death Anxiety Measure	Attachment Measure	Population	Size (n)	Males	Females	Age (+)
(An et al., 2018)	CS	Canada	Dying Distress Scale (Lo et al., 2011)	Modified Experience of Close relationships (M 16) (Lo et al., 2009)	Patients with Advanced Cancer	307	122	185	59 ± 11.2
(Berant & Pizem, 2015)	CS	Israel	Fear of Personal Death Scale (Florian & Kravetz, 1983)	The Experiences in Close Relationship Scale (Brennan et al., 1998)	Rescue Volunteers and controls.	89 Rescue Group = 53 Control = 36	89	0	Rescue Group = 37.2 ± 11.9 Control Group = 33.5 ± 10.2
(Besser & Priel, 2008)	CS	Israel	Fear of Death (Carmel & Mutran, 1999)	The Relationship Questionnaire (RQ) (Bartholomew & Horowitz, 1991)	Older adults	113	61	52	72.08 ± 3.55
(Bodner & Cohen-Fridel, 2014)	CS	Israel	Fear of Personal Death Scale (Florian & Kravetz, 1983)	Experiences in Close Relationships Scale (ECR) (Brennan et al., 1998)	Undergraduate Students	440	184.8	255.2	27.26 ± 4.80

(Elphinstone & Whitehead, 2019)	CS	Australia	Fear of Personal Death Six Items from (Wittkowski, 2001)	Six Items measuring anxious attachment (Wei et al., 2007)	Undergraduate Students	183	53	130	31.73 ± 11.19
(Farias et al., 2013)	CS	British (46.5%), American (38.4%), Canadian (6%), Australian (4%), Irish (3.5%), and South African (1.7%).	A subscale of The Revised Collett-Lester Fear of Death scale (Lester, 1990)	The Experiences in Close Relationship Scale (Brennan et al., 1998)	Spiritual (SB) and Traditional believers (TB)	N=182 SB = 114 TB=86	SB = 30 TB = 22	SB = 84 TB =64	SB 37.37 ±13.46 TB 32.40 ± 15.70
(Florian & Mikulincer, 1998) (Study 3)	CS	Israel	Fear of Personal Death Scale (Florian & Kravetz, 1983)	Adapted Hazen and Shaver descriptions of attachment styles. (Hazan & Shaver, 1987)	Undergraduate Students	270	128	124	Median = 28, range 24 to 45)

(Gama et al., 2012)	CS	Portugal	Death Attitude Profile-Revised (DAP-R) (Wong et al., 1994)	Portuguese adaption (Canavarro et al., 2006) of Adult Attachment Scale (AAS) (Collins & Read, 1990)	Nurses	510	71	438.6	30.5 ± 8.01
(Menzies et al., 2019)	CS	Australia	The Multidimensional Fear of Death Scale (MFODS) (Hoelter, 1979)	Adult attachment styles (AAS). (Hazan & Shaver, 1987)	Individuals seeking mental health support	200	74	126	33.76 ± 11.51
(Mikulincer et al., 1990)	CS	Israel	Death Anxiety Scale (Templer, 1970)	Adapted Attachment scale using descriptors from (Hazan & Shaver, 1987)	Undergraduate Students	80	80	0	25 ± NA
(Neel et al., 2015)	CS	Canada	Dying Distress Scale (Lo et al., 2011)	Modified Experience of Close relationships (M 16) (Lo et al., 2009)	Patients with Advanced Cancer	60	18	42	56 ± 11

(Philipp et al., 2021)	CS	Germany	The Death and Dying Distress Scale (Engelmann et al., 2016)	Modified Experience of Close Relationships (Philipp et al., 2017)	People with advanced cancer	206	80	126	57.9 ± 11.7
(Plusnin et al., 2021)	CS	US Australia Japan China	Death Attitude Questionnaire was adapted from the Death Depression Scale (Templer et al., 2000) and Death Attitudes Profile (Wong et al., 1994)	Experiences in Close Relationship Scale—Short Form (ECR-S) (Wei et al., 2007)	General Population	1581	856	725	47.28 ± 17.35
(Verin et al., 2021)	CS	Australia	The Multidimensional Fear of Death Scale (MFODS) (Hoelter, 1979)	Experiences in Close Relationships-Revised (ECR-R) (Fraley et al., 2000)	Individual with OCD	48	15	33	31.2 ± 11.70

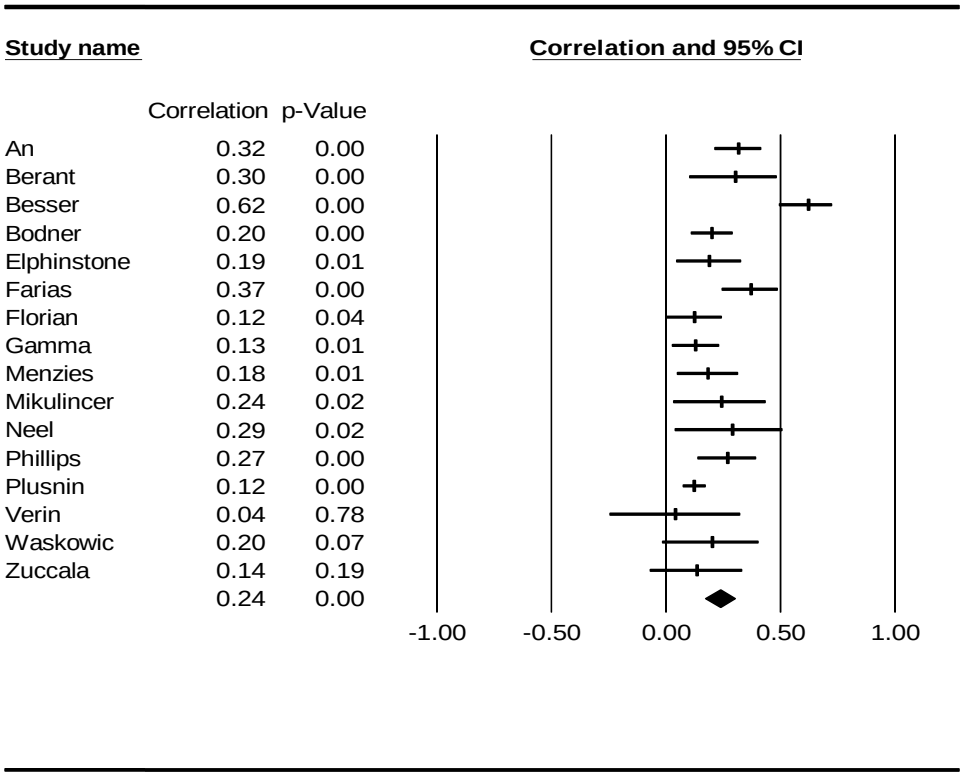
(Waskowic & Chartier, 2003)	CS	Canada	Death anxiety subscale in The Grief Experience Inventory (GEI) (Sanders et al., 1985)	The Relationship Scale Questionnaire (RSQ) (Griffin & Bartholomew, 1994)	Widows	77	11	65	68.5 ± NA
(Zuccala et al., 2021)	CS	Australia	The Revised Collett-Lester Fear of Death Scale (CLFD-R) (Lester & Abdel-Khalek, 2003)	The Revised Experiences in Close Relationships scale (ECR-R) (Fraley et al., 2000)	Individuals with social anxiety	93	30	63	20.92 ± 3.57

Subgroup Analysis for Insecure Combined

We completed a subgroup analysis to compare differences between the mean effect sizes across participant's age group. There was a moderate effect size for combined insecure attachment and death anxiety in older adults (r=.35, k=5; 95% CI [0.201, 0.490]; Z= 4.364; p < .001) and heterogeneity was significant (Q[4] = 18.778; p < .001; I^2= 78.699; τ^2=0.027, *SE*=0.026, variance = 0.001; τ = 0.164). This association appeared to be weaker in adults where the effect size was small r=.18 (k=11; 95% CI [0.131, 0.231]; Z= 6.968; p < .001) and the heterogeneity was not significant (Q[10] = 17.469; p=.07; I^2= 42.754; τ^2=0.003, *SE*=0.003, variance = 0.000; τ = 0.53). The mixed effects analysis yielded a significant between groups difference (Q[1]= 4.381, p = .04). When Besser et al. (2006) was removed the effect size for older adults reduced to r =.29 (k=4; 95% CI [0.214, 0.356]; Z=7.465, p<.001) and the mixed effects analysis between older adults and adults remained significant (Q[1] = 5.438, p=.02).

Additionally, we compared the difference in effect sizes across participant populations. There was a moderate association between combined insecure attachment and death anxiety in clinical health populations (r=.30, k=3; 95% CI [0.221, 0.371]; Z=7.288; p < .001) and heterogeneity between the studies was not significant (Q[2] =.325*;* p=.850;I^2= 0.000; τ^2=0.000, SE=0.006, variance = 0.000; τ = 0.000). Similarly, the effect size in non-clinical populations was small r=.25, (k=10; 95% CI [0.158, 0.333]; Z= 5.317, p < .001), with significant heterogeneity (Q[9] = 50.548; p < .001; I^2= 82.195; τ^2=0.017, SE=0.012, variance = 0.000; τ = 0.130). For clinical mental health populations, the association was small between insecure attachment and death anxiety was small r=.15 (k=3; 95% CI [0.048, 0.255]; Z= 2.836, p = .005) and heterogeneity was not significant (Q[2]= 0.804; p = .67; I^2= 0.000; τ^2=0.000, *SE*= 0.011; variance= 0.000; τ = 0.000). However, the mixed effects analysis yielded a non-significant between groups difference (Q[2]= 4.937, p =.09). Again, when Besser et al 2006 was removed, the effect size for non-clinical populations reduced to r=.19 (k=9; 95% CI [0.135, 0.249]; Z=6.423; p < .001) and the mixed analysis became significant for (Q[1] = 6.412, p=.04).

Figure 1. Forrest plot for combined insecure attachment.



Insecure Anxious Effect Size

We calculated the overall effect size for the pooled studies for insecure anxious attachment and it was r=.30 (k=10; 95% CI [0.203, 0.397]; Z=5.720; $p < .001$) which indicates a positive effect size of a moderate strength. Furthermore, the heterogeneity across the studies was significant (Q[9] = 64.815; $p < .001$; $I^2 = 86.114$; $\tau^2 = 0.023$; *SE* = 0.017; variance = 0.000; $\tau = 0.152$).

We also completed a subgroup analysis to compare the difference in effect sizes across participants age groups. There was a moderate effect size for attachment anxiety and death anxiety in older adults (r=.38; k=2, 95% CI [0.291, 0.467]; Z= 7.651, $p < .001$) and

heterogeneity across studies was not significant (Q[1] = 0.160; p=.69; I^2=0.000; τ^2=0.000, SE=0.015; variance = 0.000; τ = 0.000). In adults, the association was small (r=.29; k=8, 95% CI [0.172, 0.394]; Z=4.770, *p* < .001) and level of heterogeneity was significant (Q[7] = 55.127; *p* < .001 I^2=87.302; τ^2= 0.024, SE= 0.019, variance = 0.000; τ = 0.156). A mixed effects analysis revealed the difference between the groups was not significant (Q[1]= 1.737, *p* =.19).

Additionally, we compared the difference in strength of association between attachment anxiety and death anxiety across populations. For clinical health populations, the association between these variables was moderate r= .38 (k=2; 95% CI [0.291, 0.467]; Z= 7.651, *p* < .001) and heterogeneity was not significant (Q[1] = 0.160; *p* = .69; I^2 = 0.000; τ^2=0.000, SE=0.015, variance = 0.000; τ = 0.000). For non-clinical populations, the association was also moderate r=.31 (k=6; 95% CI [0.179, 0.434]; Z= 4.467, *p* < .001) and heterogeneity was significant (Q[5] = 53.963; *p* < .001; I^2= 90.734; τ^2=0.027, *SE*=0.023, variance = 0.001; τ = 0.164). For the mental health clinical population, the association for attachment anxiety was small r=.20 (k=2; 95% CI [0.027, 0.360]; Z= 2.261, *p* = .02) and heterogeneity between studies was not significant (Q[1] = 1.060 *p* = .30; I^2 = 5.638; τ^2=0.001; *SE*=0.025, variance = 0.001; τ = 0.132). A mixed effects analysis showed the difference between the groups was not significant (Q[2] = 3.872, p=.14).

Insecure Avoidant Effect Size

The effect size of the combined studies for insecure avoidant attachment on death anxiety was r=.13 (k=9; 95% CI [0.060, 0.207]; Z= 3.54 *p* < .001) which indicates a positive correlation of a small effect. The levels of heterogeneity was significant across the studies (Q[8] = 22.148; *p* = .005; I^2 = 63.879; τ^2 = 0.007; SE = 0.007; variance = 0.000; τ = 0.083).

We also completed a subgroup analysis to compare the difference in effect sizes across participant age group. For older adults, the effect size for the relationship between death anxiety and attachment avoidance was small (r=.25; k=3; 95% CI [0.172, 0.326]; Z= 6.08; *p* < .001) and the heterogeneity between studies was not significant (Q[2] = 0.134; *p*=.94; I^2 = 0.000; τ^2 = 0.000; *SE* = 0.006; variance = 0.000; τ = 0.000). For adults, the association

was smaller r=.08 (k=6; 95% CI [0.012, 0.146]; Z= 2.301; *p* = .02) and again the heterogeneity between studies was not significant (Q[5] = 8.272; *p* = .14; I^2 = 39.55; τ^2 = 0.003; *SE* = 0.004; variance = 0.000; τ = 0.050). The mixed effects analysis yielded a significant difference between the mean effect sizes for the two groups (Q[1]= 10.571, *p* = .001).

Additionally, we compared the difference in effect sizes across type of population. The association between attachment avoidance and death anxiety was small in clinical health populations (r=.25; k=3, 95CI [0.172, 0.362]; Z= 6.087*, p* < .001) and the heterogeneity for these studies was not statically significant (Q[2] = 0.134; *p* = .94; I^2 = 0.000; τ^2 = 0.000; SE = 0.006; variance = 0.000; τ = 0.000). The association was smaller again for non-clinical populations r=.10 (k=4; 95CI [0.008, 0.174]; Z= 2.148; *p* = .03) and again the heterogeneity was not statistically significant (Q[3] = 7.59; *p* =.06; I^2 = 59.75; τ^2 = 0.004; SE = 0.004; variance = 0.006; τ = 0.063). For clinical mental health populations the association was small and not statistically significant r=.01 (k=2, 95CI [-0.160, 0.174]; Z= 0.085; *p* = .93) and the heterogeneity between these studies was not statistically significant (Q[1] = 0.000; *p* = .99; I^2 = 0.000; τ^2 = 0.000; SE = 0.024; variance = 0.001; τ = 0.000). The mixed effects model highlighted showed the difference in mean effect sizes between the groups was statistically significant (Q[2] = 11.464, *p* = .003).

Publication Bias

The funnel plot was inspected and indicated that publication bias was minimal (*See Appendix D for funnel plot*). The Beggs and Mazumdar's correlation was non-significant (Kendall's τ = .166, z= .900; *p* = .18). The Egger's regression intercept was significant, as evidence of asymmetry was *p*<.10, (1.95; SE = 0.964 95% CI [-0.115, 4.022]; t[14] = 2.025, p = .06). A Duval and Tweedie trim and fill using a random effects model indicated that the magnitude of the effect size may have been impacted by missing studies. To ascertain symmetry, 5 studies should be inputted to the right of the mean which would increase the effect size to r= .29 (95% CI [0.267, 0.311]).

Discussion

This meta-analysis explored the consistency and the strength of the association between attachment styles and death anxiety. The overall pooled effect size for a combined measure of insecure attachment showed a significant but small association with death anxiety. This suggests that people who reported increased attachment insecurity also tend to report increased fear of death, which is consistent with previous research (Florian et al., 2002; Mikulincer et al., 2002). Furthermore, our findings appear to support the protective role of secure attachments against death anxiety. This may be because attachment security influences different death anxiety defences. Firstly, secure attachments may influence the development of positive self-esteem, an important buffer against death anxiety, through its influence on an individual's IWMs (Bartholomew, 1990; Brennan & Morris, 1997; Greenberg et al., 1986) Further, secure attachments may influence the effectiveness and ones willingness to rely on close relationships as a death anxiety defence (Hart et al., 2005; Mikulincer, 2019; Mikulincer & Florian, 2000; Plusnin et al., 2018). However, given that the effect size was only small, attachment styles may only form a small part of death anxiety defences and other psychological processes, independent of attachment, may influence the effectiveness of different buffers. However, the heterogeneity in these studies was significant, which is to be expected given the variation in both sample characteristics, methodological methods, and various measures of insecure attachment. Therefore, findings should be interpreted with caution.

Furthermore, we also wanted to examine the association between death anxiety and different attachment styles: attachment anxiety and attachment avoidance. The analysis revealed that attachment anxiety yielded a significant moderate effect, whereas the pooled effect for attachment avoidance was again significant, but the association was smaller. In times of distress individuals may rely on their IWMs and attachment styles to regulate their emotions and existential distress (Mikulincer et al., 1990). Individuals who experience preoccupation and increased anxiety when faced with separation may also display a similar reaction when faced with death, which is *the* ultimate separation, (Mikulincer et al., 1990) and

therefore report increased fear of this. Conversely, the weaker association between attachment avoidance and death anxiety may be because avoidant individuals manage existential distress in a similar way to separation as well, however rather than worry and ruminate, the avoidant individual manages via pushing distress out of conscious awareness (Mikulincer et al., 1990).

Variations in attachment anxiety and avoidance may also affect death anxiety via the influence they have on different defences. For example, individuals reporting attachment anxiety often possess negative perceptions about themselves as deserving of close relationships (Bartholomew, 1990) and is associated with increased self-esteem instability (Foster et al., 2007). However, attachment avoidance is characterised by an individual's negative beliefs about others rather than themselves (Bartholomew, 1990), and is not associated with unstable self-esteem (Foster et al., 2007). Therefore, it may be that it is a person's belief about whether they are deserving of close relationships which is more strongly associated with death anxiety because such beliefs may not only disrupt close relationships buffers but also self-esteem defences. However, for the avoidant individual, although close relationships may be disrupted their self-esteem may continue to offer some protection from death anxiety. Future research should explore whether the relationship between secure attachment and low death anxiety is mediated by high self-esteem.

Our meta-analysis also showed that clinical health populations yielded the strongest association between all attachment insecurity styles and death anxiety. However, it was clinical mental health populations which displayed the smallest relationship between attachment insecurity and death anxiety, with attachment avoidance showing no significant association. Psychological distress appears to be associated with increased fear of death (Menzies et al., 2019) and it is theorised that disruptions to the development of death anxiety defences leads to increased death anxiety which can result in psychological distress (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019). Our findings may indicate that in clinical mental health populations, secure attachments may not be as effective at buffering death anxiety, for example experiencing reduced attachment anxiety and/or avoidance is not necessarily

associated with lower death anxiety, and other processes pertinent to psychological distress may prevent the protective influence of attachment security.

However, the particularly small association between death anxiety and attachment in clinical mental health populations may be partially associated with the small number of published clinical mental health studies (only three have been identified in our search and included in our quantitative synthesis). Furthermore, the methodological robustness of these studies could have played an important factor. For example, one of these studies used a single-item measure of attachment (Menzies et al., 2019) which lacks reliability.

The association between death anxiety and all types of attachment insecurity was stronger for older adults compared to adults. These findings may support the idea that when individuals are facing increased threats to their mortality, attachment security may be more protective against death anxiety compared to those who are not. Furthermore, the subgroup analysis also highlighted that the association between attachment avoidance and death anxiety was greatest for older adults who had cancer compared to healthy adults. This suggests, that for older adults with physical health difficulties, who are generally faced with increasing threats to their mortality, harbouring positive beliefs about others may help to reduce fears of death anxiety. Future research should endeavour to explore how attachment anxiety and attachment avoidance influences death anxiety buffering processes in individuals facing imminent threat to their mortality. However, the individuals categorised as older adults, were done so based on mean age reported, therefore, more research is needed to establish whether age affects the association between death anxiety and attachment styles.

The current review is subject to several limitations. Firstly, there are missing studies, for example, the authors found two additional papers in the search that were excluded from the current review as it was not possible to ascertain the necessary statistics despite multiple efforts. Furthermore, the trim and fill indicated the effect size could have been reduced because of missing studies and the association between attachment and insecurity and death anxiety may in fact be greater.

Importantly, the quality assessment highlighted that many of the studies were rated as week because they utilised a cross-sectional design and failed to control for potential confounding variables. Amongst potential confounders, religiosity stands out, as it impacts the relationships with death anxiety (Jong et al., 2018).

Another potential limitation of the review related to the high levels of heterogeneity. The studies included in the analysis utilised various attachment measures and methodologies. In some cases, studies have used composite scores for attachment insecurity which have limited our ability to confidently explore more specific associations between the different attachment styles and death anxiety.

In conclusion, this review has highlighted a small but significant relationship between insecure attachment and death anxiety. This effect is most prominent for attachment anxiety, indicating that negative views of the self as worthy of relationships may be most strongly associated with death anxiety. Conversely, the relationship with attachment avoidance was less prominent, which may indicate how positive perceptions of others is less protective compared to perceptions of self. This was especially true for collectivist cultures. Secure attachments may be especially protective for older adults and/or individuals who have physical health problems. However, for people with mental health difficulties, associations between death anxiety and attachment insecurity were minimal, suggesting that secure attachment may not effectively buffer fear of dying. Research has highlighted that fear of death is associated with many types of mental health difficulties and symptom severity (Menzies et al., 2019) and increased death anxiety in people with cancer is associated with psychological distress and shorter life expectancy (Gonen et al., 2012). To develop effective death anxiety interventions, it is necessary to continue exploring the relationships between death anxiety and other psychological processes. Future research adopting longitudinal designs could enhance our knowledge about whether attachment styles impact death anxiety, and their influence on different death anxiety defences: close relationships, cultural worldviews, and self-esteem. However, future researchers should be sure to measure these constructs separately rather than using categorical or dichotomous attachment measures.

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Chapter 2: Empirical Paper

Title: The relationships between paranoid thinking, death anxiety, insecure attachment, and negative self-esteem in clinical and non-clinical populations.

Word Count: 5294

Target Journal: OMEGA: Journal of Death and Dying (See appendix E for journal guidelines)

Declarations of Interest: None

Keywords: Paranoia, Psychosis, Death Anxiety and Attachment.

Abstract

The present study explored the relationship between death anxiety, attachment, and self-esteem in paranoid thinking. Twenty-six individuals accessing NHS mental health services who met the criteria for a psychosis spectrum disorder and 60 individuals with no history of a psychosis spectrum disorder completed self-report measures on paranoia, hallucinations, death anxiety, attachment anxiety, attachment avoidance, disorganised attachment, negative self-esteem, and loneliness. Compared to non-clinical participants, clinical participants reported increased death anxiety, however, the effect size was small. The analysis revealed that death anxiety was associated with paranoia (r = .32, p = .002), hallucinations (r = .32, p = .001) and all the psychological variables, especially disorganised attachment. Death anxiety significantly predicted paranoia (β = .31, p = .005), hallucinations (β = .30, p = .006), and a composite measure of positive psychotic symptoms (β = .33, p = .002). The present study suggests that death anxiety has a moderate association with both paranoia and hallucinations, and disorganised attachment may play an important role in this association.

Introduction

Death anxiety and psychological distress

Death anxiety, a person's fear of death, is believed to arise when an individual's defences against existential distress fail. The Terror Management Theory (TMT) (Greenberg et al., 1986; Greenberg et al., 1997; Pyszczynski et al., 1999) argues that humans have developed several defences which enable them to live meaningful lives despite awareness that their existence is limited. TMT proposes that cultural worldviews, culturally informed belief systems, provide individual's with a coherent understanding of the world and provide a sense of order (Greenberg et al., 1986; Solomon et al., 2015). Living in accordance with these worldviews generates positive self-esteem, the sense that the individual is an important contributor to these cultural worldviews (Greenberg et al., 1986). This reduces existential anxiety because it provides meaning for our existence and also the opportunity for symbolic immortality through our contributions to an eternal phenomenon (Greenberg et al., 1986; Solomon et al., 2015). Close relationships also offer protection against death anxiety, they can strengthen other death anxiety defences. For example, they bolster self-esteem, allow transmission of cultural worldviews, and through these interactions individuals are provided feedback about how well they are conforming to these beliefs systems (Mikulincer et al., 2003). Secondly, close relationships allow individuals to feel part of something greater than themselves, something which is untouchable by death, as well as generating meaning and they also contribute to one's fulfilment (Mikulincer, 2019).

Poor attachment relationships may disrupt the development of these death anxiety defences increasing existential distress and leaving individuals vulnerable to experiencing psychological distress (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019). Negative attachment experiences can contribute to development of insecure attachment styles which may reduce the protective abilities of close relationships against death anxiety (Mikulincer, 2019). Insecure attachment difficulties may also impair the development of positive self-esteem, an important factor in managing death anxiety (Foster et al., 2007; Roberts et al.,

1996). Furthermore, attachment figures transmit cultural worldviews (Solomon, Greenberg, & Pyszczynski, 2015) and adverse attachment experiences may contribute to negative worldviews (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019). These impairments in the buffering systems result in unmanaged death anxiety and the reliance on maladaptive strategies and result in psychological distress (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019).

Death anxiety is associated with many forms of psychological distress (Birgit et al., 2018; Martz, 2004; Menzies & Dar-Nimrod, 2017; Menzies et al., 2019; Menzies et al., 2020; Menzies et al., 2015; Noyes et al., 2002; Strachan et al., 2007). Fear of death is proposed to be a transdiagnostic risk factor in psychological distress (Iverach et al., 2014), closely associated with symptom severity and distress (Menzies et al., 2019). More recently, studies have highlighted that people with a diagnosis of schizophrenia (SZ), report greater death anxiety compared to non-clinical individuals and participants diagnosed with depression (Mojahed & Nakhaei, 2022). Fear of death is associated with increased distress and reductions in psychosocial functioning in these populations (Mavrogiorgou et al., 2020). These findings have been replicated, death anxiety appears to be associated with positive symptoms of psychosis rather than negative symptoms (Öztürk et al., 2021).

Paranoia, self-esteem, attachment, and loneliness.

Paranoia is commonly experienced by people diagnosed with a psychosis spectrum disorder (Moutoussis et al., 2007), but it is also reported by individuals who do not have a diagnosable mental health disorder (Freeman et al., 2005; Freeman et al., 2010). Paranoid beliefs have been reported to occur on a continuum with similar psychological processes underpinning these beliefs in both populations (Elahi et al., 2017). Individuals who experience paranoia tend to report more adversities during childhood (Varese et al., 2012) which can lead to disrupted attachments (Mickelson et al., 1997). An infant's early relationship with their caregivers informs the development of their attachment style, a person's internal working model (IWM), which in turn informs how the individual perceives themselves and others (Bowlby, 1973). For

some individuals, whose attachment needs are unmet, insecure attachment styles may develop and they are typified by variations in IWMs (Bartholomew, 1990). Insecure attachment styles can be measured on a continuum of attachment anxiety and attachment avoidance (Fraley & Shaver, 2000). Within this model, high scores on attachment anxiety are reflected by hypervigilance to abandonment, whereas high scores on attachment avoidance reflect an individual's preference for independence and dislike of close intimate relationships (Fraley & Shaver, 2000). Generally, individuals high on attachment anxiety report negative beliefs about themselves, but maintain favourable views about other people, whereas, people high on attachment avoidance report distrust and maintain negative perceptions about others but see themselves in a positive way (Bartholomew, 1990).

Research has demonstrated that childhood neglect is related to paranoid thinking and this relationship is mediated by attachment insecurity (Sitko et al., 2014). And more specifically, researchers have shown associations between attachment insecurity and paranoid thinking, and low self-esteem mediates the relationship (Wickham et al., 2015). It has been suggested that adverse experiences during early life may result in people developing insecure attachments and negative IWMs which influence maladaptive beliefs and contribute to paranoid ideation (Bentall and Sitko, 2020).

Another process involved in the development of paranoid thinking is loneliness (Chau et al., 2019). Experimental research has demonstrated that loneliness may have a causal role in paranoid thinking, with individuals who experience loneliness reporting higher levels of paranoid beliefs (Gollwitzer et al., 2018; Lamster, Lincoln, et al., 2017; Lamster, Nittel, et al., 2017).

Current study

As previously mentioned, death anxiety is associated with many mental health diagnoses (Menzies et al., 2019) including positive symptoms of psychosis (Öztürk et al., 2021) however, its relationship with paranoid thinking is yet to be examined. It is suggested in the scientific literature that death anxiety and paranoia share several psychological processes, including

attachment insecurity, low self-esteem, and loneliness, therefore these variables were also examined. Paranoia is the most common delusional system reported by individuals with psychosis and research has shown that 95% of individuals with psychosis report paranoid ideation (Moutoussis et al., 2007). Although paranoia exists on a continuum with normal functioning, at the extreme end where preoccupation revolves around severe threat and conspiracies these types of beliefs in there most extreme form tend to be reported by people who experience psychosis. With this in mind, we decided to explore the relationship between death anxiety and paranoid ideation in clinical and non-clinical populations as we suspected death anxiety levels would be increased in a clinical population because paranoid ideation tends to be greater. The first hypothesis explored whether clinical participants with psychosis would report increased death anxiety compared to the non-clinical population. We also wanted to explore whether death anxiety predicts paranoia in a combined, clinical, and non-clinical population. Our second hypothesis explored whether, in the combined sample of both clinical and non-clinical participants, death anxiety, negative self-esteem, and attachment anxiety would predict paranoid thinking.

Methods

Participants

On the assumptions that paranoid ideation exists on a continuum with similar processes underpinning these beliefs in clinical and non-clinical populations (Elahi et al., 2017) we decided to recruit individuals from the clinical and non-clinical population.

Clinical participants

Individuals accessing mental health services in the Northwest of England were informed about the study by their care coordinator or primary clinician and for those interested in the study there contact details were passed on to the researcher (SF). Furthermore, clinicians also identified eligible participants who were accessing their services, and an invitation letter detailing the study was distributed asking them to contact the researcher if they wished to take

part in the research. Twenty-six participants agreed to take part in the study (Mean Age = 37.65, SD = 13.07; 42% female. The inclusion criteria included participants aged 18 and over who were currently accessing mental health services for support and who met the criteria for psychosis-spectrum disorder and had not been affected by bereavement within the past 6 months. The individual's diagnosis and ability to provide informed consent was assessed by their responsible clinician and/or care coordinator and they all had capacity to consent to the study.

Non-clinical participants

Sixty non-clinical participants were recruited (Mean = 31.22, *SD* = 7.53; 65% female), through social media platform twitter and across several northwest universities. Individuals who met the inclusion criteria (aged 18 and over, not currently accessing mental health services or have previously accessed mental health services due to a psychotic experience and not experienced bereavement within the past 6 months) were eligible to participate in the study.

Procedure

The data was collected from October 2021 to May 2022, which included periods affected by the COVID-19 pandemic. Participants were provided the option of completing the study with or without a researcher present. Prior to completing the study, participants were asked to read the participant information sheet (Appendix F & G) and sign the consent form (Appendix H & I). The questionnaires were completed online via a Qualtrics link. Participants provided demographic information including age, education, marital status, and employment and whether they have previously or were currently receiving support from a mental health service due to a psychosis. Following this the participants completed the questionnaire measures (Appendix J to P). The order of the self-report questionnaires was randomised to control for order effects. Following this the participants were provided a debrief sheet and signposting information (Appendix DD & EE). A debrief session with the researcher was offered to those who opted to complete the study without a researcher present. All participants had the

opportunity to receive a £9.50 voucher as reimbursement for taking part. The study was reviewed by the University of Liverpool (Appendix R), and sponsorship (Appendix S) and NHS ethic approval was ascertained (Appendix T to CC).

Measures

Self-Esteem Rating Scale (Short Form) (SERS (Lecomte et al., 2006)

The SERS uses 20 items to measure self-esteem, 10 items measure positive self-esteem, and another 10 items measure negative self-esteem Statements such as “I feel that people have a good time when they are with me” are rated on a seven-point Likert scale ranging from 1 (never) to 7 (always). The internal consistency for the negative (α = .90) and positive (α = .92) subscales was excellent.

The Templer Death Anxiety Scale (TDAS, (Templer, 1970)

The TDAS is a 15 item self-report measure of death anxiety. Participants were asked to rate statements such as “I am very much afraid to die” on a binary scale 0 (false) and 1 (true). A recent systematic review which explored the validity and reliability of death anxiety self-report measures found reported that TDAS is a reliable and valid measure (Zuccala et al., 2019), internal consistency for this study was acceptable (α = .67).

The Launey Slade Hallucination Scale (Revised) (LSHS-R, (Bentall & Slade, 1985)

The LSHS measures hallucinations in clinical and non-clinical populations (Aleman et al., 2001). The questionnaire contains 12 items, participants are asked to rate statements like “The sounds I hear in my daydreams are generally clear and distinct” are measured on a five-point Likert scale ranging from 0 (certainly does not apply to me) to 4 (certainty applies to me). For this study internal consistency was excellent (α = .90).

The Experience of Close Relationships Scale (ECR, Lafontaine et al., 2015)

The ECRS uses two scales to measure attachment anxiety (6 items) and attachment avoidance (6 items). Items such as "I worry that people won't care about me as much as I care about them" are rated on a 7-point Likert Scale ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores reflect higher levels of attachment anxiety and avoidance. For this study internal consistency for attachment anxiety (α = .87) and attachment avoidance (α = .83) were good.

The Adult Disorganised Attachment Scale (ADAS, Paetzold et al., 2015)

The ADAS is a 9 item self-report measure of adult disorganised attachment style. Items such as "Fear is a common feeling in close relationships" are rated on a 7-point Likert Scale ranging from 1 (strongly disagree) to 7 (strongly agree). High scores indicate higher levels of disorganised attachment styles. For this study internal consistent was good α = .89.

The Persecution and Deservedness Scale (PaDs, (Melo et al., 2009)

The PaDs persecution scale contains 10 items which measure paranoid thinking. Statements such as "There are times when I worry that others might be plotting against me"
are measured on a five-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). Cronbach's alpha for this study was assessed as excellent α = .91.

The Three-Item Loneliness Questionnaire (TILQ, Hughes et al., 2004)

The TILQ measures individual's experience of loneliness using 3 items such as "How often do you feel that you lack companionship?" scored on a 3-point Likert Scale ranging from 1 (hardly ever) to 3 (often). Internal consistent for this measure was assessed as good in this study (α = .82).

Statistical analysis

Prior to data collection, power calculations were completed using G*Power (See Appendix Q). The data was analysed using IBM SPSS 24. To explore group comparisons for the demographic characteristics, Chi-Squared tests was performed for nominal data and univariate analysis of variance (ANOVA) was performed on continuous data. To compare clinical and non-clinical groups on the different psychological variables, we ran a Multivariate Analysis of Variance (MANOVA) using the Pillai trace statistic and group comparisons were analysed via univariate ANOVAs

To examine whether the data was normally distributed, a Shapiro Wilks test was performed along with the inspection of Q-Q plots. Correlations were performed to investigate the associations between paranoia, death anxiety, self-esteem, attachment measures and loneliness in the combined sample (analysis were not conducted in the samples separately because the low numbers in the clinical group would make these results difficult to interpret). When data departed from normality a Spearman's correlation was used.

To investigate whether death anxiety, attachment anxiety and negative self-esteem predicted paranoia several hierarchical linear regressions were performed on paranoia and hallucinations. Because hallucinations and paranoia were both associated with death anxiety, and there was a high correlation between hallucinations and paranoia, to avoid collinearity, we extracted a composite factor for positive symptoms using principle component analysis (PCA). Because age is correlated with death anxiety, we controlled for its effects by entering it into the first step of the model, followed by death anxiety in the second step, attachment measures in the third and negative self-esteem and loneliness in the final stage.

Results

Participant characteristics

The non-clinical participants significantly differed from the clinical participants in relation to education level (X^2 (7, N = 86) = 32.44, p < .001), relationship status (X^2 (5, N = 86) = 16.72, p = .005), work status (X^2 (6, N = 86) = 53.40, p < .001), and age (F (1, 85) = 8.30, p = .005) with clinical participants tending to be older (M= 37.65, SD = 13.07) than non-clinical participants (M = 31.22; SD = 7.53). However, the non-clinical and clinical participants did not differ in terms of ethnicity (X^2 (3, N = 86) = 1.82, p = .61) or gender (X^2 (2, N = 86) = 4.69, p = .10). The means and standard deviations (SD) for demographic and psychological measures are reported in Table 1.

Differences between clinical and non-clinical participants

A between subjects MANOVA was performed to explore whether the groups differed in regard to psychological variables (death anxiety, attachment anxiety, attachment avoidance, disorganised attachment, negative self-esteem and loneliness). The overall effect was significant (F (6,79) = 6.19, p < .001, $V^{(s)}$= .32, η^2 =.32). The univariate ANOVAs found that there was a significant difference between clinical and nonclinical participants in relation to levels of loneliness (F (1,85) =14.54, p <. 001, η^2=.15), disorganised attachment (F (1, 85) = 23.40, p < .001), η^2 = .22), attachment avoidance (F (1,85) = 10.96, p = .001, η^2 = .12), death anxiety (F (1,85) = 5.70, p = .02, η^2 = .06) and negative self-esteem (F (1,85) = 4.45, p = .04), η^2 = .05). Clinical participants reported increased disorganised attachment, attachment avoidance, death anxiety, loneliness, and negative self-esteem (*See Table 1 for means and SDs)*. The groups did not significantly differ in attachment anxiety.

Relationships between clinical variables

A Shapiro-Wilks test highlighted that the distribution of PaDs, LSHS, ECRS Anxiety, ECRS Avoidance, DASS, SERS-N, and TILQ departed significantly from normality. This was further supported by inspection of Q-Q plots which supported the initial analysis and therefore, a one tailed non-parametric Spearman's Rho correlation was performed.

The Spearman's rho correlations showed that for the combined sample, paranoia was associated with death anxiety, attachment anxiety, attachment avoidance, disorganised attachment, negative self-esteem, and loneliness. Hallucination proneness was associated with death anxiety, attachment anxiety, attachment avoidance, disorganised attachment, negative self-esteem, and loneliness. Death anxiety was correlated with paranoia, hallucinations, attachment anxiety, disorganised attachment, negative self-esteem, and loneliness (S*ee Table 2 for correlation matrix*).

Table 1.

Demographic and psychological variables for clinical and non-clinical participants mean (M), standard deviations (SD) and percentages (%).

Variables	Clinical participants				Non-clinical participants			
	N	*%*	*Mean*	*SD*	*N*	*%*	*Mean*	*SD*
Age	26	-	37.65	13.07	60	-	31.22	7.53
Gender								
Female	11	42	-	-	39	65	-	-
Male	15	58	-	-	20	33	-	-
Gender Queer	0	-	-	-	1	2	-	-
Ethnicity								
White	26	100	-	-	56	93	-	-
Mixed/multiple Ethnic groups	0	-	-	-	2	3	-	-
Asian/ Asian British	0	-	-	-	1	2	-	-
Other ethnic group	0	-	-	-	1	2	-	-
Education								
No formal education	5	19	-	-	1	2	-	-
GCSE	6	23	-	-	2	3	-	-
A-Level	2	8	-	-	5	8	-	-
Vocational Training	4	15	-	-	1	2	-	-
Bachelor Degree	4	15	-	-	21	35	-	-
Masters 'Degree	3	12	-	-	28	47	-	-
Doctorate Degree	1	4	-	-	2	3	-	-
Prefer not to say	1	4	-	-	0	-	-	-
Employment								
Employed	7	27	-	-	57	95	-	-
Unemployed	5	19	-	-	0		-	-
Unable to work	11	42	-	-	0	-	-	-
Student	2	8	-	-	3	5	-	-
Prefer not to say	1	4	-	-	0	-	-	-
Relationship Status								
Single	19	73	-	-	21	35	-	-
Cohabiting	2	8	-	-	29	48	-	-
Married	3	11	-	-	7	12	-	-
Civil Partnership	1	4			0	-		
Divorced	1	4	-	-	2	3	-	-
Prefer not to Say	0	-	-	-	1	2	-	-
Psychological Variables								
Paranoia	26	-	20.33	11.27	60	-	9.90	8.06
Hallucinations	26	-	24.73	12.84	60	-	9.47	6.93
Death anxiety	26	-	8.19	3.16	60	-	6.63	2.60
Attachment anxiety	26	-	22.80	9.21	60	-	22.03	9.13
Attachment avoidance	26	-	26.15	7.95	60	-	20.01	7.87
Disorganized attachment	26	-	30.58	15.05	60	-	18.48	7.88
Negative self-esteem	26	-	37.04	12.73	60	-	31.37	10.87
Loneliness	26	-	6.50	1.82	60	-	4.97	1.67

Table 2.

Displays Spearman's rho correlation matrix for combined sample (N=86)

Measures	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**
1. Paranoia	-						
2. Hallucinations	.70***	-					
3. Death anxiety	.32**	.32**	-				
4. Negative self-esteem	.62***	.35***	.31**	-			
5. Attachment anxiety	.45***	.25**	.28**	.58***	-		
6. Attachment avoidance	.30**	.37***	.17^{ns}	.19*	-.03^{ns}	-	
7. Disorganised attachment	.60***	.58***	.35***	.35***	.29**	.29**	-
8. Loneliness	.47***	.36***	.34***	49***	.40***	.25*	.46**

*Note: p > .05 = ns, p< .05 = *, p <.01 = **, p<.001 = ****

Hierarchical linear regressions

We wanted to explore whether the psychological variables predicted paranoia, hallucinations, and death anxiety. However, the correlation between paranoia and hallucinations was particularly high (r = .70, p < .001) indicating collinearity, making it inappropriate to control for one of these symptoms while examining the other. Hence, we performed regressions using each symptom as the dependent variable without controlling for the other, followed by a regression on a composite measure of positive psychosis symptoms derived using PCA.

Paranoia

Age was inputted into the first step of the model to control for its effects, the model was not significant (R^2=.00, F (1, 84) = .01, p < .91, $R^2_{Adjusted}$ = - .01) and age did not predict paranoid thinking.

When death anxiety was added to the model, the model became significant (R^2=.09, F (2, 83) = 4.13, p = .02, $R^2_{Adjusted}$ = .07) and was an improvement on the last (F_{change} (1,83) =.8.25, p = .005) and death anxiety was a significant predictor of paranoid thinking (β = .31, t = 2.87, p = .005).

Next, attachment anxiety, attachment avoidance and disorganised attachment were entered into the model. Again, the model was significant (R^2=.53, F (5, 80) = 18.15, p < .001, $R^2_{Adjusted}$ = .50) and the model was an improvement on the last (F_{change} (3, 80) = 25.09, p < .001). Death anxiety no longer predicted paranoia, however, attachment anxiety (β = .36, t = 4.43, p < .001), attachment avoidance (β = .19, t = 2.43, p = .02), and disorganised attachment (β = .48, t = 5.62, p < .001) all predicted paranoid thinking.

In the final stage of the model, negative self-esteem and loneliness were inputted and again the model remained significant (R^2=.60, F (7, 78) = 16.42, p < .001, $R^2_{Adjusted}$ =.56) and it was an improvement on the previous (F_{change} (2, 78) = 6.20, p = .003). However, only disorganised attachment (β = .38, t = 4.39, p < .001) and negative self-esteem (β = .33, t = 3.18, p = .002) remained significant predictors of paranoia.

Hallucinations

Again, age was inputted into the first step of the model to control for its effects, the model was a poor fit (R^2= .01, F (1, 84) = .12, p < .73, $R^2_{Adjusted}$ = - .01) and age did not predict hallucinations.

When death anxiety was added to the model, the model became significant (R^2=.09, F (2, 83) = 4.09, p = .02, $R^2_{Adjusted}$ = .07) and was an improvement on the last (F_{change} (1,83)

=.8.05, p = .006) and death anxiety was a significant predictor of hallucinations (β = .30, t = 2.84, p = .006).

Next, attachment anxiety, attachment avoidance and disorganised attachment were entered into the model. Again, the model was significant (R^2= .47, F (5, 80) = 13.89, p < .001, $R^2_{Adjusted}$ = .43) and the model was an improvement on the last (F_{change} (3, 80) = 18.67, p < .001). Death anxiety no longer predicted hallucinations, however, attachment avoidance (β = .26, t = 3.08, p = .003) and disorganised attachment (β = .51, t = 5.65, p < .001) were significant predictors of hallucinations

In the final step, negative self-esteem and loneliness were inputted and again the model remained significant (R^2=.47, F (7, 78) = 9.88, p < .001, $R^2_{Adjusted}$ =.42) however it was not a significant improvement on the previous model (F_{change} (2, 78) = .40, p = .67). Disorganised attachment (β = .49, t = 4.98, p < .001) and attachment avoidance (β = .25, t = 2.81, p = .006) remained significant predictors of hallucinations.

Psychosis Symptoms

Age was inputted into the first step of the model to control for its effects, the model was a poor fit (R^2= .00, F (1, 84) = .02, p = .89, $R^2_{Adjusted}$ = -.01) and age was not a significant predictor.

Death anxiety was added to the model and the model became significant (R^2=.11, F (2, 83) = 4.89, p = .01, $R^2_{Adjusted}$ = .08) and was an improvement on the last (F_{change} (1,83) = 9.77, p = .002) and death anxiety predicted psychosis (β = .33, t = 3.12, p = .002).

Following this the attachment measures (ECRS anxious, ECRS avoidant and DASS) were added to the model, the model was significant (R^2= .57, F(5, 80) = 20.74 , p < .001, $R^2_{Adjusted}$ = .54) and again was an improvement on the previous model (F_{change} (3, 80) = 28.113, p < .001). Death anxiety was no longer a significant predictor of psychosis symptoms, and attachment anxiety (β = .24, t = 3.09, p = .003), attachment avoidance (β = .25, t = 3.23, p = .002) and disorganised attachment (β = .54, t = 6.56, p < .001) predicted psychosis symptoms.

In the final stage of the model, negative self-esteem and loneliness were added to the model and again the model was significant (R^2= .59, F (7, 78) = 15.97, p < .001, $R^2_{Adjusted}$ =

.55) and was not an improvement on the last (F_{change} (2, 78) = 2.32, p = .11). Significant predictors of psychosis symptoms included attachment avoidance (β = .21, t = 2.70, p = .009) and disorganised attachment (β = .47, t = 5.43, p < .001).

Discussion

In this study we examined the relationship between death anxiety, attachment, and self-esteem on paranoid thinking. We hypothesised that death anxiety would be increased in clinical participants with psychosis compared to non-clinical participants. The findings indicated that death anxiety, disorganised attachment, loneliness, and attachment avoidance were greater in clinical participants, supporting the findings of prior research (Gollwitzer et al., 2018; Mavrogiorgou et al., 2020; Mojahed & Nakhaei, 2022; Öztürk et al., 2021; Varese et al., 2012; Wickham et al., 2015). Furthermore, this appears to support previous studies which have highlighted how psychological distress associated with increased death anxiety (Menzies et al., 2019) and further support its role as a transdiagnostic risk factor in psychological distress (Iverach et al., 2014). It is theorised that when an individual experiences disruption to their death anxiety defences, their ability to manage existential distress is impaired which increased the risk of psychological distress (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019). It is important to highlight that the effect size for death anxiety was only small, and this may be because, unlike previous research (Mavrogiorgou et al., 2020; Mojahed & Nakhaei, 2022; Öztürk et al., 2021), we did not control for experiences of psychological distress other than psychotic experiences. Therefore, individuals in the non-clinical group may have experienced other types of mental health difficulties which are also associated with death anxiety (Menzies et al., 2019).

We also wanted to explore death anxiety's relationship with paranoia. Given that paranoia is prevalent in clinical and non-clinical populations (Freeman et al., 2005) and the psychological processes are similar (Elahi et al., 2017) we examined the relationships between paranoia and death anxiety, as well as other psychological variables in a combined clinical and non-clinical sample. The findings supported the hypothesis and paranoia was

associated with death anxiety which supports other research within this area that has shown associations between positive symptoms and death anxiety (Mavrogiorgou et al., 2020; Mojahed & Nakhaei, 2022; Öztürk et al., 2021). Furthermore, paranoia was also correlated with attachment anxiety, disorganised attachment, negative self-esteem, and loneliness. This supports previous literature within the area which has highlighted relationships between paranoia and attachment anxiety (Lavin et al., 2020; Sitko et al., 2014), negative self-esteem (Wickham et al., 2015) and loneliness (Lamster, Lincoln, et al., 2017; Lamster, Nittel, et al., 2017).

We initially hypothesized that death anxiety would specifically predict paranoia because they appear to share many of the same underpinning psychological processes. However, this hypothesis was not supported and although death anxiety predicted paranoia, the relationship was not specific, and it also predicted hallucinations and a composite measure of positive psychosis symptoms. Furthermore, this relationship was not present once attachment measures were inputted into the model. This may indicate that the relationship between death anxiety and positive psychotic symptoms is influenced by attachment insecurity, specifically disorganised attachment. Disruptions to the development of death anxiety defences appears to be partially related to adverse attachment experiences, which leaves people unable to manage death anxiety effectively (Maxfield et al., 2014; Yetzer & Pyszczynski, 2019). Previous research has highlighted that both attachment anxiety and avoidance are associated with increased death anxiety (Mikulincer et al., 1990), however, it appears researchers are yet to investigated the association between disorganised attachment and death anxiety. Disorganised attachments is typified by both negative beliefs about others and the self (Bartholomew, 1990), often originates as a result of trauma, and thus this type of attachment style may be most disruptive to death anxiety defences such as close relationship, self-esteem and cultural worldview defences. Furthermore, disorganised attachment is related to the increased severity of positive psychosis symptoms (Bucci et al., 2017), contributing to hallucinations via their influence on dissociation and self-critical thoughts (Berry et al., 2017) and to paranoid thinking, because such experiences contribute to negative perceptions about

others (Humphrey et al., 2022). Therefore, disorganised attachment may influence the relationship between death anxiety and psychosis symptoms.

Due to several limitations, caution should be taken when interpreting these findings. The current study is underpowered, and this is mainly due to the small number of clinical participants. Recruiting individuals with psychosis has been an ongoing issue in clinical research and barriers such as organisational pressures and poor communication between researchers and clinical teams are contributing factors (Bucci et al., 2015). The nature of the research topic, death anxiety, may have been a contributing factor to poor uptake as individual may fear discussing existential distress.

Underpowered studies are at increased risk of type II errors, where the true effect is significant, but this finding is not reflected statistically and the null hypothesis is incorrectly accepted (Akobeng, 2016). However, given that our study has found significant results, it is unlikely that this is the case, and it may be that the effect size could be larger than those reported. Nevertheless, underpowered studies can also be at risk of type 1 errors and overestimated effect sizes, because of higher variability of the estimates. Both analyses were impacted by the small sample size, and therefore the statistical power of both the MANOVA and regression model is reduced therefore increasing the risk of type I errors and potential false positive results. Future research conducted on larger sample sizes may offer substantiating evidence for these current findings, however, until then it is necessary to remain cautious when reviewing the findings from this study.

Furthermore, as the study utilised a cross-sectional design, inferring causality between death anxiety and psychosis is not possible. It may be that experiencing positive symptoms of psychosis increases one's fear of death - after all paranoid beliefs often revolve around a threat to the individual's life.

Another important factor which may have impacted the study's findings was that it was completed during the COVID 19 pandemic. It was theorised that over the course of the pandemic, individuals would be exposed to increasing numbers of death reminders which may

have increased levels of death anxiety and potentially psychological distress (Menzies & Menzies, 2020). Therefore, further research is required to offer support to our findings.

Furthermore, the group comparisons should be interpreted with caution as the populations were not matched for education, relationship status, or work status and there were un-equal sample sizes across the groups. Future research should aim to utilise longitudinal research methodology to explore whether death anxiety does increase the risk of experiencing paranoia and hallucinations. Such approach could also examine whether disorganised attachments influence the association between death anxiety and psychotic symptoms.

A systematic review (Zuccala et al., 2019) explored the validity and reliability of death anxiety measures used in research and noted all of the measures they examined failed to meet their threshold of adequacy. However, they noted that the Templer Death Anxiety Scale (Templer, 1970) appeared to have the most evidence to support its reliability and validity and noted that this measure is commonly used in research investigating death anxiety (Zuccala et al., 2019). Therefore, we decided to use this self-report questionnaire to measure death anxiety in our sample. However, in our study, the Cronbach's alpha, a measure of internal consistency, was found to be .67 which is considered to be a questionable level of internal validity, and the items may not consistently measure the same construct. This has potential implications for the current study and findings will require further research exploring paranoia and death anxiety to provide confirmatory evidence. Thus, caution is advised when reviewing or findings. Future research may benefit from developing a clearer understanding of death anxiety as a construct and developing reliable and valid measures to investigate this in research and clinical practice.

Our findings provide tentative evidence about the relationship between death anxiety and psychosis symptoms. It appears that death anxiety does not only affect paranoia, rather it impacts both paranoia and hallucination, the positive symptoms of psychosis, and its relationship with disorganised attachment may be an important factor. Further research is necessary to establish whether death anxiety has a casual role in paranoia, however this study indicates that such examinations may be worthwhile. Death anxiety has rarely been the

primary focus within the therapy room. However, it has been suggested that failures to address such concerns within therapy may be a contributing factor to the persistence of psychological distress (Iverach et al., 2014; Menzies et al., 2019). Research that investigates the role the death anxiety in psychological distress may highlight novel targets for psychological interventions. Such interventions may not only alleviate fears of death but also contribute to positive outcomes for people experiencing mental health difficulties because “staring into the face of death, with guidance, not only quells terror but renders life more poignant, more precious, more vital” (Yalom, 2008 pg. 276).

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Appendices

Appendix A. Clinical Psychology Review Guidelines

Guidelines for Full-length papers

1. **Format**: Manuscripts should be prepared according to the guidelines set forth in the most recent publication manual of the American Psychological Association. Of note, section headings should not be numbered.
2. **Font**: **sans serif fonts** such as 11-point Calibri, 11-point Arial, or 10-point Lucida Sans Unicode or **serif fonts** such as 12-point Times New Roman, 11-point Georgia, or normal (10-point).
3. **Headings:** APA levelling.
4. **Title Page**: Title (concise and informative), author names and affiliations, Corresponding author.
5. **Highlights:** Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any).
6. **Abstract:** A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should briefly state the purpose of the research, the principal results, and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.
7. **Keywords**: Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid,

for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

8. **Text:** Introduction (Level 1) and any additional headings use Level 2, Methods (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4), Results (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4, Discussion (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4.
9. **Word Limit:** Should not exceed 50 pages including appendices.
10. **Figures and Tables:** Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.
11. **Appendices:** If there is more than one appendix, they should be identified as A, B, etc.

Appendix B. EPHPP Quality Assessment Tool for Quantitative Studies

QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES

EPHPP
Effective Public Health Practice Project

COMPONENT RATINGS

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

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

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

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

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design

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

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

No Yes

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

No Yes

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

No Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

1

C) CONFOUNDERS

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

1 Yes
2 No
3 Can't tell

The following are examples of confounders:

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

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

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

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D) BLINDING

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

1 Yes
2 No
3 Can't tell

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

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E) DATA COLLECTION METHODS

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

1 Yes
2 No
3 Can't tell

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

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F) WITHDRAWALS AND DROP-OUTS

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

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

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

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

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

G) INTERVENTION INTEGRITY

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

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

(Q2) Was the consistency of the intervention measured?

1 Yes
2 No
3 Can't tell

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

4 Yes
5 No
6 Can't tell

H) ANALYSES

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

community organization/institution practice/office individual

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

community organization/institution practice/office individual

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

1 Yes
2 No
3 Can't tell

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

1 Yes
2 No
3 Can't tell

GLOBAL RATING

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

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

GLOBAL RATING FOR THIS PAPER (circle one):

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

With both reviewers discussing the ratings:

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

No Yes

If yes, indicate the reason for the discrepancy

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

Final decision of both reviewers (circle one):

1	**STRONG**
2	**MODERATE**
3	**WEAK**

Appendix C. Analysis Excluding Besser.

Combined Insecure Attachment

The overall effect size for the pooled studies for combined insecure attachment was r=.21 (k= 15; 95% [CI 0.158, 0.253]; Z= 8.234; $p < .001$) which indicates a positive correlation of small effect. Heterogeneity across the studies was significant (Q [14] = 27.804; $p = .02$; $I^2 = 49.647$; $\tau^2 = 0.004$; SE = 0.003; variance = 0.000; $\tau = 0.064$).

Subgroup analysis for Insecure Combined

We completed a subgroup analysis to compare differences between the mean effect sizes across participant's age groups. There was a small effect size for combined insecure attachment and death anxiety in older adults (r=.29, k=4; 95% CI [0.214, 0.356]; Z= 7.465; $p < .001$) and the heterogeneity was not significant (Q[3] = 1.033; $p = .79$; $I^2 = 0.000$; $\tau^2=0.003$, *SE*=0.003, variance = 0.000; $\tau = 0.053$). The strength of the association between combined insecure attachment and death anxiety appeared to be weaker in adults where the effect size was small r=.18 (k=11; 95% CI [0.131, 0.231]; Z= 6.968; $p < .001$) and the heterogeneity was not significant (Q[10] = 17.469; $p=.07$; $I^2 = 42.754$; $\tau^2=0.003$, *SE*=0.003, variance = 0.000; $\tau = 0.53$). The mixed effects analysis yielded a significant between groups difference (Q [1] = 5.438, $p=.02$).

Additionally, we compared the difference in effect sizes across participant populations. There was a small to moderate association between combined insecure attachment and death anxiety in clinical health populations (r=.30, k=3; 95% CI [0.221, 0.371]; Z=7.288; $p < .001$) and heterogeneity was not significant (Q[2] =.325*;* $p=.850$; $I^2 = 0.000$; $\tau^2=0.000$, SE=0.006, variance = 0.000; $\tau = 0.000$). Similarly, there was a small effect size in non-clinical populations r=.19 (k=9; 95% CI [0.135, 0.249]; Z=6.798; $p < .001$) and heterogeneity was significant (Q[8] = 16.760; $p = .03$; $I^2 = 52.267$; $\tau^2=0.004$, SE=0.004, variance = 0.000; $\tau = 0.061$). For clinical mental health populations, the association was small between insecure attachment and death anxiety was small r=.153 (k=3; 95% CI [0.048, 0.255]; Z= 2.836, $p = .005$) and heterogeneity was not significant (Q[2]= 0.804; $p = .67$; $I^2 = 0.000$; $\tau^2=0.000$, *SE*= 0.011; variance= 0.000; τ

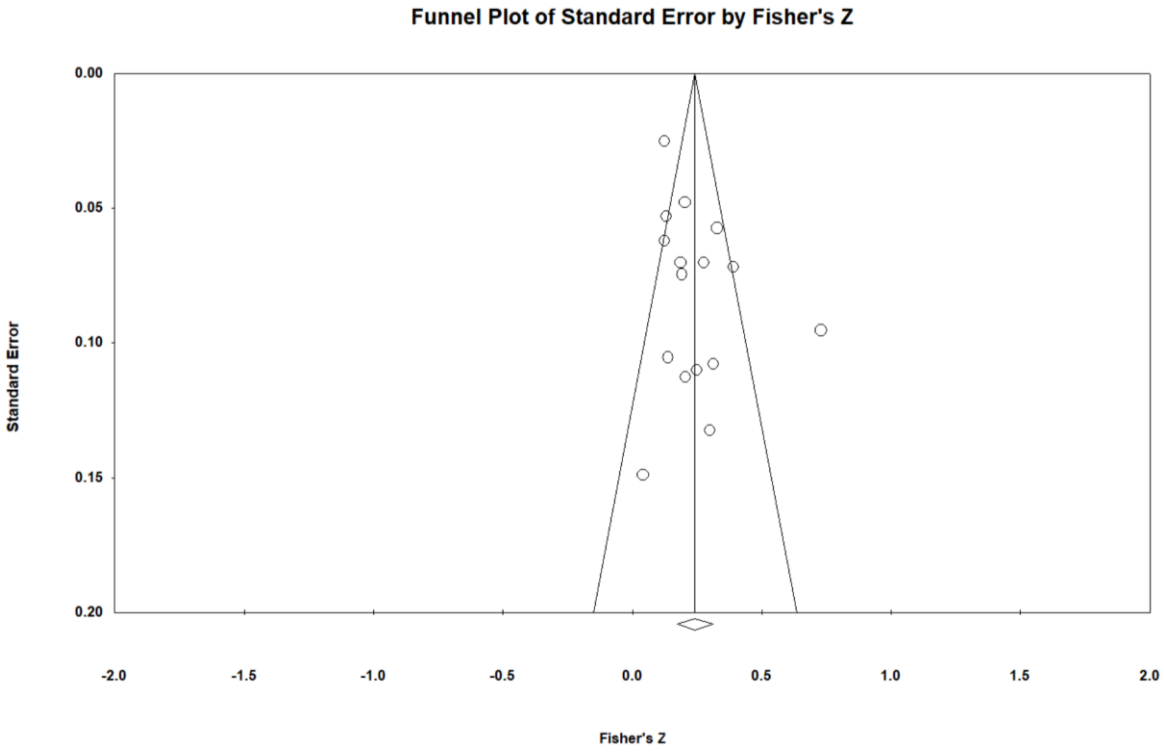
= 0.000). The mixed effects analysis yielded a significant difference between groups (Q[2] = 6.421, *p*=.04).

We also completed a group analysis to compare the difference in the effect sizes across cultural orientation. The association between insecure attachment and death anxiety in collectivist cultures was small to r=.16 (k=5; 95% CI [0.067, 0.252]; Z= 3.333, *p* < .001) heterogeneity was significant (Q[5] = 12.458; *p* = .01; I^2= 67.892; τ^2=0.007; *SE*= 0.008, variance = 0.000; τ = 0.085) and for individualist cultures it was also small r=.23 (k=11; 95% CI [0.178, 0.280]; Z= 8.520, *p* < .001) however heterogeneity was not significant (Q[10] = 15.275; *p* = .12; I^2= 34.531; τ^2=0.003, SE=0.004; variance= 0.000; τ = 0.052). The mixed effect analysis indicated that the difference between groups was not significant (Q [1] = 1.656, *p* = .20).

Publication Bias

The funnel plot was inspected and indicated that publication bias was minimal. The Beggs and Mazumdar's correlation was non-significant Kendall's τ = .161, z= .841; *p* = .20). The Egger's regression intercept was significant, as evidence of asymmetry was *p*<.10, (1.33; SE = 0.709 95% CI [-0.205, 2.860]; t[13] = 1.87, p = .08). The trim and fill highlighted 0 missing studies either side of the mean.

Appendix D. Funnel Plot



Appendix E: OMEGA - Journal of Death and Dying

Guidelines for Full-length papers

1. **Format**: manuscripts according to the latest American Psychological Association style, processed using word, double spaced, wide margins, organization indicated by appropriate headings and subheadings
2. **Font**: **sans serif fonts** such as 11-point Calibri, 11-point Arial, or 10-point Lucida Sans Unicode or **serif fonts** such as 12-point Times New Roman, 11-point Georgia, or normal (10-point) Computer Modern (the default font for LaTeX)
3. **Headings:** APA levelling.
4. **Title Page**: containing acknowledgements/ credits, each author's name and institutional affiliation, grant numbers of funding information, corresponding authors (name, address, phone/fax, email)
    a. Keywords – up to five key words.
5. **Abstract:** Abstracts of 100 to 150 words are required to introduce each article.
6. **Text:** Introduction (Level 1) and any additional headings use Level 2, Methods (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4), Results (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4, Discussion (Level 1) any additional headings use Level 2 (further subsections use Level 3, Level 4.
7. **Word Limit:** Most articles are between 5000-7500 words and while we accept long pieces that mandates additional evaluation because of space limitations
8. **Figures and Tables:** When possible, all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

Appendix F. Clinical Participant Information Sheet

IRAS Project ID: 291762
Version number: V5
Version date: 20.12.21

Title: Understanding how self-esteem, personal relationships and a person's view about death and dying effects paranoid thinking.

V5, 20.21.21

You are being invited to participate in a research study which is being completed as part of a Doctorate in Clinical Psychology at the University of Liverpool. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask us if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends, relatives and GP if you wish. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

Thank you for reading this.

1. What is the purpose of the study?

Everyone has likely experienced thoughts about death or dying, however, for some people they may experience more worry about death or dying than others, and this is now commonly referred to as death anxiety. Little is known about the role of death anxiety in mental health difficulties however research has shown that it can increase feelings of anxiety and low mood. The aim of this research is examining how death anxiety impacts people who use mental health services and seeing if it contributes to feelings of paranoia. We also want to explore whether death anxiety is related to suspicious thinking in people who do not use mental health services. Additionally, we aim to examine how death anxiety and paranoid thinking impact how you experience relationship with other people in your life, experience of loneliness and self-esteem (the positive and negative beliefs you may have about yourself). Finally, this study will also investigate whether people who use mental health service experience more death anxiety than people who do not.

2. Why have I been chosen to take part?

We are aiming to recruit individuals who are currently using mental health services and have been suffering from psychosis (which includes mental health difficulties such as 'schizophrenia' or 'bipolar disorder').

3. Do I have to take part?

Participation in this study is voluntary and you are free to withdraw at any time. If you decide to withdraw, you do not have to give us any reason for your decisions and withdrawing will not disadvantage you or affect your care in any way.

4. What will happen if I take part?

The study will be led by Sophie Foster, a Trainee Clinical Psychologist at the University of Liverpool
This study will require the participant to complete eight questionnaire measures that will take around 45 minutes. The study will take place online via a video conferencing link. The questionnaires are about, whether you experience any worries about death and dying, how you feel about close relationships, experience of loneliness , how you feel about yourself and the extent to which you feel paranoid at times. You will be provided with a consent form and you will be required to read and sign this form before the questionnaire measures are completed. Following this you will be asked to complete the questionnaires online via a link. Sophie Foster will remain present while you complete the measures in case you have any additional questions or require support. If you would prefer to complete the survey without a researcher present that may also be arranged. Once you've completed the survey, we will answer any questions you may have about the survey and the questionnaires you have completed. If you would prefer to complete the study without a researcher present, we can arrange a debrief session via telephone, face to face or video conferencing software to allow you ask any questions about the survey.

5. How will my data be used?

Your data will be anonymised (your name and any other identifying information will be removed from it) and combined with data from other participants before it is analysed. The University of Liverpool processes personal data as part of its research and teaching activities in accordance with the lawful basis of 'public interest', and in accordance with the University's purpose of "advancing education, learning and research for the public benefit.

Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The Principal Investigator acts as the Data Processor for this study, and any queries relating to the handling of your personal data can be sent to Professor Peter Kinderman (e-mail: p.kinderman@liverpool.ac.uk). Further information on how your data will be used can be found in the table below".

How will my data be collected?	Data will be collected via participants completing eight psychometric questionnaires.
How will my data be stored?	Data will be stored on a password protected laptop and encrypted excel file.
How long will my data be stored for?	Data will be stored for 10 years in line with the University of Liverpool's University Data management Policy.
What measures are in place to protect the security and confidentiality of my data?	All data will be appropriately anonymised and stored securely.
Will my data be anonymised?	Yes
How will my data be used?	Your data will be analysed and form part of a research study which will explore the role of death anxiety in paranoid thinking. This research study will also be submitted as a thesis as part of Doctorate in Clinical Psychology.
Who will have access to my data?	Professor Peter Kinderman and Sophie Foster
Will my data be archived for use in other research projects in the future?	No
How will my data be destroyed?	Data will be permanently deleted after 10 years in line with the University of Liverpool's University's Data-Management Policy.
What are my choices about my patient data?	You can stop being part of a research study at any time, without giving a reason. You may also request that your data is destroyed. You will have one month after participating in the study to request that your data is removed. However, after one month, your data will be anonymised and it will not be possible to locate your data to remove it. You can find out what would happen with your data before you agree to take part in a study.

Transferring data outside the EU

Personal data will not be transferred outside the EU.

6. Expenses and / or payments

You will have the option to be reimbursed with a voucher worth £9.50 for taking part in the study. Also, we will be able to reimburse you for any reasonable travel expenses if you are unable to complete the study remotely.

7. Are there any risks in taking part?

The questionnaire measures will assess your feelings about paranoia and death, which are sensitive topics. If you experience any discomfort or distress when taking part, you should let Sophie Foster know immediately. Due to the nature of the conversation it is possible that some risk to yourself or others becomes apparent – for example, because you disclose that you are feeling very unwell – in which case you will be directed to services that may be able to provide you further support. We may alert your clinical team if we are worried about you but we will let you know before doing this.

8. What happens if I become distressed while taking part?

If you experience any emotional or physical distress when completing the study, you should let Sophie Foster know immediately. If you wish it, the study will be stopped and data destroyed. Appropriate support would be provided which may include emotional support or further signposting. The researcher would need to assess whether there was any immediate risk to yourself or others. If no immediate risk was identified, Sophie would be able to provide you with several numbers or services that could provide additional support. You may be advised to contact your clinical team for additional support. You will also be asked whether you would consent to your GP or mental health worker to be informed. The Principal Investigator Professor Peter Kinderman would also be informed to notify them that an adverse event has occurred. If there is an immediate risk to you or someone else, then the researcher will have a duty to ensure that you and others are safe and may contact emergency services. Following this, with your consent the researcher may contact your mental health team to inform them of this incident to ensure that they can provide you with additional support.

9. What if I disclose malpractice, potential harm to myself or someone else?

If you were to disclose information regarding malpractice and/or harm to yourself or someone else it may not be possible to maintain confidentiality and this information may need to be passed on to the appropriate service such as safeguarding, social services in line with trust policy. In the event of immediate risk of harm to yourself or someone the emergency services would be contacted. However, this will not be done without your knowledge.

10. Are there any benefits in taking part?

There are no intended immediate benefits to taking part in this project. However, we envisage that this study will help us better understand the psychological process that lead to paranoia and so our findings could inform future research into new forms of treatment.

11. Will my GP be informed of my involvement in this study?

It is your decision whether you would like your GP to be informed of your involvement in the study, and you be asked whether or not you consent to us writing to your GP to let them know you are taking part in the research and provide them some information about the nature of the study.

12. What will happen to the results of the study?

The results from the study will be used for Sophie Foster to write a thesis which is required as part of the University of Liverpool Doctorate in Clinical Psychology qualification. Furthermore, these results may also be used to write a paper which may be submitted for publication in a scientific journal. If the results are to be published, no participants will be identified and all participants will receive a letter with a copy of the publication.

13. What will happen if I want to stop taking part?

Participants have the right to withdraw their participation in the study up to one month after you have completed the study (before anonymisation) without explanation. Your data may still be used, if you are happy for this to be done. Otherwise you may request that your data are destroyed and no further use is made of them. Once the data are anonymised for the purposes of statistical analysis it will no be longer be possible to identify your data to destroy it.

If you would like to withdraw your information from the study please contact Sophie Foster on Sophie.Foster@liverpool.ac.uk.

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

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Professor Peter Kinderman +44 7941 252848 and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethics@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113

15. Who can I contact if I have further questions?

Principal Investigator
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e-mail: p.kinderman@liverpool.ac.uk

Student Investigator
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Programme University of Liverpool
L69 3GB
e-mail: Sophie.Foster@liverpool.ac.uk

Appendix G. Non-Clinical Participant Information Sheet

IRAS Project ID: 291762
Version number: V4
Version date: **20.12.2021**

Title: Understanding how self-esteem, personal relationships and a person's view about death and dying effects paranoid thinking.

V4, 20.12.21

You are being invited to participate in a research study which is being completed as part of a Doctorate in Clinical Psychology at the University of Liverpool. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask us if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends, relatives and GP if you wish. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

Thank you for reading this.

1. What is the purpose of the study?

Everyone has likely experienced thoughts about death or dying, however, for some people they may experience more worry about death or dying than others , and this is now commonly referred to as death anxiety. Little is known about the role of death anxiety in mental health difficulties however research has shown that it can increase feelings of anxiety and low mood. The aim of this research is examining how death anxiety impacts people who use mental health services and seeing if it contributes to feelings of paranoia. We also want to explore whether death anxiety is related to suspicious thinking in people who do not use mental health services. Additionally, we aim to examine how death anxiety and paranoid thinking impact how you experience relationship with other people in your life, experience of loneliness and self-esteem (the positive and negative beliefs you may have about yourself). Finally, this study will also investigate whether people who use mental health service experience more death anxiety than people who do not.

2. Why have I been chosen to take part?

We are aiming to recruit individuals who are not currently using mental health services because they are experiencing psychosis (which includes mental health difficulties such as 'schizophrenia' or 'bipolar disorder') to be in a comparison group. A second group of people who are currently using mental health services will also be recruited.

3. Do I have to take part?

Participation in this study is voluntary and you are free to withdraw at any time. If you decide to withdraw, you do not have to give us any reason for your decisions and withdrawing will not disadvantage you or affect your care in any way.

4. What will happen if I take part?

The study will be led by Sophie Foster, a Trainee Clinical Psychologist at the University of Liverpool This study will require the participant to complete eight questionnaire measures that will take around 45 minutes. The study will take place online via a video conferencing link. The questionnaires are about, whether you experience worry about death and dying, how you feel about close relationships, experience of loneliness, how you feel about yourself and the extent to which you feel paranoid at times. You will be provided with a consent form and you will be required to read and sign this form before the questionnaire measures are completed. Following this you will be asked to complete the questionnaires online via a link. Sophie Foster will remain present while you complete the measures in case you have any additional questions or require support. If you would prefer to complete the survey without a researcher present that may also be arranged. Once you've completed the study, we will answer any questions you may have about the survey and the questionnaires you have completed. If you would prefer to complete the survey without a researcher present, we can arrange a debrief session via telephone, face to face or video conferencing software to allow you to ask any question about the survey.

5. How will my data be used?

Your data will be anonymised (your name and any other identifying information will be removed from it) and combined with data from other participants before it is analysed. The University of Liverpool processes personal data as part of its research and teaching activities in accordance with the lawful basis of 'public Interest', and in accordance with the University's purpose of "advancing education, learning and research for the public benefit.

Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University's research. The Principal Investigator acts as the Data Processor for this study, and any queries relating to the handling of your personal data can

be sent to Professor Peter Kinderman (e-mail: p.kinderman@liverpool.ac.uk). Further information on how your data will be used can be found in the table below".

How will my data be collected?	Data will be collected via participants completing eight psychometric questionnaires.
How will my data be stored?	Data will be stored on a password protected laptop and encrypted excel file.
How long will my data be stored for?	Data will be stored for 10 years in line with the University of Liverpool's University Data management Policy.
What measures are in place to protect the security and confidentiality of my data?	All data will be appropriately anonymised and stored securely.
Will my data be anonymised?	Yes
How will my data be used?	Your data will be analysed and form part of a research study which will explore the role of death anxiety in paranoid thinking. This research study will also be submitted as a thesis as part of Doctorate in Clinical Psychology.
Who will have access to my data?	Professor Peter Kinderman and Sophie Foster
Will my data be archived for use in other research projects in the future?	No
How will my data be destroyed?	Data will be permanently deleted after 10 years in line with the University of Liverpool's University's Data-Management Policy.
What are my choices about my patient data?	You can stop being part of a research study at any time, without giving a reason. You may also request that your data is destroyed. You will have one month after participating in the study to request that your data is removed. However, after one month, your data will be anonymised and it will not be possible to locate your data to remove it. You can find out what would happen with your data before you agree to take part in a study.

Transferring data outside the EU

Personal data will not be transferred outside the EU.

6. Expenses and / or payments

You will have the option to be reimbursed with a voucher worth £9.50 for taking part in the study. Also, we will be able to reimburse you for any reasonable travel expenses if you are unable to complete the study remotely.

7. Are there any risks in taking part?

The questionnaire measures will assess your feelings about paranoia and death, which are sensitive topics. If you experience any discomfort or distress when taking part, you should let Sophie Foster know immediately. Due to the nature of the conversation it is possible that some risk to yourself or others becomes apparent – for example, because you disclose that you are feeling very unwell – in which case you will be directed to services that may be able to provide you further support.

8. What happens if I become distressed while taking part?

If you experience any emotional or physical distress when completing the study, you should let Sophie Foster know immediately. If you wish it, the study will be stopped and data destroyed. Appropriate support would be provided which may include emotional support or further signposting. The researcher would need to assess whether there was any immediate risk to yourself or others. If no immediate risk was identified, Sophie would be able to provide you with several numbers or services that could provide additional support. You may be advised to contact your GP for additional support. You will also be asked whether you would consent to your GP to be informed. The Principal Investigator Professor Peter Kinderman would also be informed to notify them that an adverse event has occurred. If there is an immediate risk to you or someone else, then the researcher will have a duty to ensure that you and others are safe and may contact emergency services. Following this, it may be necessary for the research to write to your GP to inform them of the incident to ensure they can provide you with additional support.

9. What if I disclose malpractice, potential harm to myself or someone else?

If you were to disclose information regarding malpractice and/or harm to yourself or someone else it may not be possible to maintain confidentiality and this information may need to be passed on to the appropriate service such as safeguarding, social services in line with trust policy. In the event of immediate risk of harm to yourself or someone the emergency services would be contacted. However, this will not be done without your knowledge.

10. Are there any benefits in taking part?

There are no intended immediate benefits to taking part in this project. However, we envisage that this study will help us better understand the psychological process that lead to paranoia and so our findings could inform future research into new forms of treatment.

11. What will happen to the results of the study?

The results from the study will be used for Sophie Foster to write a thesis which is required as part of the University of Liverpool Doctorate in Clinical Psychology qualification. Furthermore, these results may also be used to write a paper which may be submitted for publication in a scientific journal. If the results are to be published, no participants will be identified and all participants will receive a letter with a copy of the publication.

12. What would happen if my results showed any unexpected findings?

If your results indicated that you were experiencing high levels of psychological distress, for example paranoid thinking, we would contact you to discuss the findings. We would provide you with some additional signposting information and advise you contact your GP. We would also ask whether you would consent to us writing to your GP to inform them of the findings. However, you do not have to consent to this if you do not want to. Furthermore, you will be provided with a list of services who could provide you with additional support.

13. What will happen if I want to stop taking part?

Participants have the right to withdraw their participation in the study up to one month after you have completed the study (before anonymisation) without explanation. Your data may still be used, if you are happy for this to be done. Otherwise you may request that your data are destroyed and no further use is made of them. Once the data are anonymised for the purposes of statistical analysis it will no be longer be possible to identify your data to destroy it.

If you would like to withdraw your information from the study please contact Sophie Foster on Sophie.Foster@liverpool.ac.uk.

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

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Professor Peter Kinderman +44 7941 252848 and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethics@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113

15. Who can I contact if I have further questions?

Principal Investigator
Professor Peter Kinderman
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Appendix H. Clinical Consent Form

IRAS Project ID: 291762
Version number: V2
Version date: 15.05.2021

Clinical Participant Consent Form

Version number & date: V2 15.05.2021
Research ethics approval number:
Title of the research project: Understanding how self-esteem, personal relationships and a person's view about death and dying affects suspicious thinking.
Name of researcher(s): Professor Peter Kinderman, Professor Richard Bentall, Dr Paulo De Sousa and Sophie Foster

Please tick the box below

1. I confirm that I have read and have understood the information sheet Version two for the above study, or it has been read to me. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that taking part in the study involves me completing several questionnaire measures. ☐
3. I understand that my participation is voluntary and that I am free to stop taking part and can withdraw from the study at any time without giving any reason and without my rights being affected. In addition, I understand that I am free to decline to answer any particular question or questions. ☐
4. I understand that I can ask for access to the information I provide and I can request the destruction of that information if I wish at any time prior to anonymization which will take place one month after participation. I understand that following anonymization I will no longer be able to request access to or withdrawal of the information I provide. ☐
5. I understand that the information I provide will be held securely and in line with data protection requirements at the University of Liverpool until the Doctorate Viva. ☐
6. I understand that signed consent forms and original questionnaires will be retained at the University of Liverpool archive and will only be accessed by Professor Peter Kinderman or Sophie Foster for 10 years in line with the University of Liverpool's University's Data- Management Policy. ☐
7. I agree for my GP to be contacted to inform them I am taking part in the research Yes / NO
8. I agree for my GP to be contacted if any unexpected results are found in relation to my health. Yes / NO
9. If during the study I disclose malpractice, risk to myself or anyone else I am aware that confidentiality may be broken and the information passed on to the relevant outside agency which may include social services or adult safeguarding. ☐

☐

10. I agree to take part in the above study.

_____	_____	_____
Participant name	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

Principal Investigator
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Appendix I. Non-Clinical Consent Form

IRAS Project ID: 291762
Version number: V1
Version date: 15.05.2021

Non-Clinical Participant consent form

Version number & date: V2 15.05.2021
Research ethics approval number:
Title of the research project: Understanding how self-esteem, personal relationships and a person's view about death and dying affects suspicious thinking
Name of researcher(s): Professor Peter Kinderman, Professor Richard Bentall, Dr Paulo De Sousa and Sophie Foster

Please tick the box below

1. I confirm that I have read and have understood the information sheet Version two for the above study, or it has been read to me. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that taking part in the study involves me completing several questionnaire measures. ☐
3. I understand that my participation is voluntary and that I am free to stop taking part and can withdraw from the study at any time without giving any reason and without my rights being affected. In addition, I understand that I am free to decline to answer any particular question or questions. ☐
4. I understand that I can ask for access to the information I provide and I can request the destruction of that information if I wish at any time prior to anonymization which will take place one month after participation. I understand that following anonymization I will no longer be able to request access to or withdrawal of the information I provide. ☐
5. I understand that the information I provide will be held securely and in line with data protection requirements at the University of Liverpool until it Doctorate Viva. ☐
6. I understand that signed consent forms and original questionnaires will be retained at the University of Liverpool archive and will only be accessed by Professor Peter Kinderman or Sophie Foster for 10 years in line with the University of Liverpool's University's Data- Management Policy. ☐
7. I agree for my GP to be contacted if any unexpected results are found in relation to my health. Yes / NO
8. If during the study I disclose malpractice, risk to myself or anyone else I am aware that confidentiality may be broken and the information passed on to the relevant outside agency which may include social services or adult safeguarding. ☐

☐

9. I agree to take part in the above study.

_____	_____	_____
Participant name	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

Principal Investigator
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Appendix J. Templer Death Anxiety Scale

Templer Death Anxiety Scale (TDAS)

Please read the statement below and circle whether you believe this is true of false.

I am very much afraid to die	True	False
The thought of death seldom enters my mind.	True	False
It doesn't make me nervous when people talk about death.	True	False
I dread to think about having to have an operation.	True	False
I am not at all afraid to die.	True	False
I am not particularly afraid of getting cancer.	True	False
The thought of death never bothers me.	True	False
I am often distressed by the way time flies so very rapidly.	True	False
I fear of dying a painful death.	True	False
The subject of life after death troubles me greatly.	True	False
I am really scared of having a heart attack.	True	False
I often think about how short life really is.	True	False
I shudder when I hear people talking about World War III.	True	False
The sight of a dead body is horrifying to me.	True	False
I feel the future holds nothing for me to fear.	True	False

Appendix K. Disorganised Attachment in Adulthood Questionnaire

Disorganised Attachment in Adulthood Questionnaire

Please read each of the following statements carefully and indicate the extent to which they are true or false by circling a number on the scale.

Fear is a common feeling in close relationships.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I believe that romantic partners often try to take advantage of each other

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I never know who I am with romantic partners

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I find romantic partners to be rather scary.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

It is dangerous to trust romantic partners.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

It is normal to have traumatic experiences with the people you feel close to.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

Strangers are not as scary as romantic partners.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I could never view romantic partners as totally trustworthy.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

Compared with most people, I feel generally confused about romantic relationships.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

Appendix L. Self-Esteem Rating Scale

Self-Esteem Rating Scale (Short Form) (SERS (Lecomte et al., 2006)

This questionnaire is designed to measure how you feel about yourself. It is not a test, so there are no right or wrong answers. Please answer each item carefully and accurately as you can by using the following scale:

When I am with other people, I feel that they are glad I am with them

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that people really like to talk with me

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that my friends find me interesting

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that people have a good time when they are with me

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

My friends value me a lot

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel confident in my ability to deal with people

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that I have a good sense of humour

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that I am a very competent person

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel confident that I can begin new relationships if I want to

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I wish that I were someone else

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel inferior to other people

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I am afraid I will appear stupid to others

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I get angry at myself over the way I am

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that others do things much better than I do

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel ashamed about myself

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that if I could be more like other people, then I would feel better about myself

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I wish I could just disappear when I am around other people

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that I am likely to fail at things I do

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

I feel that I get pushed around more than others

1	2	3	4	5	6	7
Never	Rarely	A little of the time	Some of the time	A good part of the time	Most of the time.	Always

Appendix M. The Experience of Close Relationships Scale

The Experience of Close Relationships

Please read each of the following statements carefully and indicate the extent to which they are true or false by circling a number on the scale, 1 = strongly disagree and 7 = strongly agree.

I worry that people won't care about me as much as care about them.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I worry a fair amount about losing my relationships.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I worry about being abandoned.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I worry about being alone.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I need a lot of reassurance that I am loved by those close to me.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

If I can’t get those close to me to show interest in me, I get upset or angry.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I feel comfortable depending on others.R

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I usually discuss my problems and concerns with those close to me.R

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I tell those close to me just about everything.R

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I don’t mind asking others for comfort, advice, or help.R

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I don’t feel comfortable opening up to others.

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

I feel comfortable sharing my private thoughts and feelings with those I am close to.R

1 2 3 4 5 6 7

Strongly disagree **Strongly Agree**

Appendix N. The Launey Slade Hallucination Scale

The Launey Slade Hallucination Scale (Revised)

Please read each of the following statements carefully and indicate the extent to which they apply to you.

No matter how hard I try to concentrate, unrelated thoughts always creep into my mind

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

In my daydreams I can hear the sound of a tune almost as clearly as if I were actually listening to it.

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

Sometimes my thoughts seem as real as actual events in my life.

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

Sometimes a passing thought will seem so real that it frightens me

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

s I hea eams are ar and dis

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

The people in my daydreams seem so true to life that sometimes I think they are

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

I often hear a voice speaking my thoughts aloud

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

In the past, I have had the experience of hearing a person's voice and then found that no one was there.

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

On occasions, I have seen a person's face in front of me when no-one was in fact there

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

I have heard the voice of the Devil

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

In the past, I have heard the voice of God speaking to me

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

I have been troubled by hearing voices in my head

0	1	2	3	4
Certainty does not apply	Possibly does not apply	Unsure	Possibly applies to you	Certainly, applies to you

Appendix O. The Persecution and Deservedness Scale

The 10-item Persecution and Deservedness Scale

Please read each of the following statements carefully and indicate the extent to which they are true or false by circling a number on the scale.

There are times when I worry that others might be plotting against me.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

I often find it hard to think of anything other than the negative ideas others have about me.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

My friends/others often tell me to relax and stop worrying about being deceived or harmed.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

Every time I meet someone for the first time, I'm afraid they've already heard bad things about me.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

I'm often suspicious of other people's intentions towards me

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

Sometimes, I just know that people are talking critically about me.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

There are people who think of me as a bad person.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

People will almost certainly lie to me

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

I believe that some people want to hurt me deliberately.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

You should only trust yourself.

0	1	2	3	4
Certainly False	**Possibly False**	**Unsure**	**Possibly True**	**Certainly True**

Appendix P. The Three Item Loneliness Scale

Three-Item Loneliness Scale

The next questions are about how you feel about different aspects of your life. For each one, tell me how often you feel that way.

Question 1. First, how often do you feel that you lack companionship: Hardly ever, some of the time, or often?

Hardly Ever = 1 Some of the time = 2 Often = 3

Question 2. How often do you feel left out: Hardly ever, some of the time, or often?

Hardly Ever = 1 Some of the time = 2 Often = 3

Question 3. How often do you feel isolated from others? (Is it hardly ever, some of the time, or often?)

Hardly Ever = 1 Some of the time = 2 Often = 3

Appendix Q. Power Calculations using G*Power

Sample Size Calculations

G*power was used to calculate the sample size. To detect an effect size on a regression model with four predictors (f2=0.15) with power of .80 and error probability of .05, a total sample size of 85 is required. Therefore, a minimum of 85 clinical and non-clinical participants will be recruited to perform a regression analysis explores the relationship between death anxiety, self-esteem, and anxiety on paranoid ideation. If we are able to recruit 51 clinical participants a secondary analysis will be completed. A MANOVA will be used to compare attachment, self-esteem, death anxiety and paranoia in clinical and non-clinical populations. To detect and effect size with a MANOVA model with 2 groups and 4 response variables (F2 =.125) with power of .80 and error probability of .05 a total sample size of 102 is required, 51 clinical and 51 non-clinical.

Appendix R. Doctorate Research Council Confirmation

Sophie Foster
Clinical Psychology Trainee
Doctorate of Clinical Psychology Doctorate Programme
University of Liverpool
L69 3GB

D.Clin.Psychology Programme
Division of Clinical Psychology
Whelan Building, Quadrangle
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Tel: 0151 794 5530/5534/5877
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www.liv.ac.uk/dclinpsychol

25 October 2021

RE: The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation
Trainee: *Sophie Foster*
Supervisors: Peter Kinderman, Richard Bentall and Paulo De Sousa

Dear Sophie,

Thank you for your notification of amendment to your proposal submitted to the Chair of the D.Clin.Psychol. Research Review Committee.

I can now confirm that your amended proposal (*version number 3, dated 21.09.21)* and budget meet the requirements of the committee and have been approved by the Committee Chair.

Please take this Chairs Action decision as ***final*** approval from the committee.

You may now progress to the next stages of your research.

I wish you well with your research project.

SGillespie

Dr Steven Gillespie
Vice Chair D.Clin.Psychol. Research Review Committee

Prof Peter Kinderman
Institute of Psychology, Health and Society
University of Liverpool

Miss Karen Wilding
Senior Clinical Research Governance Manager

Clinical Directorate
4th Floor Thompson Yates Building
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Liverpool L69 3GB

Tel: 07717 863747
Email: sponsor@liv.ac.uk

28 September 2021

Sponsor Ref: UoL001620

Re: Sponsor Permission to Proceed notification

"The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation (Death Anxiety and Paranoia)"

Dear Professor Kinderman

All necessary documentation and regulatory approvals have now been received by the University of Liverpool Research Support Office in its capacity as Sponsor, and we are satisfied that all Clinical Research Governance requirements have been met. You may now proceed with any study specific procedures to open the study.

The following REC Approved documents have been received by the Research Support Office. Only these documents can be used in the recruitment of participants. If any amendments are required please contact the Research Support Office.

Document title	Version	Date
Research Protocol	2	15 May 2021
Clinical PIS	2	14 May 2021
Non Clinical PIS	1	14 May 2021
Clinical Consent Form	2	15 May 2021
Non Clinical Consent Form	1	15 May 2021
GP Letter	1	22 March 2021
Signposting Information	1	
Debrief From	2	13 June 2021
Demographic Data Form	1	13 June 2021
SAE Form	1	15 May 2021
Validated questionnaire – Death Anxiety Scale		

Validated questionnaire – Disorganised Attachment in Adulthood Questionnaire		
Validated questionnaire – Experience of Close Relationships		
Validated questionnaire – Persecution and Deservedness Scale		
Validated questionnaire – Relationship Questionnaire		
Validated questionnaire – Self-esteem Rating Scale		
Validated questionnaire – The Launey Slade hallucination scale		

Please note, under the terms of your Sponsorship you must;

1. Gain NHS Confirmation of Capacity and Capability/Site Permission from each participating site before recruitment begins at that site;

2. Ensure all required contracts are fully executed before recruitment begins at any site;

3. Inform the Research Support Office as soon as possible of any adverse events especially SUSARs and SAEs, Serious Breaches to protocol or relevant legislation or any concerns regarding research conduct (as per *SOP007)*;

4. Approval must be gained from the Research Support Office for any amendments to, or changes of status in the study prior to submission to REC and any other regulatory authorities (as per SOP018);

5. It is a requirement that Annual Progress Reports are sent to the NHS Research Ethics Committee (REC) annually following the date of Favourable Ethical Approval. You must provide copies of any reports submitted to REC and other regulatory authorities to the Research Support Office. You must also provide copies of any reports submitted to Ethics Committees and any other regulatory authorities to the Research Support Office (as per SOP006);

6. Maintain the study master file (as per SOP005);

7. Make available for review any study documentation when requested by the sponsors and regulatory authorities for the purposes of audit or inspection (as per *SOP002*);

8. Upon the completion of the study it is a requirement to submit an End of Study Declaration (within 90 days of the end of the study) and End of Study Report to REC (within 12 months of the end of the study). You must provide copies of this to the Research Support Office. You

must also provide copies of any reports submitted to Ethics Committees and any other regulatory authorities to the Research Support Office (as per SOP021);

9. Ensure you and your study team are up to date with the current RSO SOPs throughout the duration of the study.

If you have any queries regarding the sponsorship of the study please do not hesitate to contact the Clinical Research Governance Team on 0151 794 8373 (email sponsor@liverpool.ac.uk).

Yours sincerely

Miss Karen Wilding

Senior Clinical Research Governance Manager

Appendix T. Initial HRA and REC Approval Email

Dear Professor Kinderman

RE: IRAS 291762 The role of death anxiety, self-esteem and attachment in paranoia V(1). HRA & HCRW Approval issued

Please find attached your HRA and HCRW letter of Approval.

Please also find attached your REC Favourable Opinion letter. Please note, the standard conditions referenced in your REC favourable opinion letter as being attached ("After ethical review – guidance for researchers") can now be accessed through the HRA website.

You may now commence your study at those participating NHS organisations in England and Wales that have confirmed their capacity and capability to undertake their role in your study (where applicable). Detail on what form this confirmation should take, including when it may be assumed, is provided in the HRA and HCRW Approval letter.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: https://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

If you have any queries please do not hesitate to contact me.

Kind regards

Matt Rogerson

Approvals Specialist

Ground Floor | Skipton House | Health Research Authority | SE1 6LH

T. 02071048127

E. socialcare.rec@hra.nhs.uk

W. www.hra.nhs.uk

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Appendix U. HRA Approval Letter

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Professor Peter Kinderman
Department of Primary Care and Mental Health,
University of Liverpool
Waterhouse Building,
L69 3GL

Email: approvals@hra.nhs.uk
HCRW.approvals@wales.nhs.uk

19 August 2021

Dear Professor Kinderman

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

Study title:	**The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation V(1.0)**
IRAS project ID:	**291762**
Protocol number:	**UoL001620**
REC reference:	**21/IEC08/0013**
Sponsor	**University of Liverpool**

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.

List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

Document	*Version*	*Date*
GP/consultant information sheets or letters [Letter to GP]	V1	22 March 2021
IRAS Application Form [IRAS_Form_08042021]		08 April 2021
IRAS Application Form XML file [IRAS_Form_08042021]		08 April 2021
Letter from sponsor [Sponsor Approval Letter]	V1	22 March 2021
Organisation Information Document [Organisation Information]	V1	31 March 2021
Other [V1 Data Management Guidance]		
Other [V1 Debrief Form]	V2	13 June 2021
Other [V1 Signposting Information]		
Other [V1 Demographic Data Form]	V1	13 June 2021
Other [V1 SAE Form]	V1	15 May 2021
Other [Letter to REC]		23 June 2021
Other [IRAS Corrections]	V1	23 June 2021
Other [Death Anxiety and Paranoia Review]	V1	15 May 2021
Participant consent form [V1 Non-Clinical CF]	V1	15 May 2021
Participant consent form [V2 Clinical CF]	V2	15 May 2021
Participant consent form [Non Clinical PIS]	V1	14 May 2021
Participant information sheet (PIS) [Clinical PIS]	V2	14 May 2021
Research protocol or project proposal [V2 Non CTIMP Protocol]	V2	15 May 2021
Summary CV for Chief Investigator (CI) [CI's Summary CV]	V1	05 March 2021
Summary CV for supervisor (student research) [De Sousa CV]		
Summary CV for supervisor (student research) [Bentall CV]		
Summary CV for supervisor (student research) [V1 CV Sophie Foster]		
Validated questionnaire [Death Anxiety Scale]		
Validated questionnaire [Disorganised Attachment in Adulthood Questionnaire]		
Validated questionnaire [Experience of Close Relationships]		
Validated questionnaire [Persecution and Deservedness Scale]		
Validated questionnaire [Relationship Questionaire]		
Validated questionnaire [Self-Esteem Rating Scale (Short Form)]		
Validated questionnaire [The Launey Slade Hallucination Scale (Revised)]		

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 **291762**. Please quote this on all correspondence.

Yours sincerely,
Matt Rogerson
Approvals Specialist
Email: approvals@hra.nhs.uk

Copy to: *Dr Neil French*

IRAS project ID	291762

Information to support study set up

The below provides all parties with information to support the arranging and confirming of capacity and capability with participating NHS organisations in England and Wales. This is intended to be an accurate reflection of the study at the time of issue of this letter.

Types of participating NHS organisation	Expectations related to confirmation of capacity and capability	Agreement to be used	Funding arrangements	Oversight expectations	HR Good Practice Resource Pack expectations
All sites will perform the same research activities therefore there is only one site type.	Research activities should not commence at participating NHS organisations in England or Wales prior to their formal confirmation of capacity and capability to deliver the study.	An Organization information Document has been submitted and the sponsor is not requesting and does not expect any other site agreement to be used.	No study funding will be provided to sites as per the Organization information Document	A Principal Investigator should be appointed at study sites	No Honorary Research Contracts, Letters of Access or pre-engagement checks are expected for local staff employed by the participating NHS organisations. Where arrangements are not already in place, research staff not employed by the NHS host organisation undertaking any of the research activities listed in the research application would be expected to obtain a Letter of Access based on standard DBS checks and occupational health clearance.

Other information to aid study set-up and delivery

This details any other information that may be helpful to sponsors and participating NHS organisations in England and Wales in study set-up.
The applicant has indicated that they do not intend to seek inclusion on the NIHR LCRN Portfolio.

Appendix V. REC approval Letter

NHS
Health Research Authority
Social Care REC
Ground Floor
Skipton House
80 London Road
London
SE1 6LH

Telephone: 0207 104 8018

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

19 August 2021

Professor Peter Kinderman
Department of Primary Care and Mental Health,
University of Liverpool
Waterhouse Building,
L69 3GL

Dear Professor Kinderman,

Study title:	**The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation V(1.0)**
REC reference:	**21/IEC08/0013**
Protocol number:	**UoL001620**
IRAS project ID:	**291762**

Thank you for your letter of 23rd July 2021, responding to the Research Ethics Committee's (REC) request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a **favourable ethical opinion** for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Good practice principles and responsibilities

The UK Policy Framework for Health and Social Care Research sets out principles of good practice in the management and conduct of health and social care research. It also outlines the

responsibilities of individuals and organisations, including those related to the four elements of research transparency:

1. registering research studies
2. reporting results
3. informing participants
4. sharing study data and tissue

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All research should be registered in a publicly accessible database and we expect all researchers, research sponsors and others to meet this fundamental best practice standard.

It is a condition of the REC favourable opinion that **all clinical trials are registered** on a publicly accessible database within six weeks of recruiting the first research participant. For this purpose, 'clinical trials' are defined as the first four project categories in IRAS project filter question 2. Failure to register a clinical trial is a breach of these approval conditions, unless a deferral has been agreed by or on behalf of the Research Ethics Committee (see here for more information on requesting a deferral: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/research-registration-research-project-identifiers/

If you have not already included registration details in your IRAS application form, you should notify the REC of the registration details as soon as possible.

Further guidance on registration is available at: https://www.hra.nhs.uk/planning-and-improving-research/research-planning/transparency-responsibilities/

Publication of Your Research Summary

We will publish your research summary for the above study on the research summaries section of our website, together with your contact details, no earlier than three months from the date of this favourable opinion letter.

Should you wish to provide a substitute contact point, make a request to defer, or require further information, please visit:
https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/

N.B. If your study is related to COVID-19 we will aim to publish your research summary within 3 days rather than three months.

During this public health emergency, it is vital that everyone can promptly identify all relevant research related to COVID-19 that is taking place globally. If you haven't already done so, please register your study on a public registry as soon as possible and provide the REC with the registration detail, which will be posted alongside other information relating to your project. We are also asking sponsors not to request deferral of publication of research summary for any projects relating to COVID-19. In addition, to facilitate finding and extracting studies related to COVID-19 from public databases, please enter the WHO official acronym for the coronavirus disease (COVID-19) in the full title of your study. Approved COVID-19 studies can be found at:
https://www.hra.nhs.uk/covid-19-research/approved-covid-19-research/

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

After ethical review: Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study, including early termination of the study
- Final report
- Reporting results

The latest guidance on these topics can be found at
https://www.hra.nhs.uk/approvals-amendments/managing-your-approval/.

Ethical review of research sites

NHS/HSC sites

The favourable opinion applies to all NHS/HSC sites taking part in the study, subject to confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or management permission (in Scotland) being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
GP/consultant information sheets or letters [Letter to GP]	V1	22 March 2021
IRAS Application Form [IRAS_Form_08042021]		08 April 2021
IRAS Application Form XML file [IRAS_Form_08042021]		08 April 2021
Letter from sponsor [Sponsor Approval Letter]	V1	22 March 2021
Organisation Information Document [Organisation Information]	V1	31 March 2021
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Other [V1 Demographic Data Form]	V1	13 June 2021
Other [V1 Debrief Form]	V2	13 June 2021
Other [V1 SAE Form]	V1	15 May 2021
Other [V1 Signposting Information]		
Other [Letter to REC]		23 June 2021
Other [IRAS Corrections]	V1	23 June 2021
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Participant consent form [V2 Clinical CF]	V2	15 May 2021
Participant consent form [Non Clinical PIS]	V1	14 May 2021
Participant information sheet (PIS) [Clinical PIS]	V2	14 May 2021
Research protocol or project proposal [V2 Non CTIMP Protocol]	V2	15 May 2021
Summary CV for Chief Investigator (CI) [CI's Summary CV]	V1	05 March 2021
Summary CV for supervisor (student research) [De Sousa CV]		
Summary CV for supervisor (student research) [Bentall CV]		
Summary CV for supervisor (student research) [V1 CV Sophie Foster]		
Validated questionnaire [Death Anxiety Scale]		
Validated questionnaire [Disorganised Attachment in Adulthood Questionnaire]		
Validated questionnaire [Experience of Close Relationships]		
Validated questionnaire [Persecution and Deservedness Scale]		
Validated questionnaire [Relationship Questionaire]		
Validated questionnaire [Self-Esteem Rating Scale (Short Form)]		
Validated questionnaire [The Launey Slade Hallucination Scale (Revised)]		

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at:
https://www.hra.nhs.uk/planning-and-improving-research/learning/

IRAS project ID: 291762	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely
pp

Dr Martin Stevens
Chair

Email:socialcare.rec@hra.nhs.uk

Enclosures: "After ethical review – guidance for researchers" *[SL-AR2]*

Appendix W. HRA Confirmation of final amendment 2

Dear Professor Kinderman

IRAS project ID:	291762
REC reference:	21/IEC08/0013
Short Study title:	The role of death anxiety, self-esteem and attachment in paranoia V(1)
Date complete amendment submission received:	06 December 2021
Amendment No./ Sponsor Ref:	Amendment 2 UoL001620
Amendment Date:	03 December 2021
Amendment Type:	**Substantial**
Outcome of HRA Assessment	**This email also constitutes HRA and HCRW Approval for the amendment, and you should not expect anything further.**

I am pleased to confirm that this amendment has been reviewed by the Research Ethics Committee and has received a Favourable Opinion. Please find attached a copy of the Favourable Opinion letter.

HRA and HCRW Approval Status

As detailed above, **this email also constitutes HRA and HCRW Approval for the amendment**. No separate confirmation of HRA and HCRW Approval will be issued.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.ntil HRA and HCRW Approval is issued.

If you require further information, please contact me.

Kind regards

Dayheem Sedighi
2nd Floor | 2 Redman Place | Health Research Authority | E20 1JQ
E. socialcare.rec@hra.nhs.uk
W. www.hra.nhs.uk

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Appendix X. REC Confirmation of final amendment 2

NHS
Health Research Authority

Social Care REC
2nd Floor
2 Redman Place
Stratford
London
E20 1JQ

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

21 December 2021

Dear Professor Peter Kinderman

Study title:	**The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation V(1.0)**
REC reference:	**21/IEC08/0013**
Protocol number:	**UoL001620**
Amendment number:	**Amendment 2 UoL001620**
Amendment date:	**03 December 2021**
IRAS project ID:	**291762**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Completed Amendment Tool [Amendment Tool (Sponsor)]	V1	03 December 2021
Copies of materials calling attention of potential participants to the research [Clinical Recruitment Leaflet]	V1	23 November 2021
Copies of materials calling attention of potential participants to the research [Study Invitation Letter]	2	20 December 2021

Participant information sheet (PIS) [Non Clinical PIS V4 20.12.21]	4	20 December 2021
Participant information sheet (PIS) [V5 20.12. 2021 Clinical PIS]	5	20 December 2021
Research protocol or project proposal [Study Protocol]	V4	24 November 2021

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Amendments related to COVID-19

We will update your research summary for the above study on the research summaries section of our website. During this public health emergency, it is vital that everyone can promptly identify all relevant research related to COVID-19 that is taking place globally. If you have not already done so, please register your study on a public registry as soon as possible and provide the HRA with the registration detail, which will be posted alongside other information relating to your project.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

IRAS Project ID - 291762:	**Please quote this number on all correspondence**

Yours sincerely

pp
Dr Martin Stevens
Chair

E-mail: socialcare.rec@hra.nhs.uk

Enclosures: *List of names and professions of members who took part in the review*

Copy to:

Social Care REC

Attendance at Sub-Committee of the REC meeting on 17 December 2021

Committee Members:

Name	*Profession*	*Present*	*Notes*
Dr Geraldine Boyle	Senior Lecturer	Yes	
Dr Martin Stevens	Senior Research Fellow	Yes	

Also in attendance:

Name	*Position (or reason for attending)*
Mr Dayheem Sedighi	Approvals Administrator

Appendix Y. Initial CWP Confirmation

NHS
Cheshire and Wirral Partnership
NHS Foundation Trust

Research Office
Churton House
Countess of Chester Health Park
Liverpool Road
Chester
CH2 1BQ

Tel: 0151 488 7326
Email: phil.elliott@nhs.net

Standardised Process for Electronic Approval of Research

15th September, 2021

Sophie Foster
c/o Department of Primary Care and Mental Health,
University of Liverpool
Waterhouse Building,
L69 3GL

Dear Sophie,

Re: NHS Permission for Research

Project Title: The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation.
Sponsor: University of Liverpool
SPEAR: 1592

Further to your request for permission to conduct the above research study at this Trust, we are pleased to inform you that this Trust has given NHS permission for the research to proceed.

Your NHS permission to conduct research at this site is only valid upon receipt of a signed 'Conditions for NHS Permission Reply Slip' which is enclosed.

Please take the time to read the attached conditions for NHS permission. Please contact the Research Office should you require any further information. You will need this letter as proof of NHS permission.

NHS permission for the above research has been granted on the basis described in your university application form and supporting documentation.

The documents reviewed were:

- Protocol, v2, 15/05/2021
- Information sheet, v2, 14/05/2021

- Consent form, v2, 15/05/2021
- Health Research Authority/Research Ethics Committee application and approval, 19/08/21, IRAS 291762. Ref: UoL001620

Permission is granted on the understanding that the study is conducted in accordance with the Research Governance Framework, ICH GCP (if applicable), and NHS Trust policies and procedures. Permission is only granted for the activities for which a favourable opinion has been given by the Ethics Committee (where appropriate).

May I wish you every success with your research.

Yours sincerely,

Phil Elliott

Dr Phil Elliott
Senior Research Facilitator on Behalf of:

PP Dr Pat Mottram
Research and Effectiveness Manager

Enc: Approval Conditions Leaflet

NHS
Cheshire and Wirral Partnership
NHS Foundation Trust

Study Title: The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation.

Conditions for NHS Permission Reply Slip: ***for reference only.***

In order for your NHS permission to be valid, please return this form to the address below to confirm that you have read and understood the conditions of NHS permission to conduct research.

1. I confirm that I have read and understand my duties and responsibilities as part of the conditions for permission to conduct research at this site.
2. I understand that I must submit the following information to the Trust's R&D department:
    - Recruitment figures on a monthly basis
    - New researcher details prior to them commencing on the research project
    - Any amendments submitted to the Ethics Committee
    - Changes to the status of the research project
    - Any urgent safety measure incorporated
    - Untoward Incidents and Unexpected Events within 24 hours of their occurrence
    - A final summary report
    - A copy of the Ethics letter confirming receipt of the End of Study Declaration
3. I understand I must complete and return in a timely manner any audit forms sent to me by the Trust.
4. I understand that I must gain permission from the Trust in order to publish or place information of the current research into the public domain.

Appendix Z. Final CWP Confirmation

NHS
Cheshire and Wirral Partnership
NHS Foundation Trust

Research Office
Churton House
Countess of Chester Health Park
Liverpool Road
Chester
CH2 1BQ

Tel: 0151 488 7326
Email: phil.elliott@nhs.net

Standardised Process for Electronic Approval of Research

15th September, 2021, updated v2, 19th January, 2022

Sophie Foster
c/o Department of Primary Care and Mental Health,
University of Liverpool
Waterhouse Building,
L69 3GL

Dear Sophie,

Re: NHS Permission for Research - Amendment

Project Title: The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation.
Sponsor: University of Liverpool
SPEAR: 1592

Further to your request for permission to conduct the above research study at this Trust, we are pleased to inform you that this Trust has given NHS permission for the research to proceed, with Amendment 2.

NHS permission for the above research has been granted on the basis described in your university application form and supporting documentation for Amendment 2.

The amended documents reviewed were:

- Protocol, v4, 24/11/2021
- Information sheet, v5, 20/12/2021 (clinical), v4, 20/12/2021 (non-clinical)
- Health Research Authority/Research Ethics Committee amendment 2 application and approval, 21/12/2021, IRAS 291762. Ref: UoL001620

Permission is granted on the understanding that the study is conducted in accordance with the Research Governance Framework, ICH GCP (if applicable), and NHS Trust policies

and procedures. Permission is only granted for the activities for which a favourable opinion has been given by the Ethics Committee (where appropriate).

May I wish you every success with your research.

Yours sincerely,

Phil Elliott

Dr Phil Elliott
Senior Research Facilitator on Behalf of:

PP Dr Pat Mottram
Research and Effectiveness Manager

Enc: Approval Conditions Leaflet

Appendix AA. Mersey Care Confirmation

From: Karen Bruce
Sent: 24 September 2021 15:57
To: 'pjk1@liverpool.ac.uk' <pjk1@liverpool.ac.uk>; 'Kinderman, Peter' <P.Kinderman@liverpool.ac.uk>
Cc: 'R.Bentall@sheffield.ac.uk' <R.Bentall@sheffield.ac.uk>; 'Sophie.Foster@liverpool.ac.uk' <Sophie.Foster@liverpool.ac.uk>; Paulo De Sousa <Paulo.deSousa@merseycare.nhs.uk>; 'sponsor@liv.ac.uk' <sponsor@liv.ac.uk>; Claire Seddon (Psychology Lead) <Claire.Seddon@merseycare.nhs.uk>; James Dixon <James.Dixon@merseycare.nhs.uk>; Pauline Parker <pauline.parker@merseycare.nhs.uk>; Anna Pearson <anna.pearson@merseycare.nhs.uk>
Subject: 2021/30 Kinderman: Mersey Care NHS Foundation Trust - Confirmation of Capacity and Capability

Dear Professor Kinderman

Confirmation of Capacity and Capability

Trust ref	2021/30
Chief Investigator	Professor Peter Kinderman
Student	Miss Sophie Foster
Full title	The role of death anxiety, self-esteem and attachment in subclinical and clinical paranoid ideation V(1.0)
IRAS	291762
REC Ref:	21/IEC08/0013
HRA approval	19th August, 2021
Sponsor	University of Liverpool
End date	31/05/2022

This email confirms that Mersey Care NHS Foundation Trust has the capacity and capability to deliver the study within the Trust.

Dr Paulo De Sousa, Clinical Psychologist, Early Intervention Service has confirmed service support.

The trust has not agreed a recruitment figure but will use its best endeavours to help you recruit as many as possible.

Due to COVID19 restrictions, If your study involves direct contact with service users/staff./carers, you must liaise with the Divisional service contacts and follow their advice which will be based on the latest Divisional guidelines regarding any planned face-to-face contacts or visiting.

The trust agrees to start this study on Friday 24th September, 2021.

This support is subject to the research team adhering to all statements in the IRAS application. In order to securely protect participant information and comply with Data Protection Act legislation it is vital that any personal identifiable information is held as per IRAS application. Dropbox accounts should never be used to store personal information as they do not provide adequate security and are hosted outside the

European Union. Any potential data breach must be reported immediately to the Trust. If you are unsure about using, storing or sharing information please contact the R&D team in the first instance on 0151 471 2638 for advice.

Amendments
Please note it is the CI's responsibility to ensure the R&D department is informed in a timely manner when amendments have been submitted and provided with a summary of the amendment and any updated documentation. For information regarding how to notify the trust of any amendments to your study please refer to the amendments guidance found on the HRA website: https://www.hra.nhs.uk/approvals-amendments/amending-approval

Annual monitoring
The trust asks research teams to provide annual updates for all open studies at year end (31st March). In February 2021 you will be sent the trust's monitoring form for completion and return.

Event reporting
You are reminded you must report any adverse event or incident whether or not you feel it is serious, quoting the study reference number. This requirement is in addition to informing the Chairman of the relevant Research Ethics Committee.

Extension
If you require any extension to the project, please inform the department. For further information regarding notification of amendments, please visit: http://www.hra.nhs.uk/research-community/during-your-research-project/amendments.

Publication
The Trust supports the publication and dissemination of study results to relevant wider audiences but requests that this be completed in a timely manner. Whilst the Trust appreciates that the time taken to analyse results and write up findings for publication can be lengthy, we request this is completed within 2 years of the end of data collection. This allows for a real time and current representation of the service which is imperative given the continuous aim of striving for Perfect Care that Mersey Care NHS Foundation aspires to.

Mersey Care Evidence Services can provide support to *Trust members* when they undertake research, evaluations or QI projects to encourage publication of your findings. Trust staff, service users and carers carrying out research commissioned by the trust or staff carrying out research for educational purposes can contact the team at library@merseycare.nhs.uk to find out how they can help you.

We look forward to working with you to successfully deliver this study.

If you wish to discuss further, please do not hesitate to contact myself or Karen.

Kind regards,

Pauline

Pauline A Parker ‖ Research Lead ‖ R&D Department ‖ Building V7 ‖ Mersey Care NHS Foundation Trust Offices ‖
Kings Business Park ‖ Prescot ‖ Merseyside ‖ L34 1PJ ‖
Tel: 0151 471 2265 **Please note: telephone does not have voicemail**
Email: Pauline.parker@merseycare.nhs.uk

Karen Bruce
Research & Development Assistant
Research & Development Department
Mersey Care NHS Foundation Trust
Maghull Health Campus
Parkbourn
Maghull Merseyside L31 1HW

Tel: 0151 471 2638 (voicemail available)
My work days are Tue – Fri
Karen.bruce@merseycare.nhs.uk

What impact is coronavirus having on your mental health and wellbeing?

Can you spare 15 minutes to complete a questionnaire to help increase our understanding of how coronavirus and restrictions/lockdown is affecting people? The survey is open to anyone aged 16+.
This is the 3rd phase of recruitment. If you took part in previous phases - you are still able to take part in the 3rd phase. If you did not take part in previous phases - you are still able to take part in the 3rd phase.
Please select **Mersey Care NHS Foundation Trust** when asked where you heard about the survey.

Access the survey here

Or paste this link into a search engine: https://southernhealthnhs.fra1.qualtrics.com/jfe/form/SV_7VfclSTO2zib1JQ

Or use the QR Code:

Thank you

Appendix BB. Mersey Care Email confirmation

Karen Bruce Karen.Bruce@merseycare.nhs.uk
Tue 02/11/2021 08:52
To: Foster, Sophie [hlsfost2]

Dear Sophie,

Amendment 1 Date: 24th September 2021
REC approval: 19th October 2021

Thank you for forwarding details of the above amendment. Please take this email as confirmation of Mersey Care NHS Foundation
Trust's continued capacity and capability to host the study and the amendment can be implemented immediately.

Please ensure that all study personnel, including those in support departments, are aware of the amendment and have the
latest version documentation.

Any revised versions of study documents, listed as Approved Documents in the REC/HRA favourable opinion letter, should now be used and all superseded versions marked as such in the Investigator Site File.

Please note that you may only implement changes that were described in the amendment notice or letter.

Kind regards

Karen Bruce
Research & Development Assistant
Research & Development Department
Mersey Care NHS Foundation Trust
Maghull Health Campus
Parkbourn
Maghull Merseyside L31 1HW

Tel: 0151 471 2638 (voicemail available)
My work days are Tue – Fri
Karen.bruce@merseycare.nhs.uk

Appendix CC. Mersey care Confirmation of final amendment 2
Appendix DD. Debrief Form

IRAS Project ID: 291762
Version number: V2
Version date: 13.06.2021

UNIVERSITY OF LIVERPOOL

Debrief Form

Thank you for participating in this study

Study: The role of death anxiety, attachment and self-esteem in paranoid thinking

Researchers: Sophie Foster, Professor Peter Kinderman, Professor Richard Bentall and Dr Paulo De Sousa.

We would like to thank you for giving up your time to participate in this study.

Purpose of the Study:

The aim of this study was to examine the whether there is a link between fear of death and paranoid thinking. Other research has shown that people who are more worried about death experience more mental health difficulties. We also wanted to explore how these beliefs around death and paranoia are influenced by early relationships with carers (attachment figures such as mothers and fathers) and thoughts and feelings about ourselves.

We hope that this research will help improve our ability to understand and help people who suffer from paranoid feelings and beliefs.

What If I experience distressed after completing the study?

If you feel upset after having completed the study or find that some questions or aspects of the study were distressing, talking with a qualified clinician or counselor may help. If you feel you would like assistance, please contact see list of several services and organization you can contact for support.

Right to withdraw data

You may choose to withdraw the data you provided prior to debriefing, without penalty or loss of benefits to which you are otherwise entitled. Please contact the researcher Sophie Foster (Sophie.Foster@liverpool.ac.uk) if you would like to withdraw your data. Please note due to the anonymization process it will not be possible to withdraw your data after one month of completing the study.

If you have questions

The main researcher conducting this study is Sophie Foster, a Trainee Clinical Psychologist at the University of Liverpool's Clinical Psychology Department. If you have any additional questions that cannot be answered by Sophie Foster, please contact the Professor Peter Kinderman (Principle Investigator) via telephone +44 7941 252848 or email p.kinderman@liverpool.ac.uk.

Can I receive a copy of the final report?

If you would like to receive a copy of the final report of this study or a summary of the findings when it is completed, please feel free to contact the researcher.

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

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Professor Peter Kinderman +44 7941 252848 and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethics@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make. The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.

Appendix EE. Signposting Information Sheet

Signposting Information

Where can I get additional support if I have concerns about my mental health or wellbeing?

Geographical Location	Name of Service/ Organisation	Information	Contact Details
Chester and Wirral	Cheshire and Wirral Partnership	Cheshire and Wirral Partnership (CWP), has a mental health helpline for residents of Cheshire and Wirral. Open 24 hours a day, seven-days a week, it is open to people of all ages including children and young people who need urgent mental health support.	Helpline: 0800 145 6485
Chester	ReThink Mental Illness: Chester Support Group	The Chester Support Group has been running since 2013 and provides an opportunity for people with lived experience of mental illness to come together and receive peer support. The group is entirely peer led, run by volunteers who have our own personal experience of mental illness, many of whom have made lifelong friendships. Today we run our weekly Monday Drop In, which starts with our breakfast club (10.00-11.30am) where we offer a bacon and egg sandwich, toast or a healthy option. The drop in continues until 3.00pm where people take part in arts and crafts activities, playing board games and sharing our experiences of mental	(M) 07922 670521 (group) chestersupportgroup@rethink.org Last updated: 09/05/2021

		illness. On the third Monday of the month we have our evening support group (6.00-8.00pm) where we offer similar activities. We also run a Guitar Group with separate sessions for beginners and more experienced players (please contact us for details).	
Chester	Number 71 Crisis Café	We are a non-judgemental, calm and creative space offering non-clinical crisis support both in person and on the phone. Our service is for anyone 18+ experiencing a self-defined crisis/feeling distressed in Cheshire West and Chester. Please note, we are unable to offer support to anyone under the influence of drugs/alcohol. We also have a very varied activity schedule, all aiming towards building resilience and improving wellbeing/mental health.	Address Number 71 Crisis Café, No. 71 St Anne Street, Newtown,, Chester, CH1 3HT When is it on: Open everyday 10am-midnight
All locations	Samaritans	Struggling to cope with everyday life doesn't look or feel the same in everyone. We can't generalise about how it'll make you feel or act. Samaritans are here to listen.	Call free on 116 123 for support or email jo@samaritans.org
Liverpool	Samaritans Liverpool Branch	You can call Samaritans if you need to talk or even if you feel you have nothing to say. There is always someone on the end of the line that is there for you.	Give the Liverpool team a call on 0151 708 8888.

Liverpool	Mersey Care Liverpool and Sefton	Mental Health Crisis Support When you call one of the numbers above, one of our dedicated mental health professionals will be able to offer assistance. They will talk to you, listen to your worries and try to understand your current problems. Through doing this, you and the health professionals will be able to make a plan on how best to meet your current needs.	For urgent mental health support, please call our 24/7 freephone helpline: **0800 145 6570**
Liverpool	Halton, Knowsley, St Helens and Warrington	Mental Health Crisis Support When you call one of the numbers above, one of our dedicated mental health professionals will be able to offer assistance. They will talk to you, listen to your worries and try to understand your current problems. Through doing this, you and the health professionals will be able to make a plan on how best to meet your current needs.	For all ages – children, young people and adults If you need urgent mental health support, please call our 24/7 freephone crisis line on: **0800 051 1508**
Liverpool	Talk Liverpool	If you are experiencing a common mental illness such as anxiety, depression and/or stress, then psychological therapies can support you. Find out more about your local services below:	Think Wellbeing Halton - Call: 0151 292 6954 Think Wellbeing Knowsley - Call: 0151 430 1707 Think Wellbeing St Helens - Call: 01744 647 100 Talk Liverpool - Call: 0151 228 2300
Wirral	Talking Together Wirral	If you are not in a mental health crisis but require support with low mood, anxiety, depression or other issues affecting	info@talkingtogetherwirral.org http://www.insightiapt.org/locations/wirral/

		your emotional wellbeing, you may benefit from accessing NHS psychological therapies provided by Talking Together Wirral.	
Wirral	NHS	If your mental or emotional state quickly gets worse or deteriorates, this can be called a 'mental health crisis'. In this situation, it is important to get help quickly. If you are experiencing a mental health crisis, please call the mental health phone line on **0300 303 3972** for 24/7 urgent mental health support.	phone line on **0300 303 3972** for 24/7 urgent mental health support.