**Nonclinical paranoia, forgiveness and evaluative beliefs.**

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June 2016

Research submitted in partial fulfilment of the requirements for the degree of Doctor in Clinical Psychology (DClinPsy), Royal Holloway, University of London.

# ACKNOWLEDGEMENTS

**ABSTRACT**

It is becoming increasingly accepted that paranoia is common within the general population and is best understood as existing on a continuum of normal human experience. More recent studies suggest that nonclinical paranoia is a subject of interest in its own right, having been linked to poorer wellbeing but also having been posited as a potential adaptive and functional trait. Research within the field of paranoia has leant towards a focus on individual differences in affect and cognition and there has been less of a focus on interpersonal factors. One interpersonal factor that has been considered is evaluative beliefs and a clear relationship between negative evaluative beliefs and paranoia has been established. A concept that has received attention in the social psychology literature is forgiveness, a factor that we might expect to be related to paranoia. They share similar characteristics, are both interpersonal in nature and both involve transgressions. The current study aimed to explore a potential novel relationship between nonclinical paranoia and forgiveness, to examine whether forgiveness acts as a mediator between the already established relationship between nonclinical paranoia and negative evaluative beliefs, and finally to utilise the Prisoners Dilemma Game to experimentally examine the impact of a simulated interpersonal transgression on these factors.

Consistent with prediction, the study found evidence of a novel relationship between nonclinical paranoia and forgiveness. Higher levels of nonclinical trait paranoia are associated with lower levels of trait forgiveness and state forgiveness following a simulated interpersonal interaction. This finding has potential implications for both the theoretical understanding of the development and maintenance of paranoia

and for the clinical treatment of paranoia as an individual symptom. Secondly, the study replicates the already established relationship between nonclinical paranoia and negative evaluative beliefs and implicates forgiveness as a mediating factor in this relationship. Finally, the study demonstrated the utility of the PDG as an experimental paradigm for the investigation of nonclinical paranoia and other interpersonal variables, forgiveness being one.

Collectively, the current findings provide a foundation for further research looking at the role of forgiveness in nonclinical paranoia which could have exciting implications for both our understanding of paranoia overall and for the treatment of this individual symptom in clinical settings.

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# INTRODUCTION

## 1.1 Overview of Introduction Chapter

It is becoming increasingly accepted that paranoia is common within the general nonclinical population and that it is best understood as existing on a continuum of normal human experience ranging from clinical to nonclinical levels (van Os & Verdoux, 2003). Psychotic delusions represent the severe end of this continuum, whereas nonclinical paranoia in response to everyday situations that evoke suspicion for example, sit at the less severe end of this continuum (Freeman, 2006). Continuum theory provides justification for the study of paranoia in nonclinical populations to inform the understanding of clinical paranoia. More recent research suggests that nonclinical paranoia is a subject of interest in its own right, having been linked to poorer wellbeing but also having been posited as a potential adaptive and functional trait.

There are a number of factors which have been associated with paranoia in both clinical and nonclinical populations. Many of the factors investigated within the literature focus on individual differences in affect (e.g. anxiety and depression) and cognition (e.g. reasoning biases) and there has been less of a focus on interpersonal factors. One interpersonal factor that has been considered is evaluative beliefs. Research has established a clear relationship between negative evaluative beliefs and paranoia.

A concept that has received attention in the social psychology literature is forgiveness. There are several reasons why we might expect there to be an association between paranoia and forgiveness. One possible reason is that they share similar characteristics. In particular, they are both interpersonal in nature and involve

transgressions. Forgiveness is one candidate factor that may help to explain the established relationship between paranoia and negative evaluative beliefs.

The majority of the research into nonclinical paranoia and its associated factors to date has been cross-sectional and questionnaire based, making it difficult to draw any conclusions regarding causation. The PDG is an experimental paradigm that has been used to investigate paranoia and also lends itself to the investigation of forgiveness. In order to gain a more in-depth understanding of paranoia, we need to explore how people respond to transgressions.

Based on this theoretical and empirical background, the current study aims to explore a potential novel relationship between nonclinical paranoia and forgiveness, to examine whether forgiveness acts as a mediator between the already established relationship between nonclinical paranoia and negative evaluative beliefs, and finally to utilise the PDG to examine the impact of a simulated interpersonal transgression on these factors.

This chapter begins with an introduction to nonclinical paranoia and continuum theory and reviews the evidence supporting the presence of paranoia in the general population including both cross-sectional and experimental research. This is followed by an overview of the research looking at the association between paranoia and one interpersonal factor; negative evaluative beliefs. Forgiveness is then introduced as a novel interpersonal factor that has not yet been examined in paranoia research. Forgiveness is defined and its potential relationship with paranoia explored. It is suggested that forgiveness may also be a factor that helps explain the relationship between paranoia and negative evaluative beliefs. The chapter will then go on to introduce the PDG as an experimental paradigm that can be viably used to investigate

both nonclinical paranoia and forgiveness experimentally by simulating a social transgression. Finally, the chapter will pull together the theoretical areas discussed, outline the aims of the current research and state the research hypotheses.

## 1.2 Defining paranoia

### 1.2.1   Syndrome vs symptoms

Definitions of schizophrenia and other major psychotic disorders using discrete diagnostic criteria remain influential in psychopathological research and continue to dominate clinical practice in the psychiatric field (Allardyce, Gaebel, Zielasek & van Os, 2007). It is argued that such diagnostic categories provide a framework to facilitate diagnostic reliability and consistency, clinical decision making and communication with individuals regarding prognosis, treatment options and outcomes (Allardyce et al., 2007; David, 2010). Their validity however, has been questioned by a number of researchers (Bentall, 1990; Johns, 2005; Johns & van Os, 2001; van Os & Verdoux, 2003).

Over the past 20 years, research into psychosis has seen a shift from investigating broadly defined syndromes like 'schizophrenia' towards looking more closely at specific single symptoms such as hallucinations and delusions. Bentall (1990) was one of the first to demonstrate this shift in the literature with his study of hallucinations as an individual entity present across a number of syndromes (Bentall, 1990). The study of such experiences has become increasingly popular because of evidence that the main 'syndromes' of psychosis, such as schizophrenia, delusional disorder, and schizo-affective disorder, do not capture single homogenous conditions (Claridge, 1997; Verdoux & van Os, 2003). Despite their entrenchment in the mental

health literature and clinical practice, continued focus on broad diagnoses may hinder the understanding and therefore treatment of the difficult experiences for which patients require help (Freeman & Garety, 2014). The focus of psychological research has therefore shifted towards trying to understand the aetiology and maintenance of these single symptoms (Freeman & Garety, 2014), one of which is paranoia.

### 1.2.2   Paranoia, persecutory delusions and DSM-5

Paranoia has become an everyday term, often used to describe feelings of suspiciousness or distrust. These milder forms of paranoia exist alongside more severe presentations of paranoia as found in clinical disorders such as schizophrenia and bipolar affective disorder. Terms like paranoia, paranoid beliefs, persecutory ideation, delusions and persecutory delusions are often used interchangeably within empirical research, frequently to refer to different concepts. This has led to some confusion about whether research is really investigating the same phenomenon. The current research will use Freeman and Garety's (2000) criteria for defining persecutory delusions and therefore, paranoia. They clarify that for an individual to be experiencing a persecutory delusion, they must believe that harm is occurring, or is going to occur, to him or her, and that a persecutor has the intention to cause harm. (Freeman & Garety, 2000). Table 1.1 presents the full criteria.

Table 1.1. *Freeman and Garety's (2000) criteria for defining persecutory delusions*

| Criteria A and B must be met: |
| --- |
| A. The individual believes that harm is occurring, or is going to occur, to him or her |
| B. The individual believes that the persecutor has the intention to cause harm |
| There are a number of points of clarification: |
| I. Harm concerns any action that leads to the individual experiencing distress |
| II. Harm only to friends or relatives does not count as a persecutory belief, unless the persecutor also intends this to have a negative effect upon the individual |
| III. The individual must believe that the persecutor at present or in the future will attempt to harm him or her |
| IV. Delusions of reference do not count within the category of persecutory beliefs |

Importantly, these criteria do not equate to a clinical diagnosis of a psychiatric disorder and are in line with the theoretical viewpoint that paranoia or persecutory delusions are dimensional and occur in the general population. These criteria have been used to define paranoia in both clinical (e.g. Freeman et al., 2003) and nonclinical (e.g. Ellett et al., 2003) populations so are deemed appropriate for use in the current research.

There is variability in the characteristics of delusional experience and rather than discrete discontinuous entities, they are complex multi-dimensional phenomena (Garety & Hemsley, 1994). As Freeman (2007) asserts in his review of persecutory delusions, they can differ greatly in the level of conviction with which they are held, the distress they cause, how 'unfounded' they are and how much they interfere with personal and social functioning. This dimensional viewpoint is reflected in the DSM-5 definition of delusions in which it is stated that 'the distinction between a delusion and a strongly held idea is sometimes difficult to make and depends in part on the degree

of conviction with which the belief is held despite clear or reasonable contradictory evidence regarding its veracity' (American Psychiatric Association, 2014). This again suggests that persecutory delusions or paranoia are not unique to pathological disorders, but are a feature of everyday belief systems in the general population. This dimensionality of paranoid or delusional experience has led many to argue that delusions are best understood on a continuum with normal experience (Claridge, 1997; Peters, Joseph & Garety, 1999; Strauss, 1969 & van Os & Verdoux, 2003).

## 1.3 Continuum theory

### 1.3.1 Overview of theory

The traditional medical model assumes a categorical view of paranoia such that the difference between psychotic symptoms and their nonclinical counterparts is qualitative (van Os, Hanssen, Bijl & Ravelli, 2000). The medical model would also assume that delusional beliefs are not a part of healthy psychological functioning. Strauss (1969) was the first to challenge the concept that paranoid delusions were categorical, instead introducing the concept of dimensionality. Later, Spitzer, Williams, Gibbon and First (1992) were among the first contemporary researchers to suggest that there is more to say and consider about delusions than that they are either present or absent (Freeman & Garety, 2000).

Strauss' (1969) dimensional approach to delusions implies that they might be found, perhaps in a less severe form, as a quantitative trait in the general population (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001). Strauss (1969) proposed four major factors that may determine the position of a paranoid delusion on a continuum

between nonclinical delusional beliefs in the general population and clinical persecutory delusions; degree of conviction, level of preoccupation, cultural acceptability and implausibility of the belief. Both delusional beliefs in those diagnosed with schizophrenia (Chadwick & Lowe, 1990) and delusional beliefs in individuals in the nonclinical population (Freeman, Garety, Bebbington, Smith et al., 2005) have been shown to vary according to these four dimensions.

Current thinking does indeed suggest that delusions, although characteristic of psychotic phenomena, are more accurately understood as being widespread in nonclinical populations, with the paranoid beliefs of clinical and nonclinical populations existing on a continuum ranging from clinical to nonclinical levels (van Os & Verdoux, 2003). Psychotic delusions represent the severe end of this continuum, whereas nonclinical paranoia in response to everyday situations that evoke suspicion for example, sit at the less severe end of this continuum (Freeman, 2006). It is of note that the empirical research in support of the continuum theory has been acknowledged by the American Psychiatric Association, with DSM-5 acknowledging that the signs and symptoms of psychosis are on a continuum with normal mental states (Heckers et al., 2013), along with their acknowledgement of dimensionality described earlier. The central and distinctive feature of paranoia across the entire continuum is that it involves unfounded beliefs about others intending to cause one harm (Freeman & Garety, 2000).

Two main versions of the continuum view have been set out by Costello (1994): the phenomenological view and the vulnerability view. The phenomenological view suggests that paranoia found in general populations is less intense, less intrusive and less debilitating but not necessarily qualitatively different from clinical representations of paranoia (Costello, 1994). However, some take the position of a vulnerability view

suggesting that there are qualitative differences between the symptoms of psychopathology and their 'normal' counterparts and that frequency and severity of 'paranoid symptoms' can indicate a vulnerability to the subsequent emergence of a psychotic disorder. This has been referred to as 'psychosis proneness' (Claridge, 1994). In this thesis, the widely held phenomenological model is adopted.

1.3.2 Critical appraisal of continuum theory

The continuum perspective implies that it is theoretically justified to study paranoia in nonclinical populations in order to increase our understanding of the clinical phenomena (e.g. David, 2010). In fact, the use of nonclinical samples may sometimes be preferable in research because of the reduction in the confounding variables likely to alter symptoms, such as the use of medication or comorbidity of secondary illness (David, 2010). Moreover, nonclinical 'psychotic' symptoms including nonclinical paranoia are associated with increased likelihood of being diagnosed with a psychotic disorder (van Os, Hanssen, Bijl & Ravelli, 2000). Recent research has shown that subclinical symptoms alone can leave people susceptible to poorer wellbeing and psychological burden. Using a community sample, Rossler et al. (2015) found that 'subclinical' psychosis, assessed using a range of existing measures, can be reduced to two different factors; one representing 'odd' beliefs about the world and 'odd' behaviour, and the other one representing anomalous experiences (such as hallucinations). They found that the former factor, more closely linked with nonclinical paranoia, was more strongly associated with psychosocial impairment, chronic stress and reduced resilience. This finding suggests that nonclinical paranoia indicates an increased

likelihood of distress and is therefore a factor that could be considered in the prevention of the development of clinical syndromes.

The following section will explore the evidence that paranoia as defined by Freeman and Garety (2000), exists within the general population and therefore, evidence supporting continuum theory.

## 1.4 Evidence of paranoia in the general population

### 1.4.1 Questionnaire-based studies

There is clear support in the literature for the significant prevalence of delusional beliefs and paranoia in the general population and therefore for the continuum model. A number of early smaller scale survey studies demonstrated similarities between the more unusual beliefs within the general population and psychotic inpatients (Cox & Cowling, 1989; Peters, Joseph & Garety, 1999). Such research appeared to be a catalyst for much more large scale research into the prevalence of paranoia in the general population.

Perhaps one of the earliest robust studies was undertaken by van Os et al. (2000) using a random sample of over 7000 adults in the Netherlands. Initially, data were collected using the Composite International Diagnostic Interview (CIDI; World Health Organisation, 1990), and those meeting diagnostic criteria for psychotic illness were offered a follow-up interview with a psychiatrist. Importantly, this allowed careful examination of delusion severity in those not meeting diagnostic criteria. Via this method, the authors found that 1% of their sample of the general population had a 'true' clinical delusion as rated by a psychiatrist, and a further 5.8% displayed delusional

beliefs that did not cause the individual undue distress or necessitate help seeking. The authors demonstrated that these delusional experiences overlap and are continuous with clinical symptoms in terms of psychopathology, risk factors and functional measures even when they do not meet clinical diagnostic criteria. It is therefore reasonable to conclude they are qualitatively the same phenomena. This research was described as a "landmark study" by Freeman (2006) in a review of paranoia in the nonclinical population and shows convincingly that delusional experience in the nonclinical population exists and shares a qualitative continuity with clinical delusional experience. (p. 193).

The first study to examine *individual* experiences of paranoia in a nonclinical sample was undertaken by Ellett et al. (2003). The Paranoia Scale (PS: Fenigstein & Vanable, 1992), a measure created specifically to measure paranoia in the general population, and the Personal Experience of Paranoia Scale (PEPS) were used to examine individual experiences of paranoia along a number of cognitive, behavioural and affective dimensions known to be associated with clinical paranoia. 47% of a sample of 324 students aged 18-49 reported a clear experience of paranoia as defined by Freeman and Garety (2000). A further 23% reported paranoia but without the clear description of a sense of malevolent intent. The authors concluded that between 47 and 70% of the sample reported a true experience of paranoia. The finding that 153 individuals reported clear paranoia as defined by Freeman and Garety (2000) suggests this is a common human experience that also seems to be associated with a sense of being judged negatively by others (Ellett et al., 2003).

A large epidemiological study by Johns et al. (2004) presents findings from a survey of over 8000 British people, having excluded those with probable psychosis. Using the

Psychosis Screening Questionnaire (PSQ) they found that within the past year, 20% of the sample had thought that people were against them at times and 10% felt people had deliberately acted to harm them. The authors conclude that thoughts of a paranoid nature, qualitatively consistent with persecutory delusions as defined my Freeman and Garety (2000), are common in the nonclinical population.

Using another measure devised specifically for use in nonclinical populations, the Paranoia Checklist Questionnaire, Freeman et al. (2005) found that in a sample of 1202 university students in England, 42% reported feeling that personal negative comments were circulated at least on a weekly basis. Freeman (2006) went on to review a number of studies and concluded there is clear evidence that the rate of paranoid beliefs in the general population is higher than the rate of psychotic disorders. Freeman asserts that 1-3% of the nonclinical population have delusions of the same level of severity as those with a diagnosis of psychosis, a further 5-6% experience delusions of a lesser severity and a further 10-15% report regular delusional ideation (Freeman, 2007).

Lincoln and Keller (2008) compared the delusional beliefs of 53 individuals with a diagnosis of schizophrenia and 359 individuals from the general population. When the number of delusional beliefs (as defined by the Freeman and Garety, 2000 criteria) was examined, it was found that 37% of the individuals with schizophrenia would go undetected whilst 24% of individuals in the nonclinical sample would be classified as psychotic. This finding demonstrates support for the phenomenological continuum model of paranoia and the assertion that level of distress associated with ones beliefs is an important dimension in the consideration of clinical versus nonclinical paranoia.

More recently, Freeman et al. (2010) assessed 8580 British adults, who took part in a Survey of Psychiatric Morbidity, and reported that 9% of respondents believed that

people were deliberately acting to harm them, and 1.6% felt that there were potential plots to cause them serious harm. Such beliefs would generally be considered to represent the more severe end of the paranoia continuum. In a similar survey in 2011, Freeman and colleagues assessed 7281 British adults and identified three different levels of paranoia. They reported that 18.6% felt that people were against them, 8.2% reported that people were deliberately acting to harm them, and 1.8% reported the more severely paranoid belief that there were potential plots against them.

In an effort to extend the findings of Johns et al. (2004), Bebbington et al. (2013) included both data from the PSQ and the questionnaire version of the Structured Clinical Interview for DSM-IV Axis II disorders (SCID-II; First, Spitzer, Williams & Benjamin, 1997). They undertook a confirmatory factor analysis which suggested that paranoia in the nonclinical population falls into four defined factors: mistrust, ideas of reference, interpersonal sensitivity and ideas of persecution. They found that persecutory delusions were the rarest type of paranoia and coincided with higher rates of the other three factors. The more extreme or odd thoughts occurred alongside more common and plausible experiences, supporting the existence of a continuum of paranoid symptoms. They suggest that movement along this continuum indicates the process by which more extreme forms of paranoia develop, eventually resulting in diagnosable disorders (Bebbington et al., 2013).

Similar prevalence rates of paranoia have been found in international nonclinical samples including the USA (10.6%, Olfson et al., 2002), France (25.5%, Peters et al., 1999) and China (71%, Chan et al., 2011).

Overall, cross-sectional survey studies provide clear evidence for a high prevalence of paranoia as defined by Freeman and Garety (2000) in the general nonclinical

population. This supports the theory that the experience is best considered on a continuum of normal experience. Furthermore, some of the large scale studies that use diagnostic measures (e.g. van Os et al., 2000) may actually underestimate the prevalence of paranoid thoughts, as they are not as sensitive to the more short-lived, everyday instances of paranoid thinking.

These large scale survey studies however are not without their limitations. Firstly, they are almost entirely reliant on self-report measures. There is evidence to suggest that people who choose to complete these surveys via convenience sampling methods tend to over-report symptoms which may suggest an unrealistically high level of paranoia being reported. Similarly, those studies using self-selecting student samples (e.g. Ellett et al., 2003) are prone to the same problem of bias. Furthermore, the majority of the studies described do not describe any nuanced factors associated with paranoid experience. There is no reference to the more nuanced interpersonal nature of paranoia and what that looks like in the nonclinical population.

1.4.2 Experimental Studies

Studies that have used an experimental manipulation to for example, induce paranoia in participants, have helped to counter some of the limitations of large scale survey studies. They have provided further evidence to support the finding of prevalence of paranoia in nonclinical populations and have also allowed the examination of specific factors related to paranoia.

An experimental design was used by Ellett and Chadwick (2007) to investigate nonclinical paranoia and self-awareness. Using a camera paradigm first developed by Bodner and Mikulincer (1998), Ellett and Chadwick (2007) conducted a series of three

experiments in which participants were exposed to a computer task under high or low self-awareness conditions. A control condition involved neither an experimenter nor a camera being present during the task, an experimenter condition involved the presence of an experimenter but not a camera, and the final condition involved only a camera focused on the participant. Using this paradigm the authors were able to draw conclusions about the impact of self-awareness and task failure on paranoia. They found specifically that heightened self-focus produced paranoia when accompanied by failure. The experimental control of certain factors in this design allowed the authors a more detailed insight into certain aspects of paranoid thought in a nonclinical sample.

In order to examine potential mediators of the known association between stress and the development of psychosis, Lincoln, Peter, Schafer and Moritz (2009) used an experimental design with a general population sample. High and low stress conditions were created using building-site noise played through headphones alongside a battery of general knowledge questions. Symptoms of paranoia, depression and anxiety were assessed by state-adapted versions of validated scales in order to capture real time emotional change. Using this methodology, the authors were able to conclude that there was an increase in state nonclinical paranoia under stress and that this was mediated by anxiety. This is another demonstration of a design which allows a more careful examination of the factors associated with nonclinical paranoia and more certainty regarding causal relationships.

The Prisoner's Dilemma Game (PDG) has been used as an experimental paradigm to research nonclinical paranoia in the research of Ellett, Allen-Crooks, Stevens, Wildschut and Chadwick (2013). The PDG is interpersonal as it involves another player, and ambiguous as the participant cannot predict what choices the other

player will make during the game. Ellett et al. (2013) found that the PDG could induce state paranoia and that this was significantly associated with the choice to use a competitive strategy within the game itself. This study will be described in more detail later in this chapter. This research was the first to use the PDG to study nonclinical paranoia and established it as a valid, inexpensive and easy-to-administer paradigm that can be successfully used to examine factors related to paranoia in a way that allows conclusions to be drawn regarding causality. Such novel experimental approaches to the study of nonclinical paranoia go beyond simple associations between variables and provide an opportunity to draw conclusions regarding causality. They also allow more than one factor to be examined at once, without reliance on lengthy and potentially biased self-report measures alone.

Overall, evidence suggests that paranoid beliefs are commonly experienced in the general population. Research has since started to examine factors associated with paranoia.

1.4.3 Paranoia as an adaptive trait in the general population

The vast majority of individuals in the general population reporting nonclinical paranoid experiences do not go on to develop any form of clinical psychopathology (Ellett & Wildschut, 2014). An interesting consideration is therefore, what keeps individuals in the nonclinical domain? Why do these experiences persist, but not go on to become more distressing clinical symptoms? One possible explanatory idea is that nonclinical paranoia is an adaptive, functional trait. Ellett et al. (2003) were among the first to consider paranoia as an evolutionary adaptive trait. As humans, we are required

to make decisions to trust or mistrust others frequently and individuals who are unfalteringly trusting of others may end up being exploited (Bebbington et al., 2003; Ellett et al., 2003). Considering the potential of others to cause harm can therefore be considered an effective strategy to ensure personal safety and the ability to survive and reproduce. This possible evolutionary advantage might explain why nonclinical paranoia can be persistent and also why clinical paranoia is so resistant to change (Ellett & Chadwick, 2007).

A number of studies have provided empirical support for this evolutionary theory. In an experimental study with a nonclinical sample, Jack and Egan (2016) found that participants demonstrating a higher level of paranoid thinking were more likely to perceive the environment they reside in as dangerous and were more likely to overestimate threat in neutral stimuli. This was especially true for those residing in increasingly urbanised neighbourhoods which is in support of the idea that paranoia becomes increasingly prevalent with exposure to stressors (van Os, Linscott, Myin-Germeys, Delespaul & Krabbendam, 2009). The vigilance for potential harm found in this study can be interpreted as a rational and adaptive trait when the environmental situation suggests it is required (Preti & Cella, 2010). In evolutionary terms, being fearful or wary of harmless people is potentially less costly than failure to fear others who do actually pose a genuine threat (Haselton & Nettle, 2006). Further research into nonclinical paranoia as a relevant phenomenon in its own right will help develop our understanding of its potential adaptive as well as distressing nature.

**1.5 Factors associated with paranoia**

Whilst paranoia is fundamentally an interpersonal phenomenon- it involves beliefs about the intentions of others- the interpersonal aspects of paranoia have received little attention. There are a number of different factors that have been associated with paranoia in clinical and nonclinical populations in the empirical literature. Freeman (2007) provides a comprehensive review of this research which includes investigation into anomalous experiences, affective processes such as anxiety and depression, reasoning biases, attributional style and theory of mind. These processes will not be addressed in this review as it will focus on the relationship between evaluative beliefs and paranoia within the literature which is of paramount interest in the current investigation.

1.5.1    Defining evaluative interpersonal beliefs

Interpersonal evaluations form part of a natural human response to social stresses and threats and thus are likely to be associated with the complex range of reactions that characterise emotional responses to such events. Negative interpersonal or evaluative beliefs consist of negative evaluative beliefs of the self (e.g. 'I am weak') and others (e.g. 'Others are dishonest'). Such beliefs are effectively a 'good-bad' judgement or preference, distinguishable from an inference; a true or false assertion (Chadwick, Trower & Dagnan, 1999). It has been long maintained by cognitive theorists including Beck (1987), that negative beliefs are necessary for negative emotional experience. Ellis (1973) similarly argued that negative evaluations of persons are the most potent beliefs in generating dysfunctional emotional and behavioural consequences.

Paranoia is interpersonal by definition as it necessitates the involvement of another person or a group. Therefore, closer investigation of interpersonal concepts and factors (rather than individual factors) is warranted in research aiming to better understand this phenomenon. Negative evaluative beliefs have been empirically linked to paranoia. The section that follows will review the evidence for this association.

1.5.2    Evidence of a relationship between paranoia and evaluative interpersonal beliefs

Chadwick and Trower (1997) were among the first to examine the association between paranoia and evaluative beliefs. This study explored the possibility that paranoia could be a defence against negative evaluative beliefs from becoming internalised. The authors used the Evaluative Beliefs Scale, developed by Chadwick, to measure negative other-self evaluation (e.g. 'Other people think I am a bad person'), self-self evaluation (e.g. 'I think I am a total failure') and self-other evaluation (e.g. 'I think other people are untrustworthy'). They found that the paranoid sample perceived significantly more negative other-self evaluation (i.e., threat) than controls as well as significantly higher negative self-self evaluation and self-other evaluation. This was a clear demonstration of a relationship between paranoia and negative evaluative beliefs but the results were not able to support the theoretical suggestion of paranoia being a defence against the internalisation of negative evaluative beliefs. This would have required a non-significant association between paranoia and negative self-self evaluation.

Using both a clinical and nonclinical sample, Fowler et al. (2006) undertook a study designed to evaluate the psychometric properties of a newly developed scale for the measurement of four dimensions of self and other evaluation within psychosis. The

scale was designed to measure negative evaluations of the self, negative evaluations of others, positive evaluations of the self and positive evaluations of others. The authors found that negative-other and negative-self evaluations were strongly associated with paranoia in the nonclinical sample. As predicted, they also found very extreme negative-other and negative-self evaluations in the clinical sample of people with chronic psychosis. Interestingly, both clinical and nonclinical samples had similar levels of positive self and other evaluations suggesting a dominant role of negative evaluative beliefs within paranoia. Fowler et al. (2006) suggest that the combination of appraising oneself as inadequate whilst appraising others as devious and bad leaves one in a position of being both weak and under threat from others. They suggest that this sense of vulnerability and danger is related to paranoia.

Further evidence for an association between negative evaluative beliefs and paranoia in a clinical sample was found by Smith et al. (2006). In a study with a very large sample (N=754), Smith et al. (2006) found that self-reported negative evaluative beliefs about the self and others were independently associated with persecutory delusions in a clinical sample of people with a diagnosis of schizophrenia, schizoaffective disorder or delusional disorder, once the confounding effects of depression and low self-esteem were controlled for. It was also demonstrated that individuals with more negative evaluative beliefs experienced persecutory delusions of a greater severity and were more distressed and pre-occupied by them. This study replicated and strengthened the findings of Fowler et al. (2006).

Further support for the association between evaluative beliefs and paranoia can be found in a more recent study looking at positive evaluative beliefs. In a clinical sample of adults with a diagnosis of psychosis, Lincoln et al. (2010) found that those

with a perception of being positively evaluated by others had lower levels of paranoia regardless of their level of 'dysfunctional' beliefs as measured through self-report measures as well as structured interview. Those who believed they were not respected, trusted, loved and accepted by relevant others showed higher levels of paranoia.

Additional evidence for the association between negative evaluative beliefs and paranoia comes from a recent experimental study using a nonclinical sample. Combs, Finn, Wohlfahrt, Penn and Basso (2013), found that a sample of undergraduate students with higher nonclinical paranoia showed increased blame towards others in ambiguous social situations than those with low levels of nonclinical paranoia. This is another demonstration of negative appraisal and evaluation of others and its relationship with nonclinical paranoia.

In a systematic literature review of self-esteem and self-schemas in persecutory delusions, Kesting and Lincoln (2013) summarize the findings of fourteen studies looking directly at the association between negative self-evaluation and persecutory delusions or paranoia using both clinical and nonclinical samples. Eight studies demonstrate clear negative self-evaluation in a clinical population with persecutory delusions. Of these, four used a group comparison design and found negative self-evaluations to be enhanced compared to healthy individuals (Bentall at al., 2008; Kinderman, 1994; MacKinnon, Newman-Taylor & Stopa, 2011 & Vázquez, Diez-Alegría, Hernández-Lloreda & Moreno, 2008). Four used a correlational design and found that negative self-evaluations correlate with persecutory delusions in psychosis (Bentall et al., 2009; Palmier-Claus, Dunn, Drake & Lewis, 2011 & Smith et al., 2006). Six studies using a nonclinical sample demonstrated an association between negative self-evaluation and higher paranoid ideation (Addington & Tran, 2009; Fowler et al.,

2006; Gracie et al., 2007; Freeman et al., 2008; Pickering, Simpson & Bentall, 2008 & Udachina et al., 2009). This review shows an almost unanimous agreement of a relationship between negative evaluative beliefs and paranoia.

Similarly and more recently, Tiernan, Tracey and Shannon (2014) conducted a systematic literature review of the relationship between 'self-concepts' and paranoia. The term 'self-concept' included self-esteem, self-worth, specific self-evaluations and implicit self-esteem. A prediction of both negative explicit and implicit self-concept in paranoia was strongly supported in a review of 18 studies with clinical samples. Again, this falls in line with earlier findings of a relationship between negative evaluative beliefs of the self and paranoia.

1.5.3   Critical appraisal of the evidence for an association between negative evaluative beliefs and paranoia

Given the evidence in the literature, it is clear that negative evaluative beliefs of both the self and others hold a significant and independent association with paranoia. Negative evaluations of self and others have been incorporated into a number of models of paranoia (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001; Chadwick, Birchwood & Trower, 1996 & Freeman, Garety, Kuipers, Fowler & Bebbington, 2002), and are widely accepted to be key in our understanding of the development and maintenance of paranoia. However, as correlational designs have been used in all of the research undertaken in this area, there remains a clear problem in establishing the direction of causality in the relationship between paranoia and evaluative beliefs. We do not have an understanding of whether paranoia results in an increase in negative evaluative beliefs or whether negative evaluative beliefs themselves make the

development of paranoia more likely. Another limitation is that most clinical studies have used a general psychotic sample rather than evaluating people with *current* persecutory delusions. This increases the likelihood of other confounding factors being wrongly overlooked. Studies are also widely based on self-report measures alone which are open to bias due to social desirability (Paulhus & Reid, 1991) and lack ecological validity. Finally, there have been few attempts to undertake research which *explains* the relationship between paranoia and negative evaluative beliefs.

Research to date is dominated by concerns regarding *associations* between various factors and paranoia. There has been a more recent emergence of research examining the causal roles of variables through experimental studies. Generally, research that has examined factors associated with paranoia has focused on individual traits such as negative cognition (negative evaluative beliefs and reasoning bias) and negative affect (depression and anxiety). There is a lack of investigation into the presence or absence of more positive interpersonal factors such as compassion, forgiveness and empathy for example, in relation to paranoia. It may be that such interpersonal factors are involved in the development, maintenance or protection from paranoia.

The study of specific psychological processes representing human strengths or positive traits has become more established in the social psychology literature over the last decade, along with more of a clinical focus on such traits like 'compassion' and 'resilience' (Gilbert, 2009; Padesky & Mooney, 2012). One social psychological process that has received attention is 'forgiveness'.

**1.6 Forgiveness**

1.6.1    Defining forgiveness

Forgiveness is a complex and multi-faceted phenomenon and has been defined in various different ways by different researchers. Rye et al. (2001) note there is more agreement on what is not forgiveness than on what actually constitutes forgiveness. Forgiveness can be defined according to its properties as a response (situational) or as a personality trait (dispositional). The current study will adopt a definition of forgiveness proposed by McCullough and Witvliet (2002) which encompasses both of these factors. Forgiveness is defined as a propensity for negative thoughts, feelings and behaviours towards a transgressor to become more positive and less negative.

Forgiveness has been shown to be negatively associated with anxiety and depression (Friedman, 2005; Mauger, Perry, Freeman & Gove, 1992; Perini, Muller & Buhler, 1991; Tangney, Boone, Fee & Reinsmith, 1999 & Toussaint & Friedman, 2009), suggesting a role for forgiveness in psychological wellbeing. This potential role is also supported by research finding a negative association between forgiveness and personality traits pertaining to poorer psychological wellbeing such as anger, hostility and impulsiveness (Bono, McCullough & Root, 2008; Brose, Rye, Lutz-Zois & Ross, 2005 & Worthington, Wade, van Oyen & Keifer, 2005). Bono et al. (2008) suggest that their findings are consistent with the idea that psychological wellbeing and health indicates the availability of positive social relations; a "crucial human need" (Bono et al., 2008, p.193).

Friedman and Toussaint (2006) highlight that forgiveness research is largely focussed on correlations, leaving the direction of causality between forgiveness and wellbeing and mental health somewhat unclear. Similarly to the literature on

nonclinical paranoia and negative evaluative beliefs, research into forgiveness thus far has relied heavily on self-report measures leaving the results vulnerable to social desirability bias and a lack of ecological validity. McCullough and Witvliet (2002) suggest that the field of forgiveness research would benefit from additional experimental studies. Specifically, they suggest that self-report measures would be bolstered by additional behavioural measures such as 'forgiveness responses' in the Prisoner's Dilemma Game (Wu & Axelrod, 1995) in order to sharpen our understanding of forgiveness and its relevance to real human experience. Similarly, Friedman and Toussaint (2006) suggest that behavioural observations of people in situations where they have the opportunity to forgive would be beneficial to the field.

No research to date has examined a potential association between forgiveness and paranoia.

## 1.7 Forgiveness and Paranoia

There are several reasons why we might expect there to be an association between paranoia and forgiveness. One possible reason is that they share similar characteristics. In particular, they are both interpersonal in nature and involve transgressions. With paranoia, this involves individuals believing that others are deliberately trying to harm them (Freeman & Garety, 2000), with forgiveness, this involves a shift from negative cognition, behaviour and emotions, to more positive cognition, behaviour and emotions, following something that is perceived as an interpersonal transgression.

In order to continue to improve our understanding of paranoia, it is important to understand more about how people respond to such transgressions. It may be

particularly interesting to understand whether people are able to forgive the entity which is perceived to have caused harm. The enduring nature of paranoia suggests this may not be the case, but the role of forgiveness in the response to interpersonal transgressions in paranoia remains unknown.

Forgiveness is one candidate factor that might help explain the established relationship between negative evaluative beliefs and clinical and nonclinical paranoia. Individuals who experience paranoia may be less forgiving in the face of interpersonal transgressions, and therefore more likely to harbour negative beliefs about others.

Research has not yet examined paranoia in the context of a live interpersonal transgression. One methodology that lends itself to examining this is the Prisoners Dilemma Game (PDG). The PDG is a game involving an interpersonal interaction with an opponent, whose responses can be simulated to trigger an interpersonal transgression. The section that follows will describe the PDG in more detail and clarify how is can be used as a helpful experimental paradigm in the study of both nonclinical paranoia and forgiveness.

## 1.8 The Prisoners Dilemma Game

### 1.8.1 Overview of the game

The PDG is an experimental paradigm based on game theory in which two players are required to make a simple choice either to cooperate with or compete against each other without discussion, for limited resources (Ellett et al., 2013). Each choice to cooperate or compete is associated with a unit of reward. The central dilemma faced by the players is the conflict between the pursuit of individual goals and the 'common

good' (Axelrod, 1984). Cooperation is akin to acting in the mutual best interest of both players, whereas competition equates to acting in accordance with one's own short term interests. If one player competes and the other cooperates, the competitor gets a higher reward. However this is a more risky strategy as if both compete, the reward each gets is less than if both cooperate.

## 1.8.2   The PDG and paranoia

The PDG was produced in the 1950's (e.g. Dresher, 1961; Flood, 1952) as a social research paradigm used in social psychology, politics and experimental economics (e.g. Camerer, 2003; Poundstone, 1992). The forced choice to either cooperate with or compete against another player within the PDG models real-life situations in which one may be tempted to behave in a certain way (e.g. hoard limited resources) whilst knowing it would be detrimental if everybody chose to act in this way (Ridley, 1996).

The PDG has been used as an experimental paradigm to study nonclinical paranoia in the research of Ellett et al. (2013). They provide a clear rationale for the use of the PDG in the study of paranoia. Firstly, it is made clear that like paranoia, the PDG is interpersonal in that in involves two players. Secondly, it concerns both threat and perceptions of others' intentions towards the self, both defining characteristics of paranoia. Finally, the PDG is ambiguous in that a player has no knowledge of their opponent's choice as they make their decision. Ambiguity is a trigger of nonclinical paranoia (Ellett & Chadwick, 2007) making the PDG a valid paradigm for the study of this phenomenon.

In three studies, Ellett et al. (2013) used the PDG with a nonclinical sample. In the first study, the authors found a positive correlation between state paranoia and the choice to compete in the PDG. This provided the first evidence that the PDG could be used to study nonclinical paranoia. The second study replicated this result and further demonstrated that the relationship between state paranoia and competition only held when participants believed they were competing against another player, and not against a computer. This provided empirical evidence that paranoia is inherently interpersonal in nature; paranoia only occurs in relation to another person or group of people. Finally the third study found that both trait and state paranoia were positively associated with distrust-based competition. This finding demonstrated that paranoia was associated with competition resulting directly from the perception that the other player possesses malevolent intentions toward the self.

### 1.8.3   The PDG and forgiveness

The PDG has also been used to examine forgiveness, as the game can be used to simulate an interpersonal transgression (McCullough & Witvliet, 2002). There are a number of possible ways for an interpersonal transgression to be simulated in the context of this game. Often the PDG is played over a number of rounds so that a strategy between the players can be established. Research has demonstrated that one common form of strategy that develops as the game is played over a number of rounds is 'tit-for-tat'. This strategy determines than if a game begins with cooperation, then cooperation will continue. Each player will mirror the others move. So a choice to cooperate will be followed by a choice to cooperate and this will continue. A 'surprise' decision for a player to defect and decide to compete in the midst of this cooperative strategy is one

way of simulating an interpersonal transgression. An unspoken social rule has been broken and a developing trust damaged.

In order to avoid the need to administer repeated iterations of the PDG for the purpose of this study, an alternative framework for creating an interpersonal transgression was designed. Prior to the first round of the PDG in the present study, participants randomly assigned to a 'transgression' condition received a message from the other player stating 'I think we should both choose X', 'X' being the cooperative choice. This was designed to remove the need for a natural cooperative strategy to develop and to imply the other player had a desire to cooperate. A transgression was then established by the other player defecting and making a competitive choice, 'Y', in the first (and only) round of the PDG.

Zagorsky et al. (2013) looked at forgiveness in the context of the iterated PDG in which a computer programme simulated the interaction between players. A tit-for-tat strategy was programmed and a 'defection' was programmed to occur. In this study, mutual cooperation was interrupted by a competitive move by one player. The authors found that 'forgiveness' following this defection, i.e. a choice to cooperate rather than 'retaliate' despite the defection, led to greater long-term gain overall despite a short term loss. The authors suggest that this result demonstrates that forgiveness is a means for promoting cooperation. They go on to suggest that "given all the (intentional or unintentional) misbehaviour in the real world, forgiveness is essential for maintaining healthy, cooperative relationships" (Zagorsky et al., 2013, e80814).

The present study will, for the first time, examine forgiveness and paranoia in a 'live' interpersonal context using the PDG. The PDG itself in its original form, allows us to look at state paranoia in a live interpersonal context. The manipulation described

above will be used to model an interpersonal transgression therefore allowing an opportunity to measure forgiveness. Both self-reported state forgiveness can be measured using a validated state forgiveness measure (SFM: Brown & Phillips), as well as 'behavioural' forgiveness measured by giving the participant the choice to exclude the other player following their defection (an unforgiving choice) or to allow them to continue to play (the forgiving choice).

## 1.9 The current study

### 1.9.1 Identifying and addressing current gaps in the literature

This chapter has set out a number of areas of consideration within the current study. Firstly, it is not known whether there is a relationship between forgiveness and paranoia. The interpersonal nature of forgiveness coupled with the more recent focus on forgiveness within the social psychology literature make it an interesting candidate factor that could add to our developing understanding of nonclinical paranoia.

Secondly, although there is a well-established relationship between paranoia and negative evaluative beliefs in the literature, less attention has been given to examining factors that might explain this relationship and the direction of causality remains unknown. Forgiveness could help to explain the relationship between paranoia and negative evaluative beliefs. Those with higher levels of paranoia may be less forgiving in the face of transgressions and therefore more likely to harbour negative beliefs about the self and others.

Finally, research into nonclinical paranoia is dominated by cross-sectional questionnaire-based studies. The PDG is an experimental paradigm which is viable for

the study of both state paranoia and forgiveness and has not yet been utilised for the investigation of these concepts in combination.

1.9.2   Aims of current research

The proposed study will investigate paranoia, negative interpersonal beliefs, and forgiveness in a nonclinical sample, using both self-report measures and an experimental paradigm, the PDG, which allows both state and trait paranoia and forgiveness to be measured in an ecologically valid interpersonal context.

The proposed study will address the following hypotheses:

1) Higher nonclinical paranoia will be associated with lower trait forgiveness.
2) Trait forgiveness will mediate the relationship between nonclinical paranoia and negative interpersonal beliefs.
3) Transgression in the context of the PDG will result in higher levels of nonclinical state paranoia and therefore lower levels of self-reported state and behavioural forgiveness.
4) Trait paranoia will predict state and behavioural forgiveness following the PDG.

# METHOD

## 2.1 Overview

This chapter will begin with an outline of the study design, recruitment details and sample. A detailed overview of the questionnaire measures used and the Prisoners Dilemma Game (PDG) procedure will then be provided. Next, an account of the online survey programme process and how it was developed will be discussed and finally, a consideration of the ethical issues the study raises are outlined.

## 2.2 Design

A cross-sectional correlational design was used to examine relationships between nonclinical paranoia, forgiveness and interpersonal beliefs using self-report measures. A between-groups experimental design was also employed to examine the impact of an interpersonal transgression on paranoia and forgiveness within a live interpersonal context.

## 2.3 Power Analysis

Power analyses were undertaken to ascertain the number of participants required for the current study. This analysis was based on Hypothesis 3 which required a comparison of means between two groups- those subjected to a clear interpersonal transgression and those who were not. Ellett et al. (2013) used the PDG to examine state paranoia under two conditions, when playing the game against either a human or a computer. A significant difference in competition between the two groups (n = 110)

was found, yielding a z-score of 2.20, p = .014 and 'Hedge's g' of .40, both of which correspond to a medium effect size: d = .50 (Cohen, 1992). A power analysis using 'GPower' was therefore run with the following values: d = .50, alpha = .05, power = .80 which suggested that 51 participants per group were required for a one-tailed, between-groups t-test. Therefore, the study aimed to recruit a nonclinical sample of 102 participants.

The actual sample obtained was 123 participants. However, due to a technical difficulty with the online programme, only 82 of these participants completed the between-groups element of the study. This left the between-groups hypothesis of the current study slightly underpowered at 0.72.

## 2.4 Participants

A nonclinical sample (N = 123) between the ages of 18 and 65 were recruited through both a pool of undergraduate students at Royal Holloway University of London (n = 24) and via social media advertisement (n = 99). Participants were recruited via convenience sampling methods (Barker et al. 2003), appropriate due to the relatively large sample required as well as the limited exclusion criteria. Students from Royal Holloway University of London were recruited via an online portal designed to allow undergraduates to participate in a range of research projects in return for either payment or an entry into a prize draw. All adverts posted on social media outlets such as Facebook and Twitter included a direct web link to the study, allowing immediate and direct access.

In order to ensure the sample was nonclinical, participants indicated whether they had had previous contact with mental health services (n = 31). Statistical tests indicated no significant differences between these participants and the rest of the sample when considering the main variables of concern. Therefore, this group of participants were not excluded from the analysis of the data. The sample was made up of 97 female participants and 26 male participants between 18 and 65 (Mean age = 28.8; Min = 18, Max = 58). The sample represented a good range in terms of occupation (65.7% employed, 4.1% unemployed and 28.5% in education) and level of educational attainment (3% GCSE level, 15% A-level, 35.8% Degree and 49.6% post graduate).

## 2.5 Measures

### 2.5.1 Sociodemographic Information

Information regarding the basic socio-demographic characteristics of participants were collected including age, gender, education and employment status, ethnicity, marital status and previous contact with mental health services. A copy of the sociodemographic information requested can be found in Appendix A.

### 2.5.2 Paranoia Scale (Fenigstein & Vanable, 1992)

The Paranoia Scale (PS: Fenigstein & Vanable, 1992) was designed specifically to measure self-reported paranoid cognitions in college students. The PS is the most widely used dimensional measure of paranoia (Freeman, Garety, Bebbington, Smith et al., 2005) and includes ideas of persecution. The scale consists of 20 items scored on a 5-point scale from 1 (*not at all applicable to me*), to 5 (*extremely applicable to me*). It

has been shown to have good construct validity with significant negative correlations with interpersonal trust ($r = -.30$) and trust in close relationships ($r = -.32$) and significant positive correlations with anger ($r = .51$), a belief in the control of powerful others ($r = .34$) and a need for personal control ($r = .29$). The measure also has good reliability with a Cronbach's alpha of .84 across a large sample ($N = 581$) and a test-retest correlation of .70 after 6 months. The scale also demonstrates a normal distribution of scores with a mean total score of 42.7 ($SD = 10.2$) within a range of 20-100 (Fenigstein & Vanable, 1992). A copy of the PS can be found in Appendix B.

### 2.5.3 The Evaluative Beliefs Scale (Chadwick, Trower and Dagnan, 1999)

The Evaluative Beliefs Scale (EBS: Chadwick, Trower & Dagnan, 1999), was used to measure global and stable negative evaluative beliefs about the self and others. The scale consists of 18 items belonging to three subscales assessing 1) how people evaluate themselves ('self-self' evaluations; e.g. 'I think I am a total failure'), 2) how people evaluate others ('self-other' evaluations; e.g. 'I think other people are untrustworthy') and 3) how people believe themselves to be evaluated by others ('other-self' evaluations; e.g. 'Other people think I am a bad person'). Participants are required to select one of five options ranging from 1 (*agree strongly*) to 5 (*disagree strongly*), with total scores ranging between 0 and 18 for each of the subscales. The scale has been shown to have good concurrent validity with the Hospital Anxiety and Depression Scale along with good internal reliability. Alpha coefficients were calculated for the three subscales. Cronbach's alpha for the self-self scale is 0.90; for the other-self scale, 0.92; and for the self-other scale, 0.86, all reflective of good internal reliability (Chadwick et al., 1999). Interestingly, the EBS has not been found to have a normal distribution of

scores with a median score of zero in a non-clinical group in Chadwick et al's (1999) preliminary analysis of the EBS. However, Valiente et al. (2014) used the EBS to examine the relationship between evaluative beliefs, paranoia and parental bonding in a non-clinical sample and did not find a floor effect. A copy of the EBS can be found in Appendix C.

2.5.4 Forgiveness measures

Two measures of forgiveness were employed for this research in order to ensure the measurement of all facets of forgiveness as a concept. The measures cover propensity towards forgiveness of the self and others as well as the likelihood of forgiveness in the context of different scenarios.

2.5.5 The Heartland Foundation Forgiveness Scale (Thompson et al., 2005)

The Heartland Foundation Forgiveness Scale (HFS: Thompson et al. 2005), was used as a baseline measure of dispositional or 'trait' forgiveness. The scale is an 18 item measure consisting of three subscales of 6 items each that measure forgiveness of self, forgiveness of others, and forgiveness within particular situations. Respondents indicate how much each item applies to them using a 7-point scale from 1 (*almost always false of me*), to 7 (*almost always true of me*), with total scale scores ranging from between 18-126. The scale has been shown to have good internal reliability with a Cronbach's alpha of .87, and unlike other measures of forgiveness, it does not assume the respondent is religious. In a large study (N = 504), the HFS was found to be significantly correlated with three measures of dispositional forgiveness demonstrating good

construct validity. Correlations between the HFS total, Self, Other, and Situation subscales administered across a 3-week interval were .83, .72, .73, and .77, respectively, indicating acceptable test-retest reliability (Thompson et al., 2005). A copy of the HFS can be found in Appendix D.

2.5.6 The Forgiveness Likelihood Scale (Rye et al., 2001)

The Forgiveness Likelihood Scale (FLS: Rye et al., 2001) was used as a measure of reported *likelihood* of forgiveness of an offender. The measure consists of 10 scenarios involving hypothetical wrongdoing. Respondents are asked to imagine each scenario happened to them and to consider the likelihood they would be willing to forgive the offender using a 5-point scale ranging from 1 (*not at all likely*), to 5 (*extremely likely*), with total scores ranging from 10 to 50. The scale has good reliability (Cronbachs alpha .85) and was significantly correlated with the Enright Forgiveness Inventory (Subkoviak et al., 1995), ($r = .25$, $p < .001$) demonstrating good construct validity. Test-retest reliability ($N = 287$), computed with an average of 15.2 days between administrations was .81. A copy of the FLS can be found in Appendix E.

2.5.7 The State Paranoia Scale (Ellett et al., 2013)

The State Paranoia Scale (SPS: Ellett et al., 2013) is a 4-item scale of state paranoia designed specifically for use in the PDG. Participants rate how they perceive the other player in the PDG using a 7-point scale with two opposing statements. The four items are: "is hostile to me" vs. "is friendly towards me"; "wants to please me" vs. "wants to upset me"; "wants to help me" vs. "wants to harm me"; and "respects me"

vs. "has it in for me". Each item contains elements relating to feared harm and intention, both of which are necessary to measure persecutory thinking as defined by Freeman and Garety (2000). Scores on this measure can range from 4-28 with higher scores indicating greater state paranoia toward the other player in the PDG at the time of response. In a study with an undergraduate sample (N = 126), the scale was shown to have good internal consistency (Cronbach's alpha = .92) and was significantly correlated with the Paranoia Scale (Fenigstein & Vanable, 1992) showing good construct validity (r = .415, p < .001). A copy of the SPS can be found in Appendix F.

2.5.8 The State Forgiveness Measure (Brown & Phillips, 2005)

The State Forgiveness Measure (SFM: Brown & Phillips, 2005) was used as a measure of state forgiveness toward the other player within the PDG. This is a 7-item measure designed to measure general negative feelings toward an offender. Items include "I dislike this person" and "I feel angry towards this person". Participants are required to respond to each item using a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*) with total scores ranging from 1 to 49. This scale has been shown to have good internal reliability (Cronbach's alpha = .91). A copy of the SFM can be found in Appendix G.

**2.6 The Prisoners Dilemma Game (PDG)**

The PDG is a construct of game theory in which two players are required to make a simple choice either to cooperate with or compete against each other without discussion, for limited resources (Ellett et al., 2013). Within the PDG the choice which

will yield the highest reward is to compete. However if both players choose to compete, they each gain less than if they had both chosen to cooperate. The payoff matrix used in the current study is shown in Figure 2.1.
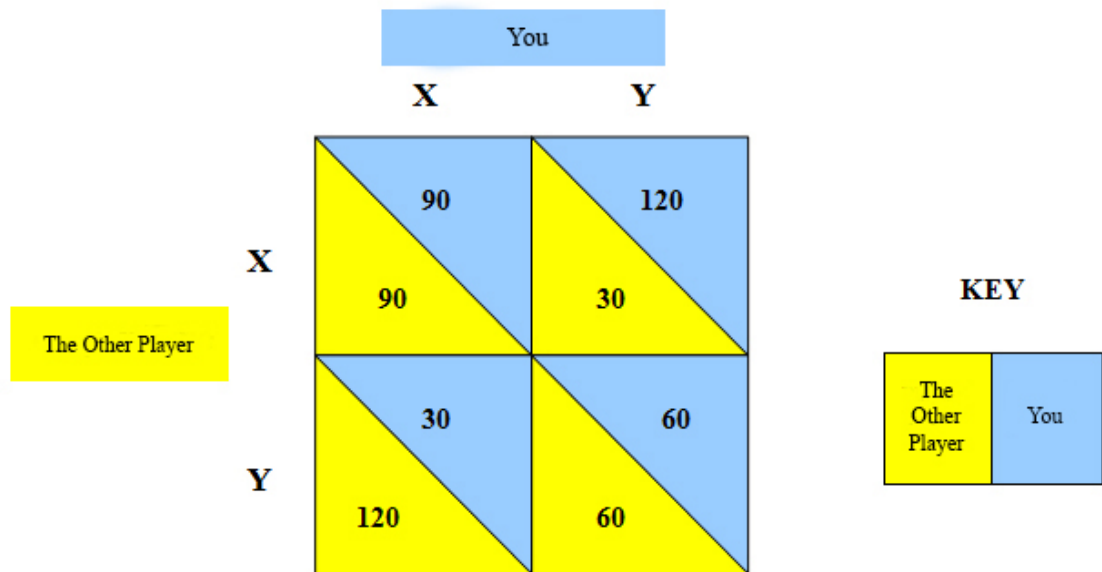


*Figure 2.1:* PDG Matrix

The values shown for each player represent the 'payoff' each player receives depending on their decision ('X' or 'Y') combined with their opponent's decision ('X' or 'Y'). For example, if both players choose to cooperate they each receive 90 credits. If 'you' choose to cooperate but 'the other player' chooses to compete, 'you' would receive 30 credits and 'the other player' would receive 120 credits. The present study, for the first time, used the PDG to examine forgiveness and paranoia in a 'live' interpersonal context.

## 2.7 Behavioural Forgiveness

To complement the self-report measure of state forgiveness, the study also used a behavioural measure of forgiveness based on McCullough and Witvliet's (2002) definition of 'response forgiveness' (or state forgiveness): a person's thoughts, emotions and behaviour becoming less negative and more positive. Following the PDG, each participant was therefore asked "Given the other player has chosen Y, would you like to exclude them from further rounds of the game?" The 'Yes' or 'No' response was captured as a dichotomous variable measuring 'unforgiving' or 'forgiving' behaviour towards the other person. This is a new, unvalidated measure of behavioural forgiveness but was chosen because of its relevance to the simulated interpersonal transgression within the experimental paradigm and for its association with the definition of forgiveness that was adhered to in the current study.

## 2.8 Development of the Online Programme

An online programme was developed for participants to complete the study questionnaires and the PDG, which was easily accessible to participants through a web link. The web link was posted on social media and available within the website for the undergraduate participant pool. The development phase of the programme spanned a 4 month period from January to April 2015. The programme was linked to a secure database which captured all participant data automatically following final consent for their data to be used. Each set of data was linked to a unique participant identifier automatically to ensure confidentiality. A 'Withdraw' button allowed participants to withdraw from the study at any time and this information was recorded in the database.

An information sheet and consent page were provided along with all of the self-report measures, the PDG and finally a debrief sheet along with an option to provide an email address in order to receive a 99p iTunes voucher. A progress bar at the top of each page of the study allowed participants to monitor how much of the study they had completed and had left to complete. Pop-up windows alerted participants to any questions missed once they had pressed the 'Next' button to progress through to the next page of the programme. Any missed questions were highlighted in red to make it easy for participants to locate them and respond. Participants were able to choose whether to complete these missed questions or intentionally skip them if they wished to do so, preventing the completeness of the dataset from being compromised.

2.8.1 Testing the online programme

Following the initial development of the online programme, it was tested extensively during April to May 2015 to identify and correct any errors, typos and faulty functions and to ensure its compatibility with various internet browsers. Following the testing phase, the programme was piloted in May 2015 by 10 people from the general population who were representative of the target sample for the study. Each person was asked for feedback regarding the functionality of the study, how easy the instructions were to understand, any errors they had identified and for any other suggestions they had for improvements that could be made. A number of alterations were made based on this feedback. Firstly, it was discovered that the PDG section of the study did not work correctly on any Apple device including iPhones or iPads because of its use of the computer programming language 'Javascript'. Therefore all study adverts clearly outlined the need for the study to be completed on PC's or laptops compatible with

Javascript. Secondly, a number of basic typing errors were noted and corrected. Finally, based on a suggestion from one person, an amendment was made to the PDG section of the study. It was suggested to increase the 'believability' of playing against another player, participants should be able to type in a username for themselves within the initial information sheet and should be able to see the 'username' of the other player during the game. This was considered a potential methodological improvement so was built into the programme.

## 2.9 Procedure

All participants accessed the study through a web address regardless of the method of advertising by which it had reached them. This allowed the study to be completed at any time from anywhere and could be completed by multiple participants at a time.

Participants were required to firstly read the information sheet (Appendix H), and then consent to take part in the study. Participants were then required to complete a page of sociodemographic information. Participants were then presented with four of the self-report measures in turn: the EBS, the PS, the HFS and the FLS. Each began with a brief description of the measure followed by the questionnaire items with the respective scales for responding. Figure 2.2 shows an example of this format.

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### Questionnaire 3

In the course of our lives negative things may occur because of our own actions, the actions of others, or circumstances beyond our control. For some time after these events, we may have negative thoughts or feelings about ourselves, others, or the situation. Think about how you typically respond to such negative events. There are no right or wrong answers. Please be as open as possible in your answers.

1. **Although I feel bad at first when I mess up, over time I can give myself some slack.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

2. **I hold grudges against myself for negative things I've done.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

*Figure 2.2:* Screen shot of HFS description, items and response options.

Following these initial measures, participants were provided with detailed instructions on the PDG as used previously in Ellett et al. (2013) and Williams (2014). Within these instructions, participants were told they would be playing between one and six rounds of the PDG. In reality, participants played just one round. This minor deception was used (as it has been in previous research: Ellett et al., 2013; Williams, 2014) to avoid the effect of an increase in competition seen when participants know they are only completing a single or very small number of rounds (Axelrod, 1984). This increase in competition occurs because it is a strategy for maximising outcomes when only one or two rounds are being played. Participants were also informed at this stage

that they would be playing the PDG against another participant online. In reality they were simply playing against the pre-programmed software. Consistent with previous research (Ellett et al., 2013), participants were informed that  the amount of credits earned during each round of the game would depend on both their own choice and the choice of the other player and that earning 200 credits would qualify the participant for a 99p iTunes voucher.

The PDG decision matrix was shown (Figure 2.3) with a detailed outline of possible choices within the game and the amount of credits earned in each of the possible combinations of decision between the participant and the other player.
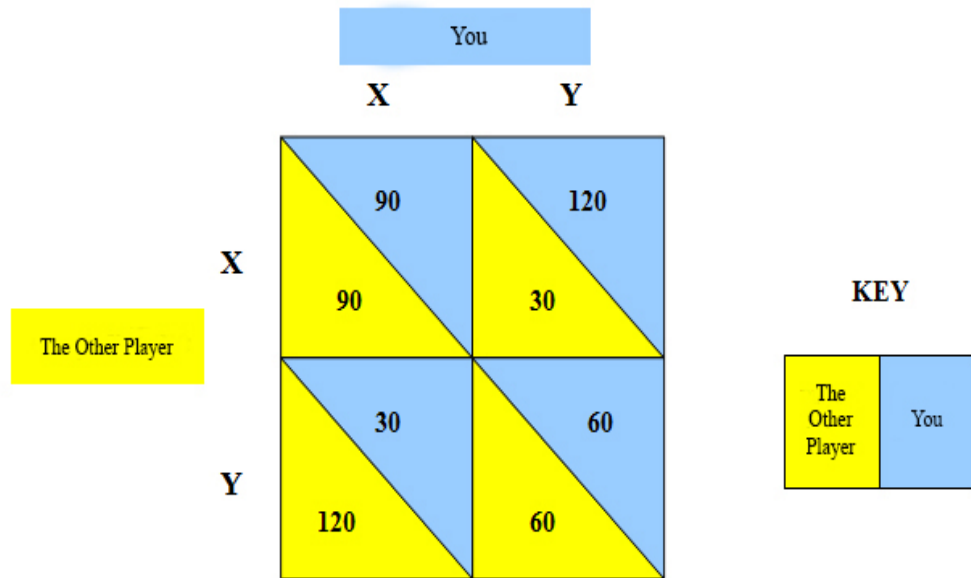
Examples

**Example 1:** If You choose "Y" and The Other Player chooses "X" then You get 120 credits and The Other Player get 30 credits.

**Example 2:** If You choose "X" and The Other Player chooses "Y" then You get 30 credits and The Other Player get 120 credits.

**Example 3:** If You choose "X" and The Other Player chooses "X" then You get 90 credits and The Other Player get 90 credits.

**Example 4:** If You choose "Y" and The Other Player chooses "Y" then You get 60 credits and The Other Player get 60 credits.

Withdraw                                                                 Next >>

*Figure 2.3:* Screen shot of PDG matrix with a description of possible choices and respective payoffs.

In order to ensure full understanding of the PDG, the participants were then shown a new screen with a reminder of the PDG decision matrix and were required to provide the amount of credits earned in the four possible matrix scenarios. Participants were only able to proceed with the study once they had provided the correct answers.

Participants were not given any information about their 'opponent' or any guidance on potential game strategy. Throughout the study, the two possible choices on the PDG were labelled as simply 'X' and 'Y' with no mention of cooperation or competition. This decision was made to avoid any effect of suggestion on the choices made.

Following the PDG description and practice questions, participants then saw a screen alerting them that the game had begun. They each saw the message 'Searching for another participant' flashing on the screen for 30 seconds, followed by the message 'we have located another player'. They were then automatically taken to the next screen of the programme. At this stage, participants randomly allocated to the 'transgression' condition saw a pop up message from 'evans9' (the 'other player') stating "I think we should both choose X", indicating a desire to co-operate. Participants had to click 'OK' to acknowledge receipt of the message and were then asked to make their choice ('X' or 'Y') on the PDG. Participants were then shown the other players response- always the competitive strategy; 'Y' (Figure 2.4). Participants randomly allocated to the 'no transgression' condition were asked to make their PDG choice immediately after seeing the message 'we have located another player' (with no 'message' from the other player). Again, following their own choice, participants were shown the other players response which again, was always the competitive strategy; 'Y'.
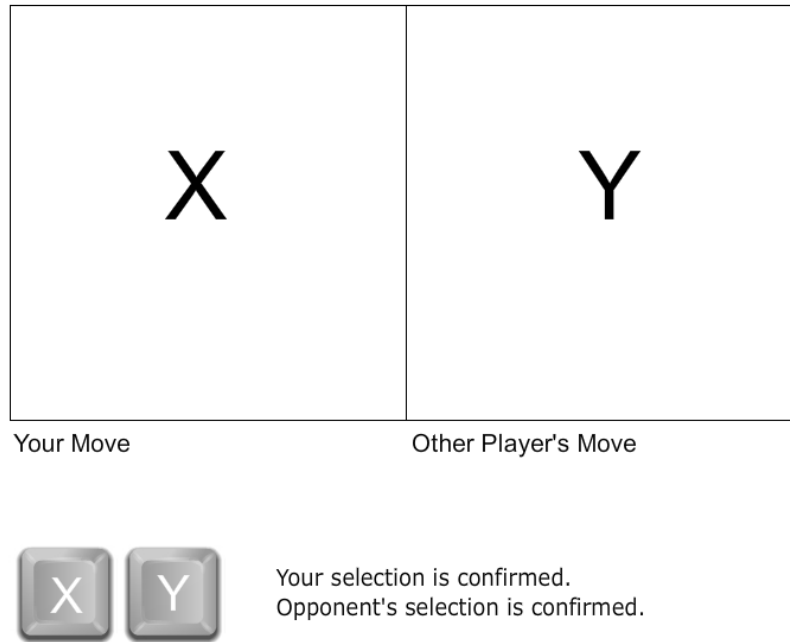
*Figure 2.4:* Screen shot of confirmation of choices by the participant and 'the other player'.

For all participants, a new screen was shown confirming the credits earned by themselves and the other player based on their choices. Due to the fixed 'Y' response from the other player, this either read: "at the end of the first game, you get 30 credits and the other player 'evans9' gets 120 credits" or "at the end of the first game, you get 60 credits and the other player 'evans9' gets 60 credits", depending on whether the participant had chosen 'X' or 'Y' respectively.

As a behavioural indicator of forgiveness (or 'unforgiveness'), all participants were then shown a new screen stating: "Given your opponent has chosen 'Y', would you like to exclude them from further rounds of the game?", and were asked to tick a 'Yes' or a 'No' box. Following this, participants were presented with the final two self-

report questionnaires: state paranoia and state forgiveness. Finally the programme displayed the message 'Thank you, your game is now complete', followed by the final debrief page.

A screen providing a full debriefing was shown outlining the aims of the study, the minor deception used and reiterating the sources of support available should participants have been left with any element of distress due to having taken part. A copy of the debrief information can be found in Appendix I. Participants were finally asked to confirm that they consented to their data being used having been given a full understanding of the study's aims, and also asked to leave their email address in order to receive an iTunes voucher for taking part. The researcher then emailed each participant following the study to provide them with an iTunes voucher to spend on a chosen song. Figure 2.5 shows a summary of the participant journey.

```
┌─────────────────────────────┐
│ Participants read information │
│ sheet, give consent and      │
│ complete demographic         │
│ information.                 │
└─────────────────────────────┘
                    ↘
                ┌──────────────────┐
                │ The PS, HFS, FLS │
                │ and EBS are      │
                │ completed        │
                └──────────────────┘
        ┌──────────────┐  ↙
        │ PDG          │
        │ instructions │
        │ and practice │
        └──────────────┘
                    ↘
            ┌──────────────────────┐
            │ Participants          │
            │ randomised to a       │
            │ 'transgression' or    │
            │ 'no transgression'    │
            │ condition             │
            └──────────────────────┘
           ↙                    ↓
    ┌────────────────┐    ┌──────────────┐
    │ No transgression│   │ Transgression│
    └────────────────┘    └──────────────┘
                                ↓
                        ┌──────────────────┐
                        │ Participants     │
                        │ receive a 'pre-  │
                        │ agreement'       │
                        │ message from     │
                        │ other player     │
                        └──────────────────┘
                    ┌──────────────────────┐ ↙
                    │ Participants prompted │
                    │ to make their PDG     │
                    │ choice                │
                    └──────────────────────┘
              ↙
┌──────────────────────────┐
│ Participants shown the    │
│ competitive choice of the │
│ other player              │
└──────────────────────────┘
                    ↘
                ┌──────────────────────┐
                │ Participants prompted │
                │ to make their PDG     │
                │ choice                │
                └──────────────────────┘
              ↙
┌──────────────────────────────┐
│ Shown a screen summarising    │
│ points gained by both         │
│ participant and other player  │
└──────────────────────────────┘
                    ↘
                ┌───────────────────────────┐
                │ Asked whether they would  │
                │ like to exclude the other │
                │ player from further       │
                │ rounds of the PDG ('Yes'  │
                │ or 'No')                  │
                └───────────────────────────┘
              ↙
┌──────────────────────┐
│ Prompted to complete │
│ the SPS and the SFM  │
└──────────────────────┘
```

*Figure 2.5*: Participant journey

## 2.10 Ethical Considerations

Ethical approval was sought and obtained via the Royal Holloway Ethics Committee prior to the data collection commencing in September 2015 (ref: 2015/041). Appendix J shows a copy of the approval.

The BPS's 'Code of Human Research Ethics' (BPS, 2014) was consulted in order to ensure the study addressed all potential ethical considerations. In addition to this, the Ethics Guidelines for Internet Mediated Research (IMR; BPS, 2013) was consulted when designing and building the online programme along with the information sheet and consent form. Finally, the BPS's Supplementary Guidance on the use of Social Media (BPS, 2012) was used to ensure adherence to the BPS's principles when recruiting via this method.

The matter of providing informed consent, the right to withdraw and full debriefing were adhered to within the study. In addition, the requirement for participants to tick checkboxes both following the information sheet to consent to taking part, and again at the end of the study following the debriefing, ensured this consent was as 'informed' as possible. In addition to being able to withdraw from the study at any point by clinking a clear 'withdraw' button at the bottom of each page, participants were allowed to skip any questions they preferred not to complete and progress on with the study. The level of deception used in the study was minor and participants were not asked to disclose any identifiable information about themselves, nor were they asked to respond to anything considered distressing in any capacity. However, the debrief page provided the researcher's contact information along with

signposts to the local counselling service, the GP or the Samaritans should the participant have experienced any distress.

# RESULTS

## 3.1 Overview

This chapter begins with a data screening section describing the process of preparing the data before statistical analyses were carried out. Specifically, details are provided regarding the process of examining the normality of distributions, including any transformations undertaken for non-normal distributions, and the steps taken to deal outliers and missing data. The sociodemographic characteristics of the sample are then presented. Finally, each of the four hypotheses are outlined and their corresponding statistical analyses are reported.

## 3.2 Data Screening

### 3.2.1 Data Inclusion

The data were analysed using the Statistical Package for Social Sciences version 21.0 (SPSS; version 21.0). Findings are reported to two decimal places with the exception of percentages which are reported to one decimal place, and mediation analyses which are reported to three decimal places. For data interpretation, exact $p$-values are given, unless otherwise stated. The threshold for significance was set at $\alpha = 0.05$. All hypothesis testing was one-tailed given the prediction of a direction of effect for each hypothesis.

123 participants completed the EBS, PS, HFS and FLS. Of these participants, 82 completed the second half of the study in which they were assigned to a group condition (transgression vs no transgression), 'played' the PDG and finally completed

the SPS and SFM. The 41 participants who did not complete the survey were not able to because of a technological barrier. Participants were asked to refrain from using 'iPads', 'iPhones' or 'Apple Macbooks' in all adverts but unfortunately, 41 participants did use these devices which were not compatible with the 'Javascript' technology used in the PDG section of the study. The number of participants completing different parts of the study is shown in Figure 3.1. 'Completers' versus 'non-completers' were compared using t-tests for differences in socio-demographic factors and outcomes on the 4 initial continuous variables. No significant differences were found justifying the use of all 123 participants in analyses relating to the first 4 continuous variables only. All subsequent analyses were drawn from the pool of 82 'completers' only.

EBS- complete
PS- complete
HFS- complete
FLS- complete
N= 123

'non-completers'
41 participants end survey.
n= 41

'completers'
82 participants go on to complete PGD, SPS & SFM
n= 82

'transgression' condition of PDG
n= 46

'No transgression' condition of PDG
n= 36
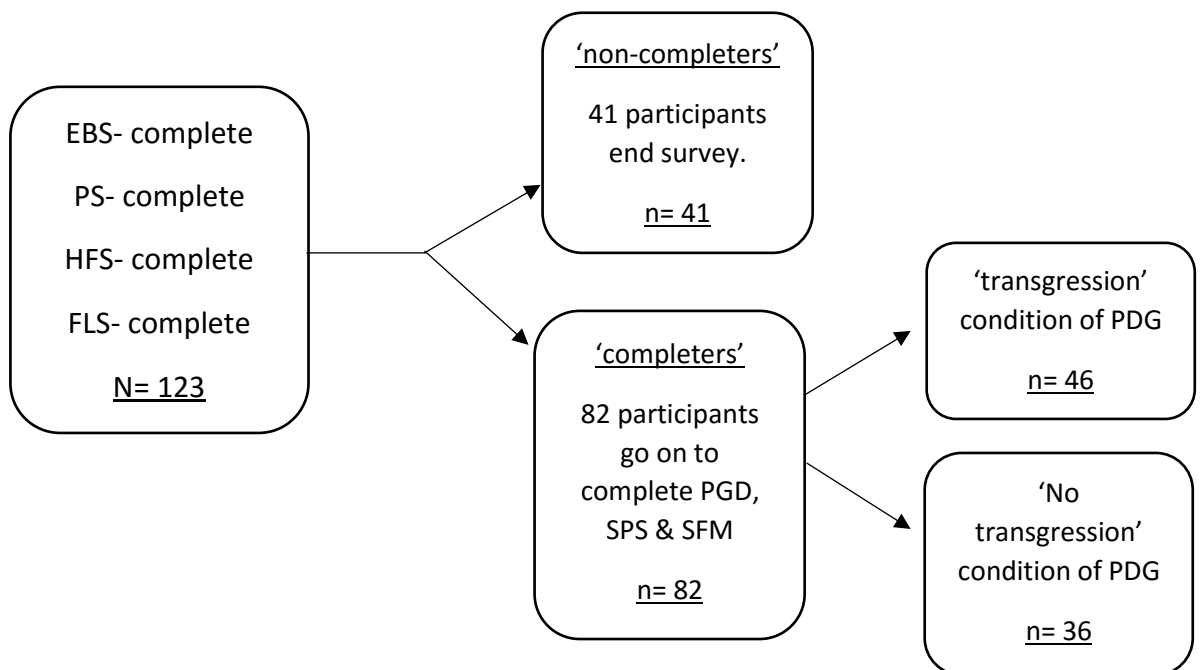
*Figure 3.1*: Flow diagram representing the number of participants who completed the entire study and those who could not continue beyond the first 4 measures.

Prior to carrying out any statistical analysis, descriptive statistics were explored which confirmed that all observed data were within expected ranges. The data set was screened for missing data, of which there were no missing values (N = 123: n= 82 'completers', n= 41 'non-completers').

In order to ensure an investigation of paranoia in the nonclinical population, independent t-tests were conducted to ascertain whether responses to the relevant independent variables differed depending on whether participants indicated previous personal contact with mental health services or not. There were no differences between these two groups for our relevant paranoia measures; PS scores ($F$ = .46, $p$ = .25), or SPS scores ($F$ = .92, $p$ = .51). Therefore, previous contact with mental health services was not used as an exclusion criteria.

3.2.2 Data Distribution: normality

All continuous variable data was screened in order to ensure that all the assumptions for the use of parametric analyses were met. The distributions of the EBS, PS, HFS, FLS, SPS and SFM were checked for normality using histograms and calculating skewness and kurtosis $z$-scores using the following formulae:

$$Zskewness = \frac{S - 0}{SEskewness}$$

$$Zkurtosis = \sqrt{\frac{K}{SEkurtosis}}$$

A distribution was considered normal if a *z*-score for both skewness and kurtosis was less than 2.58 ($p < .01$) (Field, 2009). The HFS, FLS, SPS & SFM were all found to have acceptable levels of skew and kurtosis according to these criteria. The EBS was found to be significantly positively skewed ($Z = 9.66$, $p < .01$), as was the PS ($Z = 7.06$, $p < .01$). A log transformation was applied to the PS data resulting in acceptable levels of skew ($Z = 2.05$, $p > .01$) but this transformation was not able to produce normality in the EBS data. This problem with skew in the EBS data was caused by a very high frequency of zero scores (60.2%) creating a tendency for the scores to cluster around zero despite transformation. It was therefore decided that the EBS would be more meaningfully analysed as a binary variable with *zero* and *non-zero* groups; n= 74 and n= 49 respectively.

Outliers were investigated by examining frequency outputs and generating boxplots for all measures. A score was considered an outlier if the data point was more than three standard deviations from the mean of the variable of interest (Field, 2009). Using these criteria, 4 univariate outliers were identified within the following variables: EBS ($n = 2$), PS ($n = 1$) and FLS ($n = 1$). These outlying scores were 'Winsorized'; given the value of the next highest score in the sample plus 1.

## 3.3 Socio-Demographic Characteristics of the Sample

The socio-demographic characteristics of the entire sample are presented in Table 3.2.

Table 3.2. *Socio-demographic characteristics of the sample*

|  | Total N = 123 |
|---|---|
| **Gender N (%)** | |
| Male | 26 (21.1) |
| Female | 97 (78.9) |
| **Age in years** | |
| Mean | 28.8 |
| Minimum | 18 |
| Maximum | 58 |
| **Employment Status N (%)** | |
| Employed | 83 (67.5) |
| Unemployed | 5 (4.1) |
| Full time Education | 35 (28.5) |
| **Education Level N (%)** | |
| O-Level/GCSE | 3 (2.4) |
| A-Level | 15 (12.2) |
| Degree | 44 (35.8) |
| Post-Grad | 61 (49.6) |
| **Ethnicity N (%)** | |
| White British | 85 (69.1) |
| Other White | 12 (9.8) |
| Asian | 6 (4.9) |
| African | 4 (3.3) |

| | | |
|---|---|---|
| Other Black | 2 (1.6) | |
| Mixed Background | 14 (11.4) | |

**Relationship Status N (%)**

| | |
|---|---|
| Single | 67 (54.5) |
| Married | 53 (43.1) |
| Divorced | 3 (2.4) |

## 3.4 Statistical Analyses of the Hypotheses

3.4.1 Hypothesis 1: Higher levels of nonclinical trait paranoia will be associated with lower levels of trait forgiveness.

Table 3.3 shows the mean scores for the variables of interest in Hypothesis 1.

Table 3.3: *Descriptive statistics for the variables of interest in Hypothesis 1.*

| | **Trait Paranoia (PS) N = 123** | **Trait Forgiveness (HFS) N = 123** | **Forgiveness Likelihood (FLS) N = 123** |
|---|---|---|---|
| Mean (SD) | 36.95 (13.92) | 88.73 (17.26) | 35.55 (6.90) |
| Range | 20-77 | 48-126 | 10-50 |

To address Hypothesis 1, concerning the relationship between nonclinical paranoia and trait forgiveness, Pearson's Product Moment Correlation coefficients were calculated for trait paranoia (PS scores), trait forgiveness of self and others (HFS scores) and trait likelihood of forgiveness (FLS scores). This hypothesis was partly a priori as determined by theoretical considerations provided earlier, and also partly exploratory given the novelty of research into associations between paranoia and forgiveness. Table 3.4 displays correlation coefficients for these variables.

Table 3.4. *Pearson's correlation coefficients for trait paranoia, trait forgiveness and forgiveness likelihood.*

|  |  | Trait paranoia (PS) | Trait forgiveness (HFS) | Forgiveness Likelihood (FLS) |
|---|---|---|---|---|
| Trait Paranoia (PS) | Pearsons *r* |  | -0.57 | -.215 |
|  | *p*-value |  | <.001 | .009 |
| Trait Forgiveness (HFS) | Pearsons *r* | -.057 |  | .396 |
|  | *p*-value | <.001 |  | <.001 |
| Forgiveness Likelihood (FLS) | Pearsons *r* | -.215 | .396 |  |
|  | *p*-value | .009 | <.001 |  |

As expected, a significant negative correlation between trait paranoia and trait forgiveness (HFS) was found. That is, higher levels of nonclinical paranoia were associated with lower levels of trait forgiveness ($r(123) = -.057$, $p <.001$). A significant negative correlation was also found between trait paranoia and forgiveness likelihood (FLS). Higher levels of paranoia were associated with lower levels of forgiveness likelihood ($r(123) = -.215$, $p = .009$).

These findings indicate that Hypothesis 1 is supported. Higher levels of nonclinical paranoia are associated with lower levels of trait forgiveness as measured by both the HFS and the FLS.

3.4.2 Hypothesis 2: Trait forgiveness will mediate the relationship between nonclinical paranoia and negative interpersonal beliefs.

Table 3.5 shows the mean scores for the variables of interest in Hypothesis 2.

Table 3.5: *Descriptive statistics for the variables of interest in Hypothesis 2.*

|  | Trait Paranoia (PS) N= 123 | Trait Forgiveness (HFS) N= 123 | Negative Evaluative Beliefs (EBS) N= 123 |
|---|---|---|---|
| Mean | 36.95 (13.92)* | 88.73 (17.26) | 1.52 (2.62)* |
| Range | 20-77 | 48-126 | 0-11 |

*The table presents untransformed mean scores

Hypothesis 2 concerned the potential for trait forgiveness to mediate the relationship between nonclinical paranoia (PS scores) and negative interpersonal beliefs (EBS scores). Mediation analysis was used to investigate the effect of forgiveness on this relationship. The present research utilises a modern statistical approach which rejects the prerequisite that mediation analysis can only occur if there is a successful demonstration of a relationship between the predictor variable and the outcome variable; Hayes' (2013) PROCESS tool within SPSS. This approach is now becoming preferred over more traditional models of mediation analysis such as Baron and Kenny's (1986) causal steps model (e.g. MacKinnon, 2008; Hayes, 2009). Bias-corrected bootstrap confidence intervals (1,000 samples) are used as the inferential approach for the indirect effects (Hayes, 2013; Preacher & Hayes, 2008). Bootstrapping is a resampling method that offers an alternative to normal theory approach which benefits from making no assumptions about the shape of the sampling distribution (Hayes, 2013). Bootstrapping estimates the properties of the sampling distribution of the indirect effect by taking repeated samples from the original data (N= 123) with replacement to calculate the test statistic (Field, 2009).

Prior to the mediation analysis, a biserial correlation was calculated for trait paranoia (PS) and negative evaluative beliefs (EBS- a binary variable, 'zero' or 'non-zero'). A significant positive correlation was found between the PS and EBS, that is, higher trait paranoia is associated with a higher likelihood of a score above zero on the EBS and therefore higher negative evaluative beliefs ($r_b$(123)= 0.61, $p$= .002). This confirms the presence of a clear significant relationship between trait paranoia and negative evaluative beliefs as has been repeatedly demonstrated within the literature.

The PROCESS tool for SPSS (Hayes, 2013) was used to assess total, direct and indirect effects of trait paranoia on negative evaluative beliefs through trait forgiveness using the model in Figure 3.6. Coefficients for the model are shown in Table 3.7.
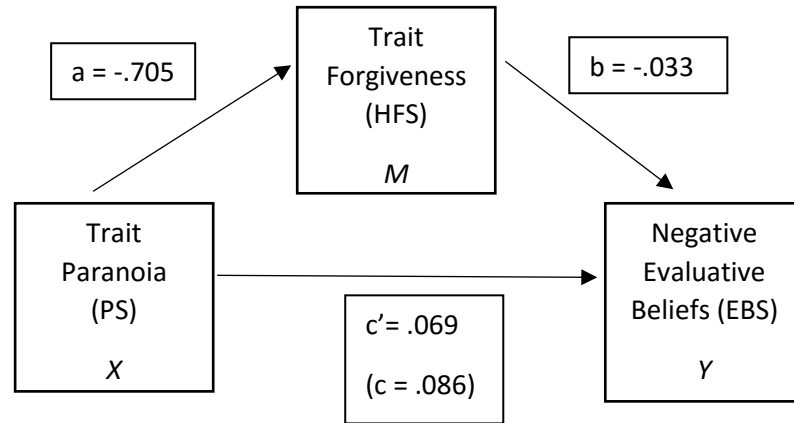


*Figure 3.6*: Simple mediation model for trait paranoia negative evaluative beliefs via trait forgiveness.

*Note*: Unstandardised coefficients are superimposed on the diagram.

Table 3.7. *Mediation model coefficients for trait paranoia on negative evaluative beliefs via forgiveness.*

| | | DV | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **M** | | | | **Y** | | |
| | | **(HFS)** | | | | **(EBS)** | | |
| **IV** | | **Coeff.** | **SE** | *P* | | **Coeff.** | **SE** | *P* |
| **X(PS)** | (path a) | -.705 | .093 | >.001 | (path c') | .069 | .020 | >.001 |
| **M(HFS)** | | | | | (path b) | -.033 | .015 | .033 |

The total effect of trait paranoia on negative evaluative beliefs was estimated by regressing EBS value ('zero' or 'non-zero' score) onto trait paranoia to produce path c (see Figure 3.6). A binary logistic regression was used because EBS score was dichotomous. The total effect of trait paranoia on negative evaluative beliefs (c = .086) was statistically significant ($Z = 4.68$, $p = <.001$). This significant relationship replicates the significant relationship found using a biserial correlation analysis. The regression analysis also showed that the effect of trait paranoia on trait forgiveness (a= -.705) was statistically significant ($t(121)= -7.60$, $p < .001$). This significant relationship replicates the significant relationship between these variables in Hypothesis 1 using a Pearson's Correlation.

More pertinent to the mediation hypothesis was the estimate of the indirect effect of trait paranoia on negative evaluative beliefs via forgiveness. This is quantified as the product of the regression coefficient estimating forgiveness from trait paranoia (path a in Figure 3.6) and the logistic regression coefficient estimating negative evaluative beliefs from trait forgiveness controlling for trait paranoia (path b in Figure 3.6). The indirect effect of trait paranoia on negative evaluative beliefs mediated by forgiveness is statistically significant ($Z = 2.04$, $p = .042$), (95% bias-corrected bootstrapping confidence interval from .004 to .055).

The true direct effect of trait paranoia on negative evaluative beliefs when trait forgiveness is held constant (c' = -.069) is statistically significant ($Z = 3.41$, $p <.001$), but importantly, is lower than 'c'. This mediation analysis shows that a significant proportion of the total effect of trait paranoia on negative evaluative beliefs operates

indirectly through trait forgiveness and a significant direct effect of trait paranoia and negative evaluative beliefs also exists. Higher trait paranoia translates to higher negative evaluative beliefs (where 1 = non-zero and 0 = zero) partly as a result of a tendency for those who are more paranoid being generally less forgiving. The findings suggest support for Hypothesis 2.

3.4.3 Hypothesis 3: Transgression in the context of the PDG will result in higher levels of nonclinical state paranoia and therefore lower levels of state and behavioural forgiveness.

Descriptive statistics for state paranoia (SPS) and state forgiveness (SFM) for the entire sample and by group: 'transgression' vs 'no transgression' are shown in Table 3.8.

Table 3.8: *Descriptive statistics for the two continuous variables of interest in Hypothesis 3 by group.*

|  | **Transgression Group** | **No Transgression Group** | **Total Sample** |
|---|---|---|---|
|  | **N = 46** | **N = 36** | **N = 82** |
| **SPS** | | | |
| Mean (SD) | 19.00 (3.98) | 16.47 (3.88) | 17.89 (4.11) |
| Range | 11-28 | 4-23 | 4-28 |
| **SFM** | | | |
| Mean (SD) | 33.35 (8.07) | 35.61 (7.31) | 34.34 (7.78) |
| Range | 11-46 | 24-47 | 11-47 |

To address Hypothesis 3, concerning the effect of 'group' (transgression vs no transgression) on nonclinical state paranoia (SPS scores) and state and behavioural forgiveness (SFM and forgiveness decision; 'Yes' or 'No'), 2 independent t-tests were conducted ('group' and SPS & 'group' and SFM) along with a chi-square analysis to examine the impact of 'group' on 'forgiveness decision'.

Firstly, an independent t-test was carried out to examine the impact of 'group' (transgression vs no transgression) on state paranoia (SPS). The analysis showed that the group who had a pre-agreement and therefore, a transgression, scored significantly higher on the state paranoia measure than those who hadn't been exposed to a

transgression, ($t$(80)= 2.88, $p$ = .005). This result confirms the first part of Hypothesis 3.

Secondly, an independent t-test was undertaken to examine the impact of 'group' (transgression vs no transgression) on state forgiveness (SFM). The analysis found there was no significant difference between groups on state forgiveness. Those who had suffered a transgression were less forgiving but not to a significant level ($t$(80)= -1.31, $p$= .193).

Finally, a Chi-square test was carried out to look at whether 'group' had an impact on behavioural forgiveness; the choice taken regarding whether to exclude (1) or not exclude (0) the other player following the PDG. Table 3.9 shows the crosstabulated scores of group and forgiveness choice. The analysis showed there was no difference in likelihood to exclude the other player between those who had suffered a transgression and those who had not ($x^2$ (1) = 2.93, $p$ = .588).

Table 3.9: *Values of forgiveness choice by group*

|  | **Don't exclude** (Forgiving choice) | **Exclude** (Unforgiving choice) |
|---|---|---|
| **Transgression group** | 39 | 7 |
| **No Transgression group** | 32 | 4 |

Participants overwhelmingly chose not to exclude the other player from further rounds of the PDG, regardless of whether or not they had suffered a transgression. These findings allow us to conclude that transgression in the context of the PDG did indeed increase state paranoia, but this did not have an impact on state or behavioural forgiveness. Limitations involving sample size and measurement that may contribute to an explanation of this null hypothesis will be addressed in the Discussion chapter.

3.4.4 Hypothesis 4: Trait paranoia will predict state and behavioural forgiveness following the PDG.

To address Hypothesis 4, concerning the relationship between nonclinical trait paranoia and state forgiveness following the PDG, two separate analyses were undertaken. Firstly, a Pearson's Product Moment Correlation coefficient was calculated for trait paranoia (PS scores) and state forgiveness (SFM scores). Secondly, a binary logistic regression was used to investigate the relationship between nonclinical trait paranoia (PS scores) and behavioural forgiveness (forgiveness decision- 'yes' or 'no'). A significant negative correlation between trait paranoia (PS) and state forgiveness (SFM) was found. That is, higher levels of trait paranoia were associated with lower state forgiveness following the PDG ($r(82) = -.31$, $p = .002$).

A point-biserial correlation was calculated for trait paranoia (PS) and behavioural forgiveness (exclude other player; 'Yes' or 'No'). No significant relationship between trait paranoia and 'behavioural forgiveness' was found, $r_{pb}(82) = -.07$, $p = .275$. This is unsurprising given the very low frequency of the choice to exclude the other player.  This analysis allows us to partly confirm Hypothesis 4. Higher trait

paranoia predicted lower state forgiveness following the PDG, but no significant relationship with 'behavioural forgiveness' was found.

# DISCUSSION

## 4.1 Overview

The aims of the current study were: (1) to examine the relationship between paranoia and forgiveness in a nonclinical population, (2) to replicate the findings of a positive relationship between nonclinical paranoia and negative evaluative beliefs (e.g. Chadwick & Trower, 1997; Fowler, 2006; Kesting & Lincoln, 2013 & Smith et al., 2006), (3) like Ellett et al. (2013), to utilise the PDG to investigate state paranoia and its potential relationship with state forgiveness and (4) to combine the three factors of nonclinical paranoia, forgiveness and negative evaluative beliefs to examine potential complex interactions and mediating effects.

This chapter will begin with an overview of the main findings covering three key areas: (1) nonclinical paranoia and forgiveness, (2) nonclinical paranoia, negative evaluative beliefs and forgiveness and (3) nonclinical paranoia, forgiveness and the PDG. The findings are then discussed within the content of existing relevant theory and clinical implications are explored. The chapter will go on to explore the strengths and limitations of the current research, discuss potential avenues for future research and will end with concluding remarks.

## 4.2 Main Findings

### 4.2.1 Paranoia and Forgiveness

It is surprising that no previous research has looked at potential associations between nonclinical paranoia and forgiveness. There are theoretical reasons why we

might expect to find such an association. One possible reason is that they share similar characteristics, in particular they are both interpersonal in nature and involve transgressions. With paranoia, this involves the belief that others are deliberately and maliciously trying to cause harm (Freeman & Garety, 2000). With forgiveness, this involves a shift from negative cognition, behaviour and emotions, to more positive cognition, behaviour and emotions, following something that is perceived as an interpersonal transgression. The enduring nature of clinical paranoia and persecutory delusions indicates a level of fixedness involving cognition and emotion. Paranoia persists despite evidence to the contrary, and the belief that another is intent to cause one harm can remain unchanging over long periods of time (Garety et al., 2005). Forgiveness may be one additional factor that contributes to our understanding of the development or perhaps more pertinantly, the maintenance of paranoia. Freeman (2006) advocates for further research into the potential range of psychological and cognitive factors associated with both clinical and nonclinical paranoia. In particular, the study of multiple variables in order to investigate interaction effects, and the utilisation of experimental approaches to aid the study of causal roles are thought to be an important route of development within the paranoia literature (Freeman, 2006).

*Hypothesis 1: Higher nonclinical paranoia will be associated with lower trait*

*forgiveness.*

*Finding: Hypothesis confirmed*

As hypothesised, higher levels of trait paranoia were associated with lower trait forgiveness as measured by the Heartland Forgiveness Scale and the Forgiveness Likelihood Scale. This is the first demonstration of such an association and reveals a

novel relationship between nonclinical paranoia and a largely unexamined construct within the psychology literature; forgiveness.

Forgiveness is defined in the present study as a propensity for negative thoughts, feelings and behaviours towards a transgressor to become more positive and less negative. The HFS measures this through the self-assessment of forgiveness of the self, others and of specific situations. The FLS measures participants' perception of how likely they would be to forgive a transgressor in particular situations. The fact that both measures were negatively correlated with nonclinical paranoia provides a strong argument for a negative relationship between nonclinical paranoia and all that forgiveness as a concept encompasses. Those who are more paranoid are less likely to be forgiving towards themselves, of others and in particular situations.

*Hypothesis 4: Trait paranoia will predict state and behavioural forgiveness following the PDG.*

*Finding: Hypothesis partly confirmed.*

In addition to the association between paranoia and trait forgiveness, a similar association was expected to be found with state forgiveness as measured by the SFM as well as 'behavioural forgiveness' following the experience of a transgression. The results do demonstrate a significant association between trait paranoia and state forgiveness following the PDG. This shows that nonclinical paranoia not only has a relationship with self-reported forgiveness beliefs and attitudes but also with real-time state forgiveness in response to a simulated social interaction. Specifically, higher trait paranoia is associated with lower levels of state forgiveness following an interaction in the context of the PDG.

Conversely, no association was found between trait paranoia and 'behavioural forgiveness'. Behavioural forgiveness was measured using a binary variable determined by participants' choice regarding whether or not to exclude participants from the PDG. This choice followed the initial round of the PDG in which the 'other player' always chooses the competitive rather than the cooperative strategy. This is not a validated measure of forgiveness but was chosen because of its ability to fit in with the definition of forgiveness being adhered to in the present study. The choice made; exclude or don't exclude, is a potential representation of the behavioural aspect of the forgiveness definition. Following a transgression, does the participant choose to administer a potential punishment (no forgiveness), or take the more lenient route of allowing the other player to continue playing (the more forgiving option). However, this measure of behavioural forgiveness is potentially problematic. There are a number of reasons why a person may choose to exclude or indeed not exclude the other player that have no connection with the concept of forgiveness. This limitation which may be partly responsible for the null finding here, will be discussed in more detail later in this chapter.

Although these correlational findings do not allow us to draw any solid conclusions regarding causality, taken together, the association between nonclinical paranoia and both trait and state forgiveness allows us to conclude that higher levels of nonclinical paranoia are related to lower levels of both trait and state forgiveness.

The finding of a negative relationship between nonclinical paranoia and forgiveness firstly offers support for the continuum model of paranoia. The range of scores found on the PS in the current sample were comparable with the range of scores found in the original PS validation study. In this sample the mean PS score was 36.9 (N

= 123) compared to 42.7 (N = 581; Fenigstein & Vanable, 1992). The finding of a range of paranoia scores in a nonclinical population also replicates the finding of a number of previous prevalence studies (e.g. Bebbington et al., 2013; Ellett et al., 2003; Freeman et al. 2005 & van Os et al., 2000), providing further support for the continuum model. Secondly, this finding is potentially congruent with a number of theoretical accounts of paranoia which include cognitive biases as a central component. A narrative literature review undertaken by Freeman and Garety (2014) highlights the clear importance of affective processes, anomalous experiences, reasoning and cognitive biases in the occurrence of clinical paranoia. A bias towards being less forgiving of the self, others and across situations may be an important additional factor to be considered within such theoretical frameworks along with reasoning bias and beliefs about the self and others.

The experimental element of the present study allowed an examination of both trait measures and state measures following a manipulation of conditions. The significant negative relationship between trait paranoia and state forgiveness represents another novel finding following a perceived interpersonal interaction. It suggests that a disposition towards being more paranoid has an impact on the likelihood of being forgiving towards a transgressor following a perceived wrongdoing. Interestingly, this was the case following the PDG whether or not the participant had been exposed to the clear transgression. According to Freeman et al. (2011), paranoia has been shown to be related to mistrust and suspicion. It seems that in the present study, the level of suspicion was sufficiently high in those with higher levels of nonclinical paranoia to produce a low level of forgiveness of another person regardless of whether or not they had suffered a clear transgression. This makes theoretical sense. Paranoia, by definition,

requires one to believe that others have the intent to cause one harm. If this belief is endorsed, and nonclinical paranoia is high, the other player is more likely to be cast as a transgressor regardless of the actual content of the interaction (clear transgression or no clear transgression).

## 4.2.2 Nonclinical paranoia, negative evaluative beliefs and forgiveness

*Hypothesis 2: Trait forgiveness will mediate the relationship between nonclinical paranoia and negative interpersonal beliefs.*
*Finding: Hypothesis confirmed*

The association between nonclinical paranoia and negative evaluative beliefs has been well documented (e.g. Chadwick & Trower, 1997; Fowler, 2006; Kesting & Lincoln, 2013 & Smith et al., 2006) and was replicated in the present study. A significant positive relationship was found between trait paranoia and negative evaluative beliefs. It was predicted that this association would be mediated by forgiveness. That is, paranoia would be associated with lower forgiveness which in turn would increase the likelihood of holding negative evaluative beliefs about others. The finding of a significant mediating effect of forgiveness did indeed confirm that the relationship between nonclinical paranoia and negative evaluative beliefs operates partly through forgiveness.

Negative evaluations of self and others have been incorporated into a number of models of paranoia (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001; Chadwick, Birchwood & Trower, 1996 & Freeman, Garety, Kuipers, Fowler & Bebbington, 2002), and are widely accepted to be key in our understanding of the development and maintenance of paranoia. Freeman and Garety's (2014) view is that

negative beliefs about the self and particularly negative beliefs about what others think of the self can lead to feelings of being different, apart and inferior and hence vulnerable. They suggest that this state of vulnerability allows paranoia to flourish. Again, the finding in the current study does not allow us to draw any conclusions regarding causation. It may be that, as Freeman and Garety assert, negative evaluative beliefs create the right conditions for paranoia to develop. It could also be the case that as paranoia develops, evaluative beliefs regarding the self and others become increasingly negative.

The mediation analysis in the present study indicated that part of this relationship between paranoia and negative evaluative beliefs operates through forgiveness. Forgiveness is therefore one factor that helps to explain the relationship between nonclinical paranoia and negative evaluative beliefs. In other words, the lower levels of forgiveness in those with higher levels of nonclinical paranoia provide a partial explanation for the higher levels of negative evaluative beliefs. This finding makes sense intuitively. People are more likely to hold negative evaluative beliefs about others if they are less able to forgive their transgressions. Similarly they are more likely to hold negative evaluative beliefs about themselves if they are less able to forgive themselves for any transgression or mistake.

The forgiveness measure used within the mediation analysis (the HFS) incorporated items relating to forgiveness of the self, others and forgiveness in specific situations. It would be interesting to look at which specific elements of forgiveness relate more closely to the mediation model than others. We might expect that forgiveness of the self would be most likely to account for some of the relationship between paranoia and negative evaluative beliefs. Those who are more paranoid may

be less forgiving of the self for past transgressions and therefore more likely to harbour negative 'other-self' evaluations; the subscale of the EBS used in this analysis. A closer analysis of HFS subscales would be required to make this distinction.

4.2.3 Paranoia, forgiveness and the PDG

Brown and Phillips (2005) point out that a glaring absence in the forgiveness literature is the experimental manipulation of offenses. Previous research has relied almost exclusively on self-reported past experiences or hypothetical scenarios (e.g. Berry & Worthington, 2001; DeShea, 2003; Tangney, Boone & Dearing, 2005). They argue that experimental designs are vital in establishing truly meaningful individual differences in forgiveness. The present study sought to be one of the first to begin to fill this gap in the literature.

The PDG has been used once before to examine nonclinical paranoia (Ellett et al., 2013). In the present study, the PDG was used as an experimental paradigm to simulate an in interpersonal transgression. Participants were randomly allocated to one of two groups. One group were exposed to an interpersonal transgression. This group of participants received a message from the 'other player' they were made to believe they were playing against, suggesting they should each select the cooperative choice on the game. The implication of this was that the other player was willing to maximise the mutual gain of both players by being cooperative rather than competitive. Following submission of their own PDG choice, this group were then shown that the other player had selected the competitive choice, despite the initial agreement. The alternative group of participants received no message of pre-agreement from the 'other player' and were therefore not exposed to a clear social transgression.

*Hypothesis 3: Transgression in the context of the PDG will result in higher levels of*

*nonclinical state paranoia and therefore lower levels of self-reported state and*

*behavioural forgiveness.*

*Finding: Hypothesis partly confirmed*

As predicted, the experience of transgression within the context of the PDG resulted in significantly higher levels of nonclinical state paranoia than those who had not experienced any clear transgression. This finding firstly allows us to conclude that the participants allocated to the transgression condition experienced the process of the PDG and the 'other player' differently to those allocated to the 'no transgression' condition. They showed significantly higher levels of paranoia directed towards the other player specifically, as measured by the SPS. What cannot be stated with such certainty is whether the 'transgression' condition was indeed perceived by each participant as a type of social transgression. A social transgression is defined as 'exceeding a limit or boundary, especially of social acceptability', and is characterised by hurt and/or offence (Berry, Worthington, Wade, van Oyen & Keifer, 2005, p.449). The minor deception involved in the 'transgression condition' was designed to create an experience of such a situation, but without having explicitly asked each participant how they perceived the situation, it is difficult to confirm that this was the case.

Interestingly, the higher level of state paranoia in the transgression condition did not have a significant impact on state forgiveness. Those who had experienced a transgression and therefore higher levels of state paranoia, were less forgiving on a measure of state forgiveness but not to a significant level. Although the PDG is a paradigm that replicates an interpersonal interaction, the interaction occurs within the context of a 'game'. It may be that regardless of paranoia, participants are more

forgiving of a transgression because of prior expectations of the way people behave when playing 'games'. It is arguably more typical for people to compete in the context of a game against another person; the outcome of a game between two people is usually that there is a winner and a loser. The state forgiveness measure was designed to measure state forgiveness within the context of recollection of past situations in which people felt an offence had been committed against them, they had been mistreated or wronged in some way. It includes items like 'Even though his/her actions hurt me, I do not feel ill will toward him/her', and 'I hope this person gets what's coming to them for what they did to me'. The creators of the SFM; Brown & Phillips, in their validation study for this measure, found that dispositional or 'trait' forgiveness was only related to state forgiveness for relatively severe offences. For less severe offences, state forgiveness as measured by the SFM was relatively high; people were generally forgiving (Brown & Phillips, 2005). In the present study, the null finding of a non-significant relationship between state paranoia and state forgiveness following a transgression could be due do the transgression simply not being perceived as particularly 'severe' or offensive'.

There was also no significant difference between groups on a measure of 'behavioural forgiveness'. Those who experienced a transgression during the PDG were not significantly more likely to exclude the other player from further rounds of the game than those who had not experienced a clear transgression. However, as aforementioned, the choice between excluding or not excluding the other player from further rounds of the PDG is not a validated measure of behavioural forgiveness. There are a number of reasons why a person may choose to exclude or indeed not exclude the other player that have no connection with the concept of forgiveness. The overall number of people that

chose to exclude the other player was very low (n=11), with n=7 from the 'pre-agreement/ transgression' group, and n=4 from the 'no pre-agreement/no transgression' group. We might hypothesise that those who experienced a transgression were unlikely to want to exclude the other player in order to have their opportunity to return or 'repay' the transgression of the other player in another round of the game. Given that the participants were told they had to reach a certain number of credits on the PDG in order to win a voucher, they had an incentive to continue to play despite the transgression. Therefore, it would be erroneous to comment on the potential clinical and theoretical implications of this particular finding, given the limitations of this measure.

## 4.3 Theoretical and Clinical Implications

### 4.3.1 Nonclinical paranoia and continuum theory

The present study, along with a wealth of previous prevalence research confirms the presence of paranoia in a nonclinical sample and thus, the general population. This adds to the wealth of support for the continuum theory of paranoia and suggests that paranoia should be accepted as a trait that occurs both in the general population, in the population of people with common mental health problems and as part of a number of more severe and enduring mental health difficulties. The present study further highlights Freeman, Freeman and Garety's (2006) assertion for the need for literature on paranoid thinking aimed at the general population. This is especially relevant given the fact that Olfson et al. (2002) found that a number of studies have demonstrated an association in the general population between paranoia and distress and impairment in work, family and social functioning.

4.3.2 Cognitive models of paranoia

One model of paranoia supported by and created through the integration of a range of empirical findings is the 'threat anticipation cognitive model of persecutory delusions' (Freeman & Garety, 2004). The model addresses the multi-faceted nature of paranoia, highlighting the various factors shown to be associated with the development and maintenance of delusional beliefs. The models' conceptualisation of persecutory delusions (paranoia) is represented in Figure 4.1.
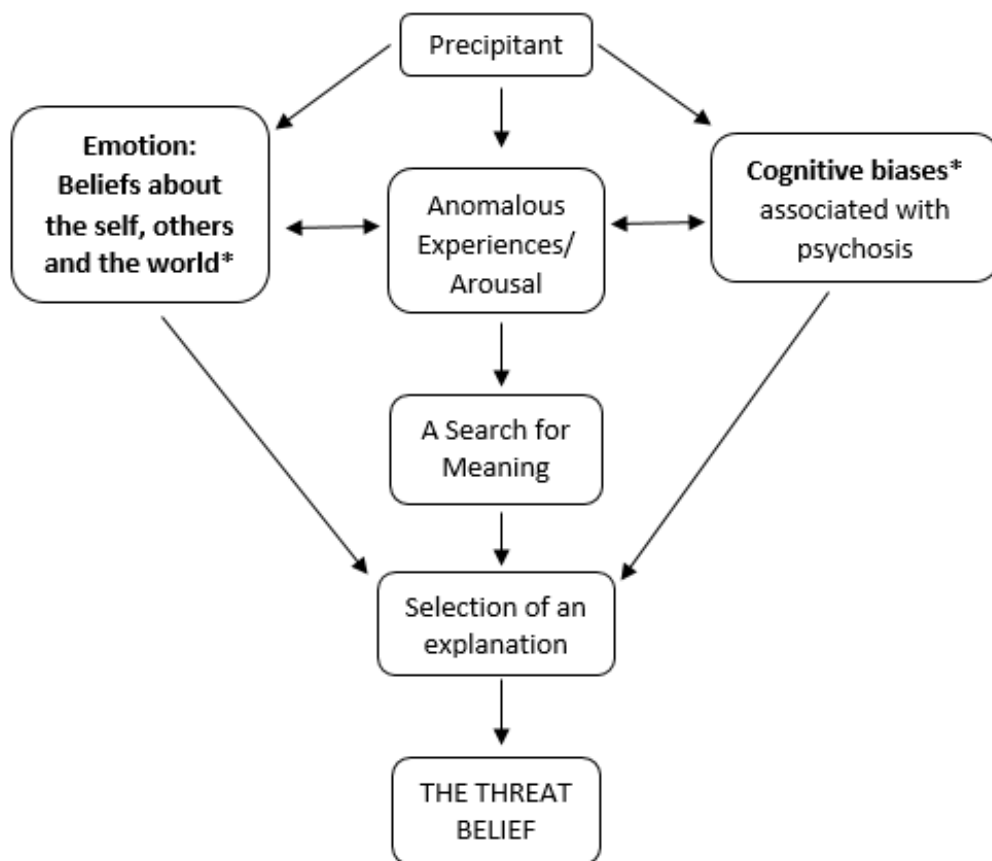


Figure 4.1: *Formation of persecutory delusion according to the threat anticipation cognitive model of persecutory delusions (Freeman & Garety, 2004).*

The underlying framework of this model is one of stress-vulnerability. The emergence of paranoia is thought to depend on an interaction between vulnerability

(genetic, biological, psychological and social) and stress (which may also be biological, psychological or social). Within this model, persecutory delusions are viewed as explanations of experiences that contain threat beliefs about physical, social or psychological harm. In the search for such an explanation, beliefs about the self, others and the world are drawn on. Explanations considered in the search for meaning will also be influenced by particular cognitive biases. In this model, Freeman and Garety (2004) are referring to empirically supported cognitive biases found in paranoia such as the jumping to conclusions bias (Garety et al., 1991), attributional bias (Kinderman & Bentall, 1997) and theory of mind dysfunction (Frith, 1992). The authors conclude that their model identifies a number of processes that may contribute to the formation and maintenance of paranoia. The model can therefore be used clinically to determine which of the suggested factors are relevant in an individual case in order to guide intervention.

Freeman and Garety (2004) suggest that further research should examine a wider variety of internal and external events that contribute to delusion formation and maintenance. They suggest that further attention needs to be given to the interpersonal relationship between the paranoid person and their 'persecutor' along with further exploration of the range of cognitive factors implicated in paranoia development and maintenance (Freeman & Garety, 2004). The current study provides new evidence of a relationship between nonclinical paranoia and forgiveness as well as replicating the finding of a positive relationship between paranoia and negative evaluative beliefs. These findings can be considered within the context of Freeman and Garety's model: the relevant areas have been highlighted in bold. Firstly, the finding of a significant positive relationship between paranoia and negative evaluative beliefs provides support

for the role of 'Emotion: beliefs about the self, others and the world' in the development of paranoia. Holding more negative beliefs about the self and others makes the chance of arriving at a 'threat belief' in the context of paranoia more possible. Secondly, low levels of forgiveness could be an additional 'cognitive bias' with the potential to add to the understanding of the development of 'threat beliefs' and therefore paranoia within this model. One element within this model that is not considered in the current study is depression. We know that depression is closely associated with negative beliefs about the self, others and the world (Beck, 1976), and has been shown to be positively associated with paranoia in both clinical and nonclinical samples (e.g. Freeman, 2007; Lincoln et al. 2009; Smith et al. 2006). It may be that depression was a confounding factor within this study which helps to explain some of the relationship between paranoia and forgiveness and particularly paranoia and negative evaluative beliefs. Controlling for depression should be an important consideration in future research into paranoia and forgiveness.

Another cognitive theory of paranoia is proposed by Trower and Chadwick (1995). Paranoia by definition requires a person to believe that another or others intend to cause them harm. Trower and Chadwick (1995), in their theory, argue that there are two distinct forms of paranoia, one of which is a defence; 'Poor me' paranoia, and one of which is associated with low mood and a sense of deservedness; 'Bad me' paranoia. 'Bad me' paranoia is characterised by the person expressing the view that they are deserved of their persecutors malevolent intentions because of some transgression they themselves have committed in the past for example, or because of some inherent wrongness within themselves. It would make intuitive sense for a person suffering from the experience of 'Bad me' paranoia to find it more difficult to forgive themselves and

others for transgressions. If a person is unable to forgive themselves for some real or perceived wrongdoing, they are more likely to believe that they are deserved of the malevolent intent of other people. The current findings do not allow us to draw any conclusions regarding this possible causal effect but this would be an interesting area for future research.

A final theory of nonclinical paranoia that the current findings support is the evolutionary perspective as mooted by both Ellett et al. (2003) and Bebbington et al. (2003). They argue that the process of considering the potential of others to cause harm is an adaptive trait that can be considered a strategy for ensuring personal safety and survival. The current finding of the existence of nonclinical paranoia in the nonclinical sample recruited, in itself provides support for this idea. The finding of a relationship between forgiveness and paranoia may contribute a new dimension to the understanding of paranoia as an adaptive trait. Perhaps forgiveness provides an additional protective function. Forgiving transgressions easily could leave individuals vulnerable to further exploitation and increase the risk of harm. Perhaps low forgiveness along with a more paranoid stance provides an additional form of security and safety in an uncertain world.

4.3.3 Nonclinical paranoia: clinical implications

The current research adds to the already substantial evidence in support of the continuum theory of paranoia. It is further evidence of the existence of paranoia in the general population rather than being a feature only of diagnosable mental health difficulties. Delusions in the nonclinical population are associated with distress and impairment in work, family and social functioning (Olfson et al., 2002) yet the majority of this group are not receiving support (Freeman, 2006). There are now a number of

publications on paranoid thinking aimed at the general population including self-help materials, for example, 'Overcoming Paranoid and Suspicious Thoughts' (Freeman, Freeman & Garety, 2012) and 'Paranoia: The 21st Century Fear' (Freeman & Freeman, 2008). The present study is one of many that can help with the movement towards destigmatising paranoia and separating it from its sole association with severe and enduring mental health conditions. There does however exist evidence that nonclinical paranoia is predictive of the later development of clinical symptoms (Chapman, Chapman, Kwapil, Eckblad, & Zinser, 1994; Poulton et al., 2000). This further highlights the need for literature and sources of support to be made accessible to the general population.

Altogether, the present study is supportive of the idea of treating paranoia as an individual 'symptom' that presents as a feature of a range of mental health difficulties and also within the healthy population. It is now increasingly typical for paranoia to be treated as an individual symptom in clinical settings. Interventions targeting individual symptoms rather than broad diagnoses covering a range of features have been proven to be effective (e.g. Bell & Freeman, 2014; Freeman et al., 2010). Furthermore, it has been demonstrated that the inclusion of a 'normalising' component for the treatment of psychotic symptoms, particularly within modified CBT for psychosis (CBT-P; Sensky et al., 2000), improves the effectiveness of such interventions. This suggests that highlighting the fact that particular symptoms such as paranoia occur frequently in those without a diagnosis of a mental health condition helps to reduce self-stigma and therefore improve outcomes (Johns & van Os, 2001).

4.3.4 Forgiveness theory

The present study offers a new insight into the relationship between nonclinical paranoia and a concept that has received no attention in the cognitive psychology literature to date: forgiveness. As described in the introduction to this research, forgiveness is a complex idea to define but is a concept which is interpersonal, involves transgression and involves a move from negative cognition, emotion and behaviour towards a transgressor towards more positive cognition, emotion and behaviour. It is essentially a pro-social response to an interpersonal event (Bono et al., 2008). It has been suggested that forgiveness helps people to maintain and restore close relationships (Karremans et al., 2003), and it has been shown to be associated with psychological wellbeing (Brown, 2003; Freedman & Enright, 1996, Karremans et al., 2003). Within the positive psychology field, forgiveness is considered a positive psychological characteristic and a human strength (Harris & Thoresen, 2006).

The finding of a negative relationship between nonclinical paranoia and forgiveness in the current study is consistent with previous research which has found a negative relationship between forgiveness and anxiety and depression (Friedman, 2005; Mauger et al, 1992; Perini, Muller & Buhler, 1991; Tangney et al. 1999 & Toussaint & Friedman, 2009). The relationship found in the current study is also consistent with research finding a negative association between forgiveness and personality traits pertaining to poorer psychological wellbeing such as anger, hostility and impulsiveness (Bono et al., 2008; Brose et al., 2005 & Worthington et al., 2005).

It would make intuitive sense to suggest that lower levels of forgiveness as a trait, may contribute to the development of paranoia. The present findings cannot lead us to this conclusion as there are no grounds for making claims regarding causation. However, if people are less able to forgive and this exists as a trait, paranoia may be

more likely to develop following a perceived transgression or wrongdoing. Being unable to forgive a transgressor or transgression would make it more likely for a transgressor to be perceived as malevolent and having an intent to harm.

The emerging forgiveness research is almost entirely based on self-report measures. The present study therefore adds a novel form of methodology to the literature. In addition to the two measures of trait forgiveness, nonclinical paranoia was found to have a negative relationship with state forgiveness following an interpersonal interaction. Further forgiveness research can consider using a similar experimental paradigm to look at state forgiveness alongside trait forgiveness.

4.3.5 Forgiveness: clinical implications

The relationship between nonclinical paranoia and forgiveness will need to be replicated as this is an entirely novel finding. It will also need to be examined within a clinical population. If such work is undertaken and the association is replicated, this could have significant implications for clinical interventions for paranoia. Current intervention techniques for paranoia as a symptom are informed by the relatively recent conclusive research which suggests a role of affect and cognition in the development and maintenance of paranoia. Cognitive behavioural therapy for worry and rumination for example has been trialled as a treatment for persecutory delusions (Freeman et al., 2010). Similarly, self-esteem interventions have been trialled for psychosis (Hall & Tarrier, 2003). A relatively recent study provided a test of the effect of CBT-based treatment focusing specifically on negative interpersonal cognition for persecutory delusions in a clinical population (Bell & Freeman, 2014). The authors found significant reductions in both persecutory delusions and interpersonal sensitivity both

following the intervention and at a one-month follow-up. Forgiveness may well be a similarly useful area of focus for such interventions for paranoia, especially given we have tentative evidence of a forgiveness having a mediating effect on the relationship between paranoia and negative evaluative beliefs.

There have been very few studies to date that pilot the impact of forgiveness-focused interventions on mental health and wellbeing. There are clear social and moral concerns to be taken into account when considering the idea of clinical interventions which focus on forgiveness as a target for change. It is widely accepted that those suffering with clinical manifestations of paranoia along with other positive symptoms of psychosis will more often than not have experienced some level of trauma or adversity. Research has demonstrated that paranoia in adulthood is associated with early separation from parents and being raised in institutional care (Bentall et al., 2012), and with early neglect (Sitko, Bentall, Shevlin & Sellwood, 2014). Therefore targeting attitudes towards forgiveness in a clinical population who are more likely to have experienced very severe transgression from past caregivers for example, would seem a potentially immoral route to take.

However, there have been a number of forgiveness intervention studies undertaken with various groups of participants including parents of adolescent suicide victims (Al-Mabuk & Downs, 1996), couples with marital difficulties (Ripley & Worthington, 2002) and in a general community sample (Thoresen et al., 2001). The most rigorous of these studies was undertaken by Thoresen et al. (2001) who evaluated the effects of a cognitive behavioural intervention delivered in a small group format once per week for six weeks. The sample consisted of 259 adults self-selected from the general population who were randomised to either an intervention or control group. The

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CBT sessions focused on the cognitive, emotional and behavioural elements of a) taking personal offence, b) attributing blame and c) creating a grievance narrative (being unforgiving). The study found significant increases in forgiveness and reductions in trait anger and perceived stress in comparison to the control group (Thoresen et al., 2001).

As aforementioned, further research is needed to establish the validity and consistency of the relationship between paranoia and forgiveness. It may be that early forgiveness-focused interventions, when deemed socially, morally and ethically appropriate could be a good candidate for the prevention of clinical paranoia developing in the nonclinical population experiencing nonclinical paranoia.

## 4.4 Strengths of the current study

### 4.4.1 Design

The present study employed a mixed design with both cross-sectional and experimental elements. Cross-sectional studies do not allow causality between variables to be inferred so the data have to be interpreted with this in mind. However, cross-sectional designs are widely regarded as efficient and valid when it comes to determining prevalence and are helpful at identifying novel associations which can later be more rigorously studied. In order to determine causality, either a longitudinal design is needed to explain the temporal relationship of variables, or an experimental design can be used to investigate mediating variables and the impact of introducing a novel stimulus. The present study was partly exploratory and aimed to investigate potentially novel associations between nonclinical paranoia and forgiveness. The study also

employed an experimental paradigm in order to 'induce' paranoia in one group of participants in order to examine the potential causal role of paranoia in forgiveness. The PDG was used in order to replicate an interpersonal interaction which did successfully 'induce' paranoia in one group significantly more than the other, allowing potential causal roles to be examined.

4.4.2 Sample

The present sample was self-selected using convenience sampling methodology. The majority of the sample was recruited via social media (n = 99) with a small number recruited from a pool of undergraduate students (n = 24). There is some evidence to suggest that self-selected samples may have a tendency to report more psychological difficulty (Freeman, Garety, Bebbington, Smith et al., 2005) opening up the potential for less generalizable results. However, the sample was drawn from both student and non-student populations and represented a wide age range and range of educational backgrounds. Although self-selecting online samples cannot be as generalizable as random offline recruitment, research has shown that samples recruited via social media are often more diverse in number of ways than traditional offline samples (e.g. Arnett, 2008; Gosling, Vazire, Srivastava & John, 2004). It was entirely appropriate to use a nonclinical sample in the present study in order to explore novel relationships between variables. This does however make it difficult to draw clinical implications from the data with certainty. It would be appropriate to replicate a similar study within a clinical sample of paranoid participants.

4.4.3 Measures

A range of self-report measures were carefully selected for the current study. The Paranoia Scale was designed to measure nonclinical paranoia within a nonclinical sample. The two measures chosen for the examination of forgiveness (the HFS and the FLS) were both well validated measures and ensured that the full range of components within the definition were explored.

Another strength of the current research was the use of the PDG to provide a novel way of looking at nonclinical paranoia and forgiveness without sole reliance on self-report questionnaires. It is quick to administer and very easy to utilise when developed into an easily accessible online format. The PDG allowed us to create two conditions, one involving a transgression, in order to directly assess the impact of this on both paranoia and forgiveness.

## 4.5 Limitations of the current study

4.5.1 Design

As outlined above, the PDG allowed for an experimental manipulation between two groups. However, it cannot be concluded that participants did indeed experience the manipulation as a clear interpersonal transgression. It may be that this was not the case given the nature of the PDG being presented as a 'game'. It may be that a more naturalistic approach to creating an interpersonal transgression would be more effective in future research looking at state forgiveness.

Although the mediation analysis undertaken confirmed that forgiveness mediates the relationship between nonclinical paranoia and negative evaluative beliefs,

the issue of directionality exists. No reverse mediation analysis was run to further validate the claim that the directional relationship between paranoia and negative evaluative beliefs operates partly through forgiveness. It would be also be interesting to look at whether negative evaluative beliefs are an explanatory factor for the relationship between paranoia and forgiveness. If this were the case, it would suggest that people who are more paranoid think more negatively about themselves and others and are therefore less forgiving as a consequence. The design and analyses employed did not allow for this more thorough exploration of these potential complex interactions between multiple variables.

## 4.5.2 Sample

The number of participants recruited for the study exceeded that which was suggested by the a priori power calculation. However, a technological limitation resulted in a number of participants being unable to progress to the experimental part of the study. Although the overall number of participants for the cross-sectional part of the study was more than sufficient, the between-groups section of the design was insufficiently powered, therefore increasing the likelihood of a Type II error occurring. This may have contributed to the prediction of lower state forgiveness in the 'transgression' group being negative.

The sample was predominately female (79%) and white British (69%), further reducing the generalisability of the findings. Although as aforementioned, online self-selecting samples can yield more diversity than many traditional methods of offline sampling, online users are still more likely to be younger, wealthier and more highly educated (Dutton & Blank, 2011). We would expect such a sample to be generally less

paranoid than a sample with a more diverse range of socio-economic and educational backgrounds given the known associations between paranoia and poverty, poorer physical health and lower social cohesion (Freeman et al., 2011). A sample representing a broader mix of ethnicities and gender should be sought in any research aiming to replicate or advance these findings. There is also evidence to suggest that more paranoid people may be less willing to voluntarily enter in to an online study. Mason, Stevenson & Freedman (2014) found that trait paranoia in a general population sample measured using the PS (Fenigstein & Vanable, 1992), was positively related to a newly devised measure of 'cyber-paranoia': 'unrealistic fear concerning threats via information technologies' (Mason et al., 1992, p1.) Given the limitations inherent in using an online format, alternative recruitment strategies may yield a more representative sample.

4.5.3 Measures

The use of self-report measures in research always produces limitations including social-desirability bias, response bias (the tendency to respond in a similar way across measures) or exaggeration. The EBS yielded a high number of zero scores (60.2%) so was converted to a binary variable. Converting this measure into a binary variable and effectively considering anything more than '0' as informative potentially over-estimates the relationship between nonclinical paranoia and negative evaluative beliefs. The 'other-self' subscale of the EBS was used in the analysis as this was most pertinent to the consideration of paranoia; what people believe others think about them. It would be interesting to see if the same association occurs between paranoia and the 'self-other' subscale of the EBS, and indeed, whether forgiveness has the same

mediating effect in this case. This would further bolster the findings as well as the role of forgiveness.

Another limitation concerns the attempted measurement of 'behavioural forgiveness'. The present study used a binary variable in an attempt to capture a measure of 'behavioural forgiveness' following the PDG. Participants had the option to either exclude or not exclude the other player from further rounds of the PDG following the initial round. It was hypothesised that the group who suffered a transgression in the context of the PDG would be more likely to exclude the other player in an 'unforgiving' manner. The study found no difference between groups in this measure and in fact, very few people chose to exclude the other player (n = 11). This could be understood as being a representation of a very 'forgiving' sample. However, there are a host of other reasons for choosing not to exclude the other player. Participants may have wanted to play another round in order to 'get their own back' and compete against the other player. Participants were also told that if they earned a certain number of credits, they would receive an iTunes voucher. Participants may have wanted to continue play with the other player, despite the transgression experienced because of this incentive. This measure can therefore not be interpreted in a valid way and essentially is excluded from the discussion.

Despite higher levels of state paranoia being reported in the 'transgression' group, scores on the SFM did not differ significantly between groups. Rather than an issue with this validated measure itself, it could be the case that the lack of power given the smaller sample size may have resulted in this null hypothesis. The direction of effect for this hypothesis was as expected; lower levels of forgiveness were found in the 'transgression' group, but the lack of power may have prevented this association from

reaching significance. In addition to the level of power, as discussed previously, the 'severity' of the transgression presented to participants may have been too low to have an impact of forgiveness as measured by the SFM.

There are a number of potential limitations regarding the use of the PDG in the present study. Firstly, there was no measure put in place to check that participants actually believed they were playing against another person or a computer. However, a number of procedural elements sought to replicate the real-life experience of playing against another player such as the instruction for the participant to 'please wait while we search for another player…. searching…' along with time delays. If participants had deduced they were actually playing against the computer, we should have found a floor effect in the SPS and SFM which specifically ask participants about their experience of the other player. A floor effect wasn't found, suggesting the minor deception was successful. A simple additional Likert scale at the end of the survey asking participants whether or not they believed they were playing against another person would have eliminated this minor design limitation entirely.

A final limitation is the conceptualisation of paranoia used in this study of nonclinical paranoia in a general population sample. Freeman and Garety's (2000) criteria for defining persecutory delusions are used to define paranoia in this study in line with previous research looking at both clinical and nonclinical paranoia. This definition however, does not take into account the multidimensional nature of paranoia as addressed by Freeman (2007) in a review of persecutory delusions. Important dimensional elements such as the 'reasonableness' of belief and the level of conviction with which they are held are not assessed within the measure used in this study (the Paranoia Scale) based on the Freeman & Garety (2000) definition. This may mean that

the levels of paranoia detected in this study do not truly represent genuine paranoia as conceptualised not only by belief of harm but also other important dimensional factors. An additional measure including such elements could be used alongside the Paranoia Scale in order to capture a more holistic picture of paranoia and all it entails as a concept.

## 4.6 Future Directions

The current study highlights a range of possibilities for future research to replicate and expand on the findings. Firstly, the significant negative relationship found between nonclinical paranoia and trait forgiveness is an entirely novel one. This therefore needs to be replicated in a more generalizable sample with a more representative range in terms of gender and ethnicity. Once this finding has been successfully replicated in a nonclinical sample, the same self-report measures of trait forgiveness could be administered to a clinical sample of participants including those currently suffering from persecutory delusions according to the Freeman and Garety (2000) definition, and those who are not. This would further bolster the validity of this novel relationship and would add to the argument for forgiveness to be a focus of clinical intervention.

One interesting direction for future research into the impact of transgression within the PDG on state paranoia, state forgiveness and related concepts could involve using multiple iterations of PDG rounds rather than just one game. Multiple iterations of the PDG require the participant to think ahead to the longer-term outcome which is different to the thinking demonstrated when the PDG is played with just a single trial (Pruitt & Kimmel, 1977). We may expect state paranoia to increase over time in this

circumstance as the potential for repeated transgression arises. Such repeated transgressions may accumulate to produce more of a significant and meaningful betrayal as Brown and Phillips (2005) suggested was necessary to produce an impact on state forgiveness.

In clinical samples, paranoia is commonly directed towards groups and/or institutions more often than toward just one person (Green et al., 2006). Another direction for future research could be to examine nonclinical paranoia and forgiveness using the PDG when the 'other player' is a group acting collectively, or even when the participant is placed within a team in order to play against an individual other. One might expect levels of paranoia to be higher in the former circumstance, and lower in the latter. It would be interesting to see how forgiveness operates in relation to a group.

One of the potential factors contributing the non-significant relationship between state paranoia and state forgiveness following the PDG is the possibility that the 'transgression' manipulation in the present study was not actually experienced as a true interpersonal transgression. Future studies aiming to explore state forgiveness could attempt to use a more naturalistic design to more effectively simulate the experience of an interpersonal transgression. There could also be a measure introduced to confirm that each participant does experience the manipulation as a transgression or wrongdoing by another person.

All psychological models of paranoia include an affect component. It is widely accepted that anxiety and depression each have a role in the development and maintenance of paranoia (Freeman, 2006). Future research examining the role of forgiveness in paranoia could also look at whether anxiety and/or depression have moderating or mediating effects on this relationship.

## 4.7 Conclusions

The current study allows us to draw a number of tentative conclusions whilst holding in mind the limitations outlined. The research provides evidence of a novel relationship between nonclinical paranoia and forgiveness. Higher levels of nonclinical trait paranoia are associated with lower levels of trait forgiveness and state forgiveness towards another person following a simulated interpersonal interaction. This finding has potential implications for both the theoretical understanding of the development and maintenance of paranoia and for the clinical treatment of paranoia as an individual symptom. Secondly, the study replicates the already established relationship between nonclinical paranoia and negative evaluative beliefs and implicates forgiveness as a potential mediating factor in this relationship. Finally, the study demonstrated the utility of the PDG as an experimental paradigm for the investigation of nonclinical paranoia and other interpersonal variables; forgiveness being one.

Collectively, the current findings provide a foundation for further research looking at the role of forgiveness in nonclinical paranoia which could potentially have exciting implications for both our understanding of paranoia overall and for the treatment of this individual symptom in clinical settings.

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# APPENDIX A

**Socio-Demographic Questions**

**Welcome to the study! Please answer the following questions about yourself.**

1. Please enter your age (text box)

2. Please select your sex

   ☐   Male
   ☐   Female

3. Please select your employment status

   ☐   Employed
   ☐   Unemployed
   ☐   Full-Time Education

4. Please select your education status

   ☐   O-Level/GCSE or equivalent
   ☐   A-Level or equivalent
   ☐   Degree or equivalent
   ☐   Post-Graduate or equivalent

5. Which of the following best describes your ethnic group or cultural background?

   ☐   White British
   ☐   Any Other White British
   ☐   Asian Background
   ☐   African Background
   ☐   Any Other Black Background
   ☐   Mixed White British and Other
   ☐   Mixed White Non-British and Other
   ☐   Any Other Mixed Background

6. What is your marital status?

   ☐   Single
   ☐   Married or cohabiting
   ☐   Widowed
   ☐   Divorced

7. Have you had previous contact with mental health services?

   ☐   Yes
   ☐   No

# APPENDIX B

## The Paranoia Scale (PS)

Fenigstein & Vanable (1992)

## Questionnaire 2

Please read each statement and tick the box that indicates how applicable each statement is to you. It is usually your initial response that is most accurate so please do not spend a long time considering each item.

**1. Someone has it in for me**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**2. I sometimes feel as if I am being followed**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**3. I believe that I have often been punished without cause**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**4. Some people have tried to steal my ideas and take credit for them**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**5. My parents and family find more faults with me than they should**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**6. No one really cares much about what happens to you**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**7. I am sure I get a raw deal in life**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**8. Some people will use somewhat unfair means to get profit or an advantage, rather than lose it.**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**9. I often wonder what hidden reason another person may have for doing something nice for you.**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**10. It is safer to trust no one**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**11. I have often felt that strangers were looking at me critically.**

|                              | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:----------------------------:|:-------------------------:|:---------------------------:|:---------------------:|:--------------------------:|
| Not at all applicable to me ○ | ○ | ○ | ○ | ○ |

**12. Most people make friends because friends are likely to be useful to them.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**13. Someone has been trying to influence my mind.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**14. I am sure I have been talked about behind my back.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**15. Most people inwardly dislike putting themselves out to help other people.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**16. I tend to be on my guard with people who are somewhat more friendly than I expected.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**17. People have said insulting and unkind things about me.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**18. People often disappoint me**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**19. I am bothered by people outside, in cars, in stores etc, watching me.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**20. I have often found people jealous of my good ideas just because they had not thought of them first.**

| Not at all applicable to me | Slightly applicable to me | Moderately applicable to me | Very applicable to me | Extremely applicable to me |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**The Evaluative Beliefs Scale (EBS)**

Chadwick, Trower & Dagnan (1999)

# Questionnaire 1

Please select how much you agree with the following statements.

**1. I am a total failure**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**2. I am worthless**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**3. I am totally weak and helpless**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**4. I am a bad person**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**5. I am an inferior person**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

**6. I am unlovable**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**7. People think I am a bad person**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**8. People see me as worthless**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**9. People see me as a total failure**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**10. People see me as unlovable**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**11. People see me as totally weak and helpless**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**12. People look down on me**

| Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ |

**13. Other people are worthless**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**14. Other people are inferior to me**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**15. Other people are total failures**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**16. Other people are totally weak and helpless**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**17. Other people are bad**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**18. Other people are unlovable**

|   | Agree strongly | Agree slightly | Unsure | Disagree slightly | Disagree strongly |
|---|---|---|---|---|---|
|   | ○ | ○ | ○ | ○ | ○ |

**The Heartland Foundation Forgiveness Scale (HFS)**

Thompson et al. (2005)

# Questionnaire 3

In the course of our lives negative things may occur because of our own actions, the actions of others, or circumstances beyond our control. For some time after these events, we may have negative thoughts or feelings about ourselves, others, or the situation. Think about how you typically respond to such negative events. There are no right or wrong answers. Please be as open as possible in your answers.

1. **Although I feel bad at first when I mess up, over time I can give myself some slack.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

2. **I hold grudges against myself for negative things I've done.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

3. **Learning from bad things that I've done helps me get over them.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

4. **It is really hard for me to accept myself once I've messed up.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

5. **With time I am understanding of myself for mistakes I've made.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**6. I don't stop criticizing myself for negative things I've felt, thought, said, or done.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**7. I continue to punish a person who has done something that I think is wrong.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**8. With time I am understanding of others for the mistakes they've made.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**9. I continue to be hard on others who have hurt me.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**10. Although others have hurt me in the past, I have eventually been able to see them as good people.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**11. If others mistreat me, I continue to think badly of them.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**12. When someone disappoints me, I can eventually move past it.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**13. When things go wrong for reasons that can't be controlled, I get stuck in negative thoughts about it.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**14. With time I can be understanding of bad circumstances in my life.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**15. If I am disappointed by uncontrollable circumstances in my life, I continue to think negatively about them.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**16. I eventually make peace with bad situations in my life.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**17. It's really hard for me to accept negative situations that aren't anybody's fault.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**18. Eventually I let go of negative thoughts about bad circumstances that are beyond anyone's control.**

| Almost always false of me | | More often false of me | | More often true of me | | Almost always true of me |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

# APPENDIX E

## The Forgiveness Likelihood Scale (FLS)

Rye et al. (2001)

# Questionnaire 4

Imagine the scenarios below happened to you. Based on the information provided, consider the likelihood that you would choose to forgive the person. Then, choose the response that is most true for you.

1. **You share something embarrassing about yourself to a friend who promises to keep the information confidential. However, the friend breaks his/her promise and proceeds to tell several people. What is the likelihood that you would choose to forgive your friend?**

   Extremely likely    Fairly likely    Somewhat likely    Slightly likely    Not at all likely
   ○      ○      ○      ○      ○

2. **One of your friends starts a nasty rumor about you that is not true. As a result, people begin treating you worse than they have in the past. What is the likelihood that you would choose to forgive your friend?**

   Extremely likely    Fairly likely    Somewhat likely    Slightly likely    Not at all likely
   ○      ○      ○      ○      ○

3. **Your significant other has just broken up with you, leaving you hurt and confused. You learn that the reason for the break up is that your significant other started dating a good friend of yours. What is the likelihood that you would choose to forgive your significant other?**

   Extremely likely    Fairly likely    Somewhat likely    Slightly likely    Not at all likely
   ○      ○      ○      ○      ○

4. **A family member humiliates you in front of others by sharing a story about you that you did not want anyone to know. What is the likelihood that you would choose to forgive the family member?**

   Extremely likely    Fairly likely    Somewhat likely    Slightly likely    Not at all likely
   ○      ○      ○      ○      ○

5. **Your significant other has a "one night stand" and becomes sexually involved with someone else. What is the likelihood that you would choose to forgive your significant other?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

6. **Your friend has been talking about you behind your back. When you confront this person, he/she denies it, even though you know that he/she is lying. What is the likelihood that you would choose to forgive your friend?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

7. **A friend borrows your most valued possession, and then loses it. The friend refuses to replace it. What is the likelihood that you would choose to forgive your friend?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

8. **You tell an acquaintance about a job that you hope to be hired for. Without telling you, the acquaintance applies and gets the job for him/herself. What is the likelihood that you would choose to forgive your acquaintance?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

9. **A stranger breaks into your house and steals a substantial sum of money from you. What is the likelihood that you would choose to forgive the stranger?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

10. **You accept someone's offer to attend a formal dance. However, this person breaks their commitment to take you and goes to the event with someone who they find more attractive. What is the likelihood that you would choose to forgive this person?**

| Extremely likely | Fairly likely | Somewhat likely | Slightly likely | Not at all likely |
| :---: | :---: | :---: | :---: | :---: |
| ○ | ○ | ○ | ○ | ○ |

**State Paranoia Scale (SPS)**

Ellett et al. (2013)

# Questionnaire 5

Instructions: Please select the boxes which best describe **how you experienced the other player** during the game. It is usually your initial response that is most accurate so please do not spend a long time considering each item.

**1.**

| **Friendly** | Definitely friendly towards me | Probably friendly towards me | Maybe friendly towards me | Unsure | Maybe hostile towards me | Probably hostile towards me | Definitely hostile towards me | **Hostile** |
|---|---|---|---|---|---|---|---|---|
| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

**2.**

| **Wants to please me** | Definitely wants to please me | Probably wants to please me | Maybe wants to please me | Unsure | Maybe wants to upset me | Probably wants to upset me | Definitely wants to upset me | **wants to upset me** |
|---|---|---|---|---|---|---|---|---|
| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

**3.**

| **Wants to help me** | Definitely wants to help me | Probably wants to help me | Maybe wants to help me | Unsure | Maybe wants to harm me | Probably wants to harm me | Definitely wants to harm me | **Wants to harm me** |
|---|---|---|---|---|---|---|---|---|
| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

**4.**

| **Respects me** | Definitely respects me | Probably respects me | Maybe respects me | Unsure | Maybe has it in for me | Probably has it in for me | Definitely has it in for me | **Has it in for me** |
|---|---|---|---|---|---|---|---|---|
| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

**State Forgiveness Measure (SFM)**

Brown & Phillips (2005)

# Questionnaire 6

Please consider your thoughts and feelings towards the other player in the game.

**1. I have forgiven this person.**

Strongly
Disagree
〇   〇   〇   〇   〇   〇   〇
Strongly
Agree

**2. I feel angry toward this person.**

Strongly
Disagree
〇   〇   〇   〇   〇   〇   〇
Strongly
Agree

**3. Even though his/her actions hurt me, I do not feel ill-will toward him/her.**

Strongly
Disagree
〇   〇   〇   〇   〇   〇   〇
Strongly
Agree

**4. I dislike this person.**

Strongly
Disagree
〇   〇   〇   〇   〇   〇   〇
Strongly
Agree

**5. I feel warmly toward this person**

Strongly
Disagree
〇   〇   〇   〇   〇   〇   〇
Strongly
Agree

**6. I hope this person gets what's coming to them for what they did for me.**

Strongly                                                                                 Strongly
Disagree                                                                                  Agree
  ○              ○              ○              ○              ○              ○              ○

**7. If I met this person, I would try to avoid interacting with him/her.**

Strongly                                                                                 Strongly
Disagree                                                                                  Agree
  ○              ○              ○              ○              ○              ○              ○

# Information Sheet

Before you decide to take part, it is important for you to fully understand what the study involves and all relevant information. Please take time to read the following sheet carefully.

## 1. What does the study involve?

During the study, you will be asked to complete a number of questionnaires as well as play a short game against another randomly selected player. The game will be explained fully to you before you start and you will have a chance to practice before the game starts to ensure you understand the rules. The study will be completed online in one session. It is not possible to logout and then login again at a later point; you must complete the study in one go. Please allow 20-25 minutes to complete the study.

## 2. Who is involved in this study?

The principal investigator for this study is Emmi Honeybourne, a Trainee Clinical Psychologist. Dr Lyn Ellett, senior lecturer in Clinical Psychology is also an investigator. Both are from Royal Holloway, University of London.

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

We are recruiting people aged between 18-65 to take part in the study.

## 4. Do I have to take part?

It is up to you to decide to take part. If you do decide to take part in the study you will be asked to complete an online consent form to agree that you have read and understood the study information.

## 5. Can I withdraw from the study?

Yes, you can withdraw at any time even if you have already completed the consent form without giving a reason. The data you have supplied up to that point will be removed and won't be used in the study. You can omit any questions you do not wish to answer.

## 6. What are the incentives to complete the study?

If you are a first year undergraduate psychology student at Royal Holloway, participation in the study will earn you course credit. During the study every participant will have the opportunity to win credits that you can trade in for a song of your choice on-line at the iTunes store. This will be explained in more detail when you are given instructions on the task

## 7. Will my taking part in the study be kept confidential?

All information which is collected during the course of the research will be kept strictly confidential. The questionnaire scores and task data will be anonymised and stored securely on a database. Only the researchers will have access to the information you give during the study.

**8. What are the possible disadvantages and risks of taking part?**

There are no known disadvantages or risks to participating in this study. However, if you do feel worse after taking part in the study and you feel you need some support to help with difficult emotions, please contact your GP and inform the principal researcher via email (see question 12 for details). The university also offers a counselling service or you may also wish to contact the Samaritans.

*Royal Holloway Counselling Service Website:*
Website: http://www.rhul.ac.uk/ecampus/welfare/counselling/home.aspx
Telephone: 01784 443 128
Email: counselling@rhul.ac.uk>
Location: FW171

*Samaritans Website:*
Website: http://www.samaritans.org/
Telephone: 08457 90 90 90 (UK) or 1850 60 90 90 (ROI)
Email: jo@samaritans.org

**9. What will happen to the results of the research study?**

The research study will be written up and submitted in partial fulfilment of the requirements of the Doctorate in Clinical Psychology. It is also proposed that the findings of the study will be written up and submitted to a peer-reviewed journal. If you are interested in hearing about the results and conclusions of the study, please inform the principal researcher via email who will send you a summary once the research is complete.

**10. Who has reviewed the study?**

The study has been reviewed by the Royal Holloway University of London Psychology Department Ethics Committee.

**11. Who is organizing the funding of the research?**

The research is a requirement of Emmi Honeybourne's doctoral thesis as part of her training in Clinical Psychology. Her training is funded by Camden and Islington Mental Health and Social Care Trust.

**12. How can I get more information?**

Please do not hesitate to contact Emmi Honeybourne, the principal researcher, via email should you need any further information about the study. You may also contact Dr Lyn Ellett.

Emmi Honeybourne: Emmi.Honeybourne.2013@live.rhul.ac.uk

Dr Lyn Ellett: Lyn.Ellett@rhul.ac.uk

# APPENDIX I

## Debriefing Statement

The study is now complete. Thank you for your participation!

Below is more information about the study that we could not tell you before you took part as it may have affected the decisions you made during the study.

The study used some minor deception. You were made to think that you were playing the computer game against another player, when in actual fact you were playing against the computer which was pre-programmed. The minor deception was necessary to investigate which strategy you would choose if you were playing for limited resources.

The questionnaires that you completed measured paranoia (i.e. thoughts that others may harm you), the beliefs you hold about yourself and others, and your general attitudes toward forgiveness. The aim of the research was to look at the relationships between paranoia, beliefs about self and others, and forgiveness within the context of a social game. Your participation in this study will help our understanding of paranoia as it exists within the general population.

Paranoid-like thoughts are a common everyday experience for many people and are not anything to worry about. If you do feel worse after taking part in the study and you feel you need help to manage difficult emotions please contact your GP and inform the principal researcher (Emmi Honeybourne) via email. If you are a student, the university also offers a counselling service or you may also wish to contact the Samaritans.

**Royal Holloway Counselling Service Website**
Website: http://www.rhul.ac.uk/ecampus/welfare/counselling/home.aspx
Telephone: 01784 443 128
Email: counselling@rhul.ac.uk
Location: FW171

**Samaritans**
Website: http://www.samaritans.org/
Telephone: 08457 90 90 90 (UK) or 1850 60 90 90 (ROI)
Email: jo@samaritans.org

Thank you for your participation in this research. If you have any further questions, please contact Emmi Honeybourne via email on emmi.honeybourne.2013@rhul.ac.uk.

Having been fully debriefed about the aims and purpose of this study, I am happy for my data to be included in the study.

○     I Agree that my data can be used in this study

○     I Disagree to my data being used in this study; please withdraw my data

# APPENDIX J

Royal Holloway University of London

Department Ethics Committee Ethical Approval Email

## Ref: 2015/041 Ethics Form Approved Subject to Amendment

**P** psychology.it.support@rhul.ac.uk                                            👍    ↩ Reply all | ∨
24/03/2015
pava046@rhul.ac.uk; Ellett, Lyn; PSY-EthicsAdmin@rhul.ac.uk; Zagefka, Hanna; Lock, Annette; uqjt005@rhul.ac.uk  ⤵

Major research project

| | |
|---|---|
| **Application Details:** | View the form click here   Revise the form click here |
| **Applicant Name:** | **Emmi Honeybourne** |
| **Application title:** | **Nonclinical paranoia and forgiveness** |
| **Comments:** | Approved subject to amendment. This means that the following amendments are required before the research can commence (note that even though these changes are required, evidence of the revisions does not have to be submitted to DEC): |

1. In the information sheet it states that RHUL students will get course credits, but these students are recruited via posters, etc. will they really all get credits if in other Department, not first years, etc. Please amend.

2. Write in the information sheet that they can omit question that they do not wish to answer and include in the consent form that they understand that taking part or withdrawing will not affect their education (please take wording from the template online)

For your consideration only:

you might want to reconsider the title as it might be giving away the hypotheses for the study.