Values, Goals, and Non-Clinical Paranoia:

Effects over Time

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June 2017

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

ABSTRACT

Paranoia across both clinical and non-clinical populations is closely linked with the negative self. Recent research has begun to investigate self-affirmation processes as a way to target the self and thereby attenuate non-clinical paranoia. For the first time, the effects of reflecting on personally meaningful values, and pursuing values-based goals, on non-clinical paranoia was assessed over time. Using a mixed experimental design, an opportunity sample of adults from student and general population settings (N = 171) were randomised to either value-affirmation (VA), value-affirmation plus goal-setting (VAG), or non-affirmation control (NAC). The procedures traditionally used for value-affirmation were adapted to increase clinical validity, drawing on methods used for value-clarification in Acceptance and Commitment Therapy (ACT). State paranoia and positive affect was assessed pre, post, and two-weeks following affirmation. In support of predictions, there was a significant interaction between conditions on state paranoia over time. This remained significant when change in positive affect associated with completing value-affirmation procedures was accounted for in the analyses. Decomposing this interaction showed that there were significant reductions in paranoia over time in the VAG condition. Exploratory analysis indicated that only those participants who acted on values-based goals showed significant attenuations in paranoia over two weeks. There was no significant reduction in paranoia over time in the VA condition. The results are in support of self-affirmation theory, and contemporary theory in clinical psychology, which suggest that living in line with personally meaningful values gives psychological benefits in buffering against self-threats, over and above reflection on personally meaningful values.

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1. INTRODUCTION

1.1. Overview

Paranoia is the belief that others intend to cause oneself deliberate harm (Freeman & Garety, 2000). Paranoia is now widely recognised as a relatively common experience, occurring along a continuum within both clinical and non-clinical populations (e.g., Bebbington et al., 2013). Whilst much research has typically concerned clinical paranoia, investigations into non-clinical paranoia have become increasingly important, for two key reasons. Firstly, the prevalence of non-clinical paranoia is such that it warrants investigation in its own right. Secondly, paranoia elicited in non-clinical samples provides opportunities to investigate paranoia in a controlled environment. Non-clinical research therefore makes important contributions to the understanding and treatment of paranoia across the continuum.

One factor that has received much theoretical and empirical attention within the literature is the role of negative self-perceptions in the generation and maintenance of paranoid thinking (e.g., Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Freeman et al., 2005). Research has begun to investigate whether targeting the self might lead to attenuations in paranoia. One psychological process that has recently been studied in relation to non-clinical paranoia is self-affirmation. A self-affirmation is any thought or act that enhances the "perceived integrity of the self, its overall adaptive and moral adequacy" (Steele, 1988, p.291). Self-affirmations have been shown to buffer against a range of perceived threats to the self, leading to improved cognitive and behavioural outcomes (Cohen & Sherman, 2014). Although still in their infancy, initial experimental investigations have provided indications that self-affirmations may provide an effective buffer for non-clinical paranoia (Atherton et al.,

2016; Bullock, Newman-Taylor, & Stopa, 2016; Ellett & Chadwick, 2007; Kingston & Ellett, 2014).

Whilst promising, the real-world and clinical utility of these existing findings is currently limited, as no study has assessed whether initial attenuations in paranoia observed in the laboratory are maintained over time. Furthermore, to date, all studies investigating self-affirmations for non-clinical paranoia have employed only cognitive methods of self-affirmation (reflecting on personally important aspects of the self). Findings from the self-affirmation literature suggest that self-affirmations may have longer-term effects as a result of both cognitive self-affirmations (reflecting on important aspects of the self) and behavioural self-affirmations (acting in line with personally important aspects of the self). This thesis sought to investigate whether behavioural self-affirmations, in the form of setting a goal to live in line with personally important values, would enhance the effects of reflection on meaningful values in attenuating non-clinical paranoia over time.

Reflection on personal values (value-affirmation) is the most common empirical manipulation of self-affirmation. However, these procedures have limited real-world and clinical validity in comparison with values-based exercises used in clinical contexts (Czech, Katz & Orsillio, 2011). The values used are typically limited to a relatively small number of life domains, which introduces potential confounds in understanding the outcomes of value-affirmation research. Furthermore, it is not clear whether value-affirmations retain their effectiveness once individuals are aware of their purpose. In clinical contexts, guided reflection on personal values forms a significant component of treatment in Acceptance and Commitment Therapy (ACT; Hayes, Strohsal, & Wilson, 2011). In ACT, values are clarified for the purposes of identifying intrinsic motivators for committing to act in personally meaningful ways

despite life's challenges. To address some of the limitations of existing value-affirmation procedures, the procedures for value-affirmation in this thesis were adapted, drawing on methods used for values-clarification in ACT.

The present thesis aimed to 1) investigate whether a value-affirmation intervention would attenuate non-clinical paranoia over a two-week time period; 2) compare value-affirmation with a value-affirmation plus goal-setting condition, which introduces a behavioural component to investigate whether this enhances the effect of value-affirmation on paranoia over time; 3) develop existing value-affirmation procedures to address some of their limitations, particularly increasing their applicability to clinical contexts.

This chapter begins by introducing the definitions and conceptualisations of paranoia, paying attention to theoretical accounts of non-clinical paranoia, and the relationship between paranoia and a negative view of the self. The literature related to the experimental manipulation of self-affirmation is then presented, and theory concerning the potential utility of values-based approaches for buffering against self-threat in non-clinical paranoia is discussed. Finally, the hypotheses are presented.

1.1. Defining Paranoia

1.1.1. Definition.

Paranoia is the unfounded perception that deliberate harm is intended towards oneself and reflects a heightened sensitivity to perceiving threats to the self from others. Historically, a number of definitions have been used to describe paranoia, ranging from mild social worry to severe persecutory delusions (Freeman & Garety, 2000). To provide clarification, a criteria-based definition of paranoia has been

widely-accepted in the literature for defining paranoia in clinical (e.g., Freeman, Startup, et al., 2014) and non-clinical studies (e.g., Atherton et al., 2016). According to this definition, paranoia involves perceiving both that harm is occurring, or will occur, and that this harm is intended (Freeman & Garety, 2000, *Figure 1.1.*). These criteria will be used to define paranoia in the current thesis.

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.
Points for clarification:	
1.	Harm concerns any action that leads to the individual feeling distressed.
2.	Harm only to friends or relatives does not count as a persecutory belief, unless the persecutor also intends for this to have a negative effect upon the individual.
3.	The individual must believe that the persecutor, at the present or in the future, will attempt to harm him or her.
4.	Delusions of reference do not count within the category of persecutory beliefs.

Figure 1.1. Paranoia definition. From: Freeman, D. & Garety, P. A. (2000). Comments on the content of persecutory delusions: Does the definition need clarification? *British Journal of Clinical Psychology, 39(4),* p.142.

1.1.2. The paranoia continuum.

Paranoia is characteristic of several psychiatric disorders, including psychosis, schizophrenia, and paranoid personality disorder (American Psychological Association, 2013; Carroll, 2009). However, paranoid thoughts are now considered to be a common psychological experience, and not solely a symptom of mental illness. The notion that paranoia might exist along a continuum of severity within the population reflects a paradigm-shift in which categorical definitions of mental illness have been replaced by dimensional views of mental health (Esterberg & Compton, 2008; Strauss, 1969).

In support of a dimensional view, many studies have shown that psychotic symptoms can be studied in non-clinical samples (e.g., Ahmed, Buckley, & Mabe, 2012; Shevlin, McElroy, Bentall, Reninghaus, & Murphy, 2017; Therman & Zeirmans, 2016; van Os & Linscott, 2012; Versmissen et al., 2008). One such study was conducted by Rossler et al. (2007), who interviewed 591 young adults five times over twenty years. Their findings revealed that psychotic experiences, including paranoia, were reported at non-clinical levels, and appeared continuous, varying in intensity and persistence among the population over time. Their findings support a dimensional view of psychotic experiences. The fact that psychotic experiences presented at non-clinical levels also led the authors to advocate for early detection and intervention in non-clinical symptoms, to decrease the odds of later psychosis (Rossler et al., 2007).

Recent years have also seen research investigating the prevalence of paranoia as a symptom in its own right, rather than as part of the heterogeneous diagnostic category of psychosis (Combs, Finn, Wohlfahrt, Penn, & Basso, 2013; Verdoux & van Os, 2002). As with the psychosis continuum model, a key argument of the

continuum view of paranoia is that clinical and non-clinical paranoia are not qualitatively different from each other, but that an attenuated experience of paranoia (i.e., lower severity, lower persistence) is present in non-clinical populations (Costello, 1994). In keeping with the continuum view, several studies have demonstrated that there is etiological continuity across the paranoia continuum, whereby clinical and non-clinical manifestations of paranoia are associated with similar risk factors (Myin-Germeys, Krabbendam, & van Os, 2003). Being younger in age, male, situated in an urban environment, facing social adversity, isolation, stress, substance misuse and poor mental and physical health have been consistently associated with paranoia in clinical and non-clinical populations (e.g., Bebbington, 2015; Freeman et al., 2011; Rossler et al., 2007). In addition, similar factors also appear to be causally implicated in the generation of paranoia across the continuum. In one empirical study, Freeman, Pugh, Vorontsova, Antley, and Slater (2010) found that anxiety, depression, worry, and interpersonal sensitivity were implicated in paranoid thinking across non-clinical, high paranoia non-clinical, and clinical groups. Such findings indicate similarities in affective and interpersonal experiences across the paranoia continuum.

Evidence in support of a paranoia continuum has been obtained from cross-sectional self-report surveys of large general population samples. Johns et al., (2004) found a paranoia prevalence rate of 9% within a general population sample of 8580. A systematic review and meta-analysis of 47 published prevalence studies reported similar findings, but found the frequency of paranoid thoughts decreased with severity (van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009). Between 1-3% of the general population experienced paranoid beliefs of similar severity to those

seen in clinical samples; 4% had paranoid experiences which were associated with distress and dysfunction; and 8% experienced milder paranoid thoughts.

These findings indicate that milder, non-clinical paranoia is more common than clinical paranoia. Taking this further, several authors have sought to investigate the structure of paranoia across the continuum. Freeman et al. (2005) conducted an internet survey of 1202 students, of whom up to 52% reported having thoughts with paranoid content on a 'weekly' basis. There was a negative correlation between the frequency of paranoid thoughts, and the conviction and distress associated with them. The less common paranoid thoughts were held with more conviction and caused more distress than the more common, milder paranoid thoughts. These findings supported an exponential distribution of paranoia in the population, with milder paranoid thoughts being relatively common, and more severe paranoid thoughts being relatively rare. In addition, individuals who reported more severe paranoia also reported greater conviction, distress, and avoidant coping strategies in response to milder paranoid thoughts. In light of these findings, a 'hierarchy of paranoia' was proposed by the authors. According to this hierarchy, relatively common interpersonal concerns about the self, experienced by many and typically expressed as interpersonal worry, mild suspiciousness and mild paranoia, form the foundation for more severe, odd and distressing beliefs of persecution and conspiracy at the top of the hierarchy, which are experienced by relatively few.

Research by Bebbington et al. (2013) found that severe paranoia predicted more common interpersonal worries, providing further empirical support for the paranoia hierarchy. Twenty-eight percent of the 8576 individuals surveyed from the general population reported frequent wariness of others' bad intentions against them, and over 25% reported frequent interpersonal fears of rejection and criticism. More

severe forms of paranoia (i.e., delusions of persecutory conspiracy) had a much lower frequency of only 1.5%. In line with prediction, rare paranoid thoughts predicted the experience of milder paranoia. The authors concluded in support of a hierarchical structure of paranoia, with the prevalence of paranoia distributed exponentially across the general population as a function of this hierarchy.

1.1.3. Appraisal of the continuum view.

Whilst it is now widely accepted that paranoia exits within the general population, whether a true paranoia continuum exists remains up for debate (David, 2010). For example, cross-sectional self-report methodologies have been criticised for inflating prevalence rates of paranoia in the general population, as they may be tapping into real experiences of persecution (Linscott & van Os, 2010). However, experimental paradigms such as the Prisoner's Dilemma Game (e.g., Ellett, Allen-Crooks, Stevens, Wildschut, & Chadwick, 2013) and the manipulation of experimental conditions (e.g., Bodner & Mickulincer, 1988), have demonstrated that non-clinical paranoia can be triggered in neutral social situations. The development of the virtual reality (VR) paradigm has maintained external validity by enabling researchers to replicate naturalistic social scenarios whilst ensuring the environment is controlled and neutral (e.g., Freeman, Pugh, et al., 2008). A series of studies using VR have demonstrated incidence rates of paranoid thinking in the non-clinical population as cross-sectional surveys, providing further empirical evidence in support of the paranoia continuum view (e.g., Freeman, Pugh, et al., 2008; Freeman et al., 2010).

Despite some degree of etiological continuity, it is however, important to note that important differences between the experience of clinical and non-clinical paranoia are likely to exist. Clinical paranoia is characterised by greater persistence,

conviction, distress, and behavioural avoidance (Freeman et al., 2005). In addition, the content of paranoia, such as beliefs about the power and omnipotence of the persecutor, may also be different (Freeman et al., 2010). Freeman et al. (2010) have further suggested that individuals with clinical paranoia are more likely to experience additional clinically significant affective and perceptual experiences (e.g., hallucinations). The experience of paranoia, and therefore the factors that elicit and maintain it, may therefore occur within a qualitatively different context in clinical samples. In particular, cognitive processes, such as data gathering biases and belief inflexibility, are typical of clinical but not non-clinical paranoid groups (Freeman et al., 2010). This provides evidence for some differences between clinical and non-clinical paranoia.

Some researchers have argued that mild paranoia is more similar to socially anxious fears than persecutory ideation. This is due to the finding that paranoia stems from common interpersonal concerns, and is strongly related to measures of social anxiety (Wigman et al., 2012). However, research has demonstrated that mild paranoia and social anxiety are distinct constructs. In one experimental study, Freeman, Gittens et al. (2008) found that perceptual anomalies increased paranoia, but decreased social anxiety. Similar findings have been recently reported following a large cross-sectional assessment of paranoia and social anxiety in undergraduate students (Cooper, Klugman, Heinberg, Anglin, & Ellman, 2016). These findings indicate that social anxiety and mild paranoia are associated, but distinct experiences. As a result, mild, non-clinical paranoia can be conceptualised as part of a paranoia continuum, and not as social anxiety.

Despite this, questions remain concerning how movements along the paranoia continuum are mediated. Longitudinal research suggests that the presence of non-

clinical psychotic-like experiences, including paranoia, increases the odds of later presenting with a psychotic disorder (Kaymaz et al., 2012; Dominguez, Wichers, Lieb, Wittchen, & van Os, 2011; Poulton et al., 2000), indicating that non-clinical paranoia may increase one's vulnerability to movements up the continuum. This vulnerability appears to be increased by genetic and social risk factors (including adversity, psychoactive drug use, and migrant status) (van Os et al. 2009). However, these findings are limited in that research to date has measured outcomes relatively broadly in terms of psychosis, and therefore has not tracked movements along the paranoia continuum directly.

Nonetheless, that paranoia is found in the general population suggests that non-clinical paranoia may require intervention in its own right. Even mild and fleeting non-clinical paranoid thoughts are associated with distress and dysfunction (Freeman et al., 2005). Across the continuum, paranoia is associated with lower levels of wellbeing, reduced social functioning, poor physical health, and increased incidence of stress, anxiety, depression, and suicide (Freeman et al., 2011; Freeman, Startup, et al., 2014; Melo & Bentall, 2010). In addition, given that non-clinical psychotic symptoms are linked with increased odds of later experiencing clinical paranoia (e.g., Kaymaz et al., 2012), developing the understanding and management of non-clinical paranoia represents a valid area of investigation.

Accepting the paranoia continuum means that non-clinical samples provide a theoretically valid population within which to investigate paranoia (Garety & Freeman, 2013). This is advantageous for a number of reasons. Non-clinical samples provide the opportunity to study and manipulate paranoia as an isolated phenomenon. In particular, the confounding variance typically introduced by clinical samples, such as psychotropic medication and comorbid mental health difficulties, is minimised.

Furthermore, there are less ethical and practical constraints to recruitment, resulting in larger sample sizes and greater internal reliability. Whilst direct generalisation to clinical populations would be inappropriate given the differences inherent between clinical and non-clinical populations, non-clinical samples provide an important analogue group within which to investigate factors that generate and maintain paranoia (Freeman, 2006; Kazdin & Rogers, 1978; Lincoln & Keller, 2008).

1.2. Paranoia and the Self

Empirical investigations into the hierarchical structure of paranoia across the continuum have consistently shown that paranoia is linked with negative self-other perceptions, such as feeling vulnerable, rejected, or weak (e.g., Freeman et al., 2005; Freeman et al., 2010; Bebbington et al., 2013).

There is evidence among the general population to suggest that non-clinical paranoid thinking is linked with a need to defend oneself against perceived threats from the social world (Mills, Gilbert, Bellew, McEwan, & Gale, 2007). For example, studies have found that social adversity (e.g., Freeman et al. 2011) and social stress (Wickham, Taylor, Shevlin, & Bentall, 2014) are risk factors for paranoia. These relationships appear to be partially mediated by social exclusion (Wickham et al., 2014), suggesting that not being accepted and included makes one vulnerable to paranoia. A recent study found that having a fear of being discriminated against partially explained the link between attenuated psychotic symptoms (including non-clinical paranoia) and social discrimination in ethnic minority groups (Anglin, Greenspoon, Lighty, & Ellman, 2014). In addition, perceiving oneself as being of lower social rank than others has been associated with emerging psychotic symptoms (Allison, Harrop, & Ellett, 2013). In a cross-sectional study, non-clinical paranoia was positively correlated with striving to avoid feelings of exclusion and inferiority

(Anderson & Freeman, 2013). Such effects have been replicated in empirical research. In one study, feelings of social exclusion were induced in a non-clinical sample, causing increased negative self and negative other perceptions, and in turn, increased paranoid ideation (Kesting, Bredenphol, Klenke, Westermann, & Lincoln, 2013). In another study using a student sample, paranoia was associated with increased self-criticism and a lack of ability to reassure oneself in response to threat, with self-hatred predicting paranoid beliefs (Mills et al., 2007). Therefore, perceiving the self as 'inferior' and 'an outsider' appears to partially explain the link between negative self-perceptions and paranoid thinking.

Negative self-perceptions are also characteristic of clinical paranoia. Individuals with persecutory delusions perceive themselves to be less powerful than others (Paget & Ellett, 2014). Self-criticism is also higher among individuals with persecutory delusions than both depressed and healthy individuals (Hutton, Kelly, Lowens, Taylor, & Tai, 2013). Furthermore, negative self-beliefs combined with perceptions of rejection were found to differentiate between depression and paranoia in a clinical sample (Lincoln et al., 2010). Further, a longitudinal study has shown that negative self-beliefs were significant predictors of clinical paranoia at three and 12-month follow-up (Fowler et al., 2012).

Taken together, these findings suggest that there is a causal link between paranoia across the continuum and negative appraisals about the self, particularly how well one fits in, is acceptable to, and compares with others. The theoretical processes by which negative self-beliefs lead to paranoia have been extensively debated within the literature. Two key theoretical positions have emerged: paranoia as a defence against threats to the self-concept, and paranoia as building directly on negative perceptions about the self.

1.2.1. Paranoia as defensive avoidance.

The paranoia as a defence theory postulates that paranoia is the result of attributional biases, which are triggered by increased awareness of self-discrepancies and inadequacies. Firstly, high self-awareness is theorised to increase the tendency to perceive oneself as the target of other's intentions by bringing the self 'online' in social situations ('self-as-a-target bias', Fenigstein & Hogan, 1984; Fenigstein & Vanable, 1992). Secondly, the perception of inadequacies in the self is postulated to trigger a defensive bias to attribute this to a malevolent other, rather than the self (Campbell, 1990). Empirical research has gone some way to support this theory. A series of experimental studies have showed that increasing self-awareness in a student population (e.g., by being sat in front of a two-way mirror, Fenigstein & Vanable, 1992), led to increased feelings of being the target of another's attentions. Under conditions of high self-awareness, negative and ambiguous feedback increased paranoid thinking amongst students (Ellett & Chadwick, 2007, study 1 & 2). These findings suggest that the perception of discrepancies and inadequacies in the self is implicated in the generation of paranoid thinking.

Bentall et al. (2001) have proposed that paranoia may function as a defence against low self-esteem, triggered by awareness of self-discrepancies between the 'actual', 'ideal', and the 'public' perceptions of the self. Due to self-serving attributional biases, paranoid ideation functions to externalise the cause of the discrepancy to malevolent others. As a result, self-esteem is protected. However, cross-sectional studies investigating the link between self-esteem and paranoia have often yielded inconsistent results. For example, patients with psychosis have been shown to have, in general, low levels of self-esteem (Freeman et al., 1998), and a similar pattern has been reported in non-clinical samples (e.g., Combs & Penn, 2004).

On the other hand, others have reported relatively high or normal levels of self-esteem in clinical samples (e.g., Candido & Romney, 1990; Lyon, Kaney & Bentall, 1994).

One possible explanation for these inconsistencies is differences in the conceptualisation and measurement of self-esteem across research (Bentall, 2003). Bentall et al. (2001) have distinguished between explicit and implicit self-esteem, suggesting that paranoia is associated with implicit low self-esteem, but that explicit self-esteem may be temporarily high as a result of paranoid self-serving attributions. This results in a 'fragile' and 'unstable' self-esteem. According to their theory, attempts to defend against negative self-perceptions, via paranoid attributions, are dysfunctional because they maintain perceptions of threat to the self (Bentall et al., 2008). A further distinction has been made between the self-esteem of 'poor-me' vs. 'bad-me' paranoia (Trower & Chadwick, 1995). Individuals who believe persecution is not deserved ('poor-me' paranoia) report relatively high self-esteem in comparison to individuals who believe persecution is deserved ('bad-me' paranoia) (Chadwick, Trower, Justii-Butler, & Maguire, 2005).

Recent support for the paranoia as a defence hypothesis has also been drawn from studies that have investigated the dynamic relationship between self-esteem and paranoid ideation over time using experience sampling methodologies. In a 'high risk' non-clinical sample, increases in paranoid thinking was preceded by reductions in self-esteem, with a specific association reported between long-term fluctuations in self-esteem and changes in paranoia (Thewissen et al., 2007). Investigating short-term fluctuations in self-esteem also indicated a similar pattern, such that individuals with more paranoia generally reported lower levels of self-esteem, which tended to show greater fluctuations and less stability over time. Decreases in self-esteem also predicted increases in paranoia (Thewissen, Bentall, Lecomte, van Os, & Myin-

Germeys, 2008). These findings were interpreted as supporting the hypothesis that paranoia serves as a dysfunctional strategy to regulate self-esteem in individuals with low self-esteem.

In a further study using an experience sampling methodology with a mixed sample of clinical, high risk, and non-clinical participants, episodes of paranoia were found to be predicted by decreases in self-esteem and increases in anxiety (Thewissen et al., 2011). This may be considered to lend further support to the paranoia as a defence hypothesis. However, it was crucially observed that the episode of paranoia did not restore or raise self-esteem, as would be predicted by the defence model. Instead, self-esteem remained low despite the increase in paranoia. Therefore, the authors suggested that paranoia may arise as a result of congruence between negative-self beliefs which makes perceiving malevolence in others more likely.

Taking this idea further, delusions more generally may function as a way of avoiding negative emotions or thoughts about the self by creating a reality that does not exist, whilst at the same time escaping from a reality that does. This line of theorising has led to the suggestion that paranoia may be a strategy to avoid negative aspects of the self (so-called 'experiential avoidance'). Udacina, Varesse, Myin-Germeys and Bentall (2014) found that experiential avoidance was associated with unstable self-esteem. Experiential avoidance might contribute to paranoid thinking through attempts to avoid negative self-representations. However, Udacina et al. (2014) reported that in their research, they did not find any evidence in support of paranoia functioning as an effective strategy for preserving self-esteem. Similarly, Moutoussis, El-Deredy and Bentall (2015) predicted that individuals with poor-me paranoia would show more avoidance of negative self-representations, and therefore express relatively more positive self-beliefs than bad-me paranoia. On the other hand,

they predicted that bad-me paranoia would show more cognitive avoidance generally, and specifically when asked to confront self-discrepant characteristics. However, they found no difference in overt views about the self, in avoidance scores, or in behavioural avoidance, between the two sub-groups of paranoia.

1.2.2. Paranoia as building on negative self-appraisals.

The findings reviewed in the previous section lend support to models of paranoia that consider paranoid beliefs as building directly upon negative self-representations, rather than indirectly, as a means of avoiding them. According to the cognitive model of paranoia, paranoia is conceptualised as extensions of negative self-beliefs and negative self-schema, rather than as defending against these (Freeman, Pugh, et al., 2008). The model also draws on the role of negative affect in the generation of paranoid beliefs, proposing that when negative self-beliefs are activated in the context of an ambiguous social experience, cognitive and affective reasoning biases combine to make the generation of a paranoid interpretation both self-congruent and cognitively available.

The cognitive model of paranoia has received considerable empirical support. Freeman et al. (2012) identified negative ideas about the self, and a self-focused cognitive style as being associated with paranoia. Cognitive (e.g., Freeman, Pugh, & Garety, 2008; So et al., 2010) and affective (e.g., Huppert & Smith, 2005; Johns et al., 2004) biases have been consistently linked with paranoia along the continuum. For example, anxiety has been shown to prime individuals to feelings of vulnerability, threat anticipation and worry (Freeman et al., 2012), whilst depression increases rumination about negative schematic beliefs (Gilbert, Boxall, Cheung & Irons, 2005).

Both outcomes lead to behavioural changes, such as social withdrawal, that make paranoia more likely to occur and persist (Martinelli, Cavanagh, & Dudley, 2013).

One experimental study used VR to manipulate the height of non-clinical participants and thereby alter their social rank perceptions (Freeman, Evans, et al., 2014). Being relatively shorter elicited more negative self-perceptions, which in turn was associated with more paranoia. Another study compared explicit and implicit self-esteem (as measured using the Implicit Associations Test) and found globally low self-esteem to be associated with paranoia (Cicero & Kerns, 2011). Further, Taylor et al. (2014) administered scales of positive and negative schemas, about the self and others, to a mixed group of individuals with positive symptoms of psychosis, individuals at risk of psychosis, and a non-clinical group reporting attenuated positive symptoms. They found that higher levels of negative beliefs about the self and others predicted symptom severity, distinguishing between clinical and non-clinical groups.

Taken together, these findings suggest that appraisals about the self significantly contribute to the onset and maintenance of paranoia. Three recent systematic reviews each concluded that the weight of empirical evidence appears to support paranoia as an extension of negative self-beliefs, rather than a defence (Garety & Freeman, 2013; Kesting & Lincoln, 2013; Tiernan, Tracey, & Shannon, 2014). Whilst the exact theoretical pathway between the negative self and paranoia remains a source of controversy and should be the subject of further research, it is clear that paranoia is closely related to negative perceptions about the self across the continuum. A key implication of this therefore, is that identifying ways to boost perceptions about the self may be a promising approach to attenuating paranoia (Moutoussis et al., 2015).

1.3. Targeting the Self to Reduce Paranoia

Despite calls for interventions that target the self in psychosis (Barrowclough et al., 2003), clinical interventions that focus directly on the self in paranoia are relatively limited (Birchwood, Shiers & Smith, 2014). Chadwick, Birchwood and Trower (1996) argue that underlying beliefs about the self unify symptoms of psychosis and should therefore be a target of treatment. Person-Based Cognitive Therapy (PBCT) follows on from this theoretical standpoint, and combines CBT and mindfulness techniques to support individuals to relate differently to cognitive content, including psychotic experiences and self-relevant cognitions (Chadwick et al., 1996; Chadwick, 2006). Key to the PBCT approach is promoting self-acceptance and an integrated sense of self, allowing space for both positive and negative self-schemata. Whilst this approach has received some empirical support in relation to the attenuation of distressing hallucinatory voices (e.g., Dannahy et al., 2011), there has been no empirical evaluation of this approach in relation to paranoia or other delusional symptoms.

A small number of studies have investigated CBT interventions targeted at improving self-esteem in psychosis. Lecomte et al. (1999) found that a 12-week program of activities designed to increase self-esteem in patients with schizophrenia led to reductions in symptomology and improvements in coping strategies, although there was no change in reported self-esteem. In a similar vein, Hall and Tarrier (2003) piloted a self-esteem intervention that involved patients with psychosis eliciting positive statements about themselves, and then identifying evidence to support these statements. They reported decreased overall psychotic symptomology as well as improvements in self-esteem. Replicating Hall and Tarrier's protocol, Laithwaite et

al. (2007) reported the same gains in self-esteem and reductions in psychotic symptoms in a forensic setting.

However, to date, only one clinical study has measured specific changes in paranoia following an intervention targeted at the self (Freeman, Pugh, et al., 2014). The study trialled a six-session intervention to explicitly challenge negative and increase positive self-beliefs through cognitive and behavioural strategies. Significant improvements in wellbeing, and a non-significant trend towards a reduction in paranoia were reported, although these were not maintained at 12-week post-intervention follow-up.

These preliminary findings are promising and highlight the potential for further development of interventions that focus on the self in paranoia. Interestingly, Freeman, Pugh et al. (2014) reported that strategies aimed at bolstering positive aspects of the self, rather than diminishing negative aspects of the self, were better received by participants. This suggests that focusing on strengths and building positive self-representations may be the most effective way to intervene in the negative self in paranoia.

1.4. Self-Affirmation

Self-affirmation is a well-validated psychological process that is theorised to bolster a positive sense of self in the face of self-threat (Steele, 1988). A self-affirmation is any thought or action which maintains the perceived adequacy, stability and coherence of the self. Self-affirmation theory and processes have been extensively studied, and well-validated within social psychology literature (Cohen & Sherman, 2014; Steele, 1988), but only relatively recently in relation to mental health (Katz, Czech, & Orsillo, 2014). Given the role of the negative self in paranoia, some

recent studies have begun to look at the role of self-affirmations in reducing paranoia in non-clinical samples (e.g., Kingston & Ellett, 2014). The findings of these studies have provided some early indications that self-affirmation may be beneficial for reducing non-clinical paranoia, but this work is still in its infancy. In addition, the extent to which the social psychological process of self-affirmation might translate into clinical psychology contexts is yet to be fully explored (Katz et al., 2014).

Before discussing the role of self-affirmation in reducing non-clinical paranoia in more detail, the following sections will first summarise self-affirmation theory, discuss self-affirmation procedures, outcomes, and the mechanisms that have been proposed to account for self-affirmation effects.

1.4.1. Self-affirmation theory.

Self-affirmation theory purports that people are inherently motivated to maintain an integrated and coherent sense of self that is socially and culturally 'good enough' (Steele, 1988). Perceiving that one has failed to meet personal, social or cultural standards (e.g., by perceiving that one is excluded, inferior, or negatively targeted by others) therefore poses a psychological self-threat (Pietersma & Dijkstra, 2012).

To buffer against such threats, self-affirmation theory suggests that individuals can adopt either direct or indirect psychological responses. Direct responses reject and minimise the threat through dismissal, denial, or avoidance, directly defending against the threat by attacking its integrity (Cohen & Sherman, 2014; Steele, 1988). Alternatively, indirect responses aim to buffer against the threat by affirming the self in another personally important yet unrelated domain. This bolsters self-resources and increases the capacity to approach, accommodate and respond to the threat (Cohen &

Sherman, 2014; Steele, 1988). Whilst a strength of the self-system is theorised to be its ability to respond to threat in different ways, direct defensive responses are considered less flexible and less adaptive. In contrast, self-affirmation frees up resources which enables a more flexible and adaptive response to self-threat (Sherman & Hartson, 2011).

Self-affirmations are theorised to occur spontaneously as part of an inbuilt 'psychological immune system' to buffer against the challenges inherent in daily life (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). However, research has shown that there are individual differences in the tendency to self-affirm. For example, those with lower global self-esteem have fewer positive self-resources (e.g., positive-self thoughts, memories and images) with which to self-affirm (Steele, Spencer, & Lynch, 1993). Therefore, they show less inclination to spontaneously self-affirm than those with higher global self-esteem (Pietersma & Dijkstra, 2012). Given the theoretical and empirical evidence that suggests that paranoid thoughts arise from negative appraisals about oneself (e.g., Bentall et al, 2001; Freeman et al., 2005), it follows that paranoia will be associated with a reduced tendency to employ self-affirming strategies. Conversely, it also follows that encouraging self-affirmation in individuals with paranoia may boost psychological resources and in turn attenuate paranoid thinking.

1.4.2. Self-affirmation procedures.

Self-affirmation theory suggests that an unlimited range of cognitive and behavioural activities could achieve self-affirmation (Steele, 1988; Cohen & Sherman, 2014). Cognitive self-affirmations include reflecting on positive aspects of one's identity, such as memories, images, life domains, and values, whereas behavioural self-affirmations involve enacting a positive aspect of one's identity

(Steele, 1988). A range of experimental procedures have been developed to manipulate self-affirmation in the laboratory. The most common is value-affirmation, which involves reflection on personally meaningful values (McQueen & Klein, 2006).

Value-affirmation procedures typically involve providing participants with a list of valued life domains (e.g., Sherman, Nelson, & Steele, 2000), or a questionnaire listing a range of values, such as the Allport-Vernon-Lindzey Values Scale (Allport, Vernon, & Lindzey, 1960), from which participants rank and identity their most important value. Typically, participants are then instructed to write an essay expressing why their specified value is personally important to them.

Expressive writing has been shown to have a broad range of psychological benefits, in particular at times of stress and self-threat (Smyth, 1998; Stone, Smyth, Kaell, & Hurewitz, 2000). Two recent studies have indicated that self-affirmations are key to gaining benefit from expressive writing (Creswell et al., 2007; Niles, Haltom, Lieberman, Hur, & Stanton, 2016). For example, Creswell et al., (2007) analysed the contents of expressive writing essays written by individuals in recovery from breast cancer. The essays were written for 20 minutes each day over the course of three weeks. Content analysis revealed that physical recovery three months later was mediated by the number of self-affirming statements included in the essays. The finding that self-affirmations mediated the effect of expressive writing was replicated in a sample of students, where self-affirmations predicted lower anxiety three months later (Niles et al., 2016). These findings indicate that self-affirmations can be a potent and naturally occurring mechanism for buffering against stress and self-threat. In addition, these findings support the inclusion of expressive writing as an important component of self-affirmation procedures.

Control conditions typically replicate those of value-affirmation procedures but instruct participants to identify and reflect on their lowest ranked valued-domain, either from their own (e.g., Crocker, Niiya, & Mischkowaski, 2008) or another's perspective (e.g., Sherman et al., 2000). However, some have argued that as these control tasks involve reflecting on values, albeit in a personally unimportant way, they may inadvertently lead to self-affirmation (Cohen, Aronson & Steele, 2000). Therefore, some experiments have used a non-values control task, such as writing a food diary (Cohen et al., 2000), writing about daily routine (Burson, Crocker, & Mischkowski, 2012) or listing the contents of one's wardrobe or car (Katz et al., 2014). This type of control also has limitations, as it differs from value-affirmation in more than one way (Napper, Harris, & Epton, 2009). Nonetheless, the inclusion of control tasks in general strengthens the conclusions that can be drawn in the literature about the effects of affirmations (McQueen & Klein, 2006).

Despite the widespread use of value-affirmation within the affirmation literature (McQueen & Klein, 2006), traditional value-affirmation procedures can be criticised for lacking clinical and ecological validity (Czech, Katz, & Orsillo, 2011). Firstly, values lists provided in value-affirmation studies are typically relatively brief, with a limited range of potential values offered. In one study, only five values (religion, social issues, politics, theory, and aesthetics) were available from which participants could select their most important (Creswell et al., 2005). Whilst the authors did find an effect of value-affirmation relative to control in this study, the relatively limited range of values provided is likely to lack validity across individuals, and may therefore have diluted the potential potency of value-affirmation effects.

Additionally, pre-determined lists of a relatively brief range of values may increase the risk of social desirability effects, by providing only a narrow view of

potentially important values. These may be more or less valid depending on an individual's cultural, social and personal experiences (Heine & Lehman, 1997). As such, pre-determined lists of values do not allow scope for individuals to identify and affirm their own personally meaningful value. This limits the extent to which experimental value-affirmations reflect spontaneous self-affirmations, and may also weaken the effectiveness of value-affirmation if the value identified as 'most important' within the list provided is not valid for an individual.

In addition, values commonly used in value-affirmation procedures tend to represent life domains (e.g., art, fitness, politics, religion), rather than core personal values or traits with which one identifies. As a result, they may be tapping social constructs, rather than self-relevant valued characteristics. Stapel and van der Linde (2011) drew a distinction between 'value' affirmation and 'attribute' affirmation, finding that affirmation of personal values increased self-concept clarity and buffered against internal cognitive dissonance threats, whereas affirming personal attributes increased self-esteem and buffered against social comparison threats. Therefore, the type of value affirmed may have important consequences for the domain of threat buffered against, a facet not yet accounted for within traditional value-affirmation procedures.

Although a range of themes, including spirituality, humour, and kindness, have been identified as values selected for affirmation (Reed & Aspinwall, 1998), research has shown that 'family and friends' is the most commonly affirmed valued-domain (Crocker et al., 2008; Schnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013). This may be a consequence of having a relatively narrow range of valued domains from which to choose. However, as a result, some researchers have questioned whether value-affirmation effects are better accounted for by reflection on

connections with meaningful others, rather than reflection on self-relevant values (Crocker et al., 2008; Shnabel et al., 2013). Shnabel et al. (2013) compared a belonging affirmation (writing about how a most important value enhances connections with others), with an individuating affirmation (writing about how a most important value enhances self-sufficiency), a standard value-affirmation, and a control. Content analysis of all essays indicated that in the context of identify threat, there were individuals in all affirmation conditions who wrote about belonging, and writing about belonging was directly related to reduced threat reactivity. Whilst this indicates that writing about belonging may be one active component of value-affirmation procedures, results were not conclusive because the difference between the affirmation conditions in threat reactivity was only marginally significant, and therefore may not be reliable.

Furthermore, the process of ranking values in traditional value-affirmation procedures differs from that used in clinical practice. In clinical practice, card-sort exercises are often used (e.g., Harris, 2013). Card-sorting permits initial allocation of values into relatively broad categories (e.g., important vs. unimportant), before narrowing down and focussing on just a small number of values that are the most personally meaningful. In contrast, current value-affirmation procedures typically constrain participants to ascribe a ranked order of importance, considering all the values. This may mean that time is spent reflecting on the order of importance of relatively unimportant values, rather than more quickly focusing on those that are the most personally meaningful.

Finally, a further debate within the literature concerns whether value-affirmation is effective if participants are aware that the procedure is expected to have beneficial effects. In a series of studies, Sherman et al. (2009) showed that

affirmations may be less effective when participants are aware of being influenced by them. One suggestion has been that awareness of the purpose of an affirmation may inadvertently increase reactivity to the threat (Sherman & Hartson, 2011). As such, most studies have not informed participants about the purpose of the affirmation procedures. This limits the extent to which value-affirmation procedures might be applied to clinical contexts, where openness and collaboration regarding the purpose of intervention is vital (e.g., Lepper & Mergenthaler, 2007). However, more recent research has suggested that it is not conscious awareness of the purpose of value-affirmation, but lack of choice in the value-affirmation, that reduces the effectiveness of affirmations (Silverman, Logel, & Cohen, 2013). In their studies, participants benefited if they were aware of the affirmation, and perceived choice within the process, whereas those who were aware but perceived little choice in the process did not. Such a finding suggests that choice is itself an essential component of the affirmation process, a notion that reflects with the importance of maintaining autonomy in self-affirmation theory (Steele, 1988). In light of this research, it seems that informing participants about the purpose of the value-affirmation, whilst at the same time providing greater choice about the process of value-affirmation (e.g., by providing a broader, more flexible process for selecting the most important value) may be a useful development to traditional value-affirmation procedures.

1.4.3. Outcome and duration of self-affirmation effects.

The potential for self-affirmations to be introduced as an intervention technique has been widely investigated in relation to a number of threat domains. These include physical health (see Harris & Epton, 2009), cognitive dissonance (e.g., Steele & Lui, 1983), social and interpersonal threat (e.g., Cohen, Garcia, Apfel, &

Master, 2006), and more recently, mental health and wellbeing (e.g., Armitage, 2016; Nelson et al., 2014). Whilst a review of all outcomes is beyond the scope of this thesis, the following section will focus on empirical findings that pertain to the utility of self-affirmations in buffering against interpersonal threats and supporting emotional wellbeing.

Striking findings have been obtained in relation to buffering against interpersonal threat in the laboratory. For example, studies have shown that self-affirmation protects individuals against perceiving social rejection by attenuating expectations about negative feedback in social settings (Spencer, Fein, & Lomore, 2001) and by helping individuals to retain positive self-representations despite receiving negative feedback from others (Schimel, Arndt, Banko, & Cook, 2004, study 3). These cognitive changes following social threat have been associated with behavioural changes, such as reducing the tendency to avoid social interactions in response to interpersonal threats. In one study, value-affirmation reduced destructive behavioural intentions: undergraduate students with low self-esteem reported less intentions to withdraw from their relationships after a negative aspect of themselves was revealed to others (Jaremka, Bunyan, Collins, & Sherman, 2011). This research suggests that self-affirmation may reduce potentially destructive behavioural responses to threat in interpersonal contexts. Physiological changes have also been observed immediately following self-affirmation. Two studies have found that completing value-affirmation prior to facing a stressful social evaluation task reduced the cortisol-stress response (Creswell et al., 2005; Sherman, Bunyan, Creswell, & Jaremka, 2009), whilst other studies have reported that value-affirmation reduced the startle eye-blink response to threatening images (Crowell, Page-Gould, & Schmeichel, 2015), and promoted cardiovascular recovery following social stress (Tang &

Schmeichel, 2015). Such findings illustrate the potential for self-affirmation to interrupt physiological, cognitive and behavioural responses to threat in social contexts.

The research reviewed above relates primarily to the immediate effects following value-affirmation in artificial social and laboratory environments. Self-affirmation research has also investigated effects in the real world over time. A range of follow-up periods have been used, ranging from one week (e.g., in relation to change in exercise behaviours, Cooke, Trebaczyk, Harris, & Wright, 2014; During & Jessop, 2015) to up to three years (e.g., protection against academic stereotype threat, Brady et al., 2016). Reviewing the duration of effects reported in the self-affirmation literature indicates that brief self-affirmation manipulations can lead to sustained cognitive and behavioural changes, compared with control groups. For example, in one study, more positive emotions at work were reported by stressed primary school teachers two weeks after completing an affirmation of their work-related values (Morgan & Atkin, 2016). Self-affirmation has also been shown to augment the effects of an anti-aggression message presented to school pupils. Those that had completed a self-affirmation exercise presented with reductions in aggressive behaviour, compared to slight increases in aggression in the non-affirmation control group (Armitage & Rowe, 2016). In another study, Cooke et al. (2014) reported that one week after being given information about increasing physical exercise, those who had completed a value-affirmation had more positive attitudes towards exercise and went on to undertake more exercise, than their non-affirmed counterparts.

Similar longer-term effects following self-affirmation have been found in relation to interpersonal and social threats. Stinson, Logel, Shepherd, and Zanna (2011) found that value-affirmation improved the relational security of individuals

who were prone to perceiving social rejection at four and eight weeks following value-affirmation. Of particular interest was that the improvement in relational security at four weeks predicted further improvement in relational security at eight weeks. This suggests that the interpersonal benefits of having affirmed core personal values appeared to grow, rather than diminish, over time.

Long-term benefits observed in reducing the racial achievement gap in educational contexts have also been reported to grow over time. In educational settings, the negative social and academic outcomes associated with racial stereotypes can be negated by value-affirmation over the course of academic terms and years. Several replications have shown that value-affirmed ethnic minority students academically out-perform their non-affirmed counterparts, reducing the racial achievement gap by 40% (Brady et al., 2016; Cohen et al., 2006; Cohen et al., 2009; Cook, Purdie-Vaughns, Garcia, & Cohen, 2012). Walton, Logel, Peach, Spencer, and Zanna (2015) observed similar effects for women in male-dominated university programmes, in which value-affirmation closed the gender achievement gap, raising women's grades. Affirming core values was found to reduce the tendency to interpret everyday stressors in education as an identity threat, thereby reducing avoidant coping strategies and increasing the tendency to approach challenges in education and learning (Sherman et al., 2013). Such findings have lead authors to conclude that relatively brief value-affirmation procedures can have potent effects on cognitive and behavioural responses. In turn, the way in which individuals relate to the social world is altered, creating a positive reinforcing cycle in which individuals are supported both internally and socially to approach, rather than avoid, interactions and activities that present a risk of self-threat (Cohen & Sherman, 2014).

Similar long-term benefits following self-affirmation have been identified in the field of emotional wellbeing. One study compared a value-affirmation intervention with a standard happiness intervention in undergraduate students (Nelson et al., 2014). Another study investigated wellbeing in a community sample of women aged over 45 years old and identified as being at risk for reduced wellbeing (Armitage, 2016). In both studies, self-affirmation increased subjective wellbeing, which was protected against decline over time, relative to controls. The apparent buffering effect of affirmation on subjective wellbeing was linked with a sustained sense of meaning in life. Interestingly, both studies reported that self-affirmation appeared to increase participant's motivation to make behavioural changes. Self-affirmation theory posits that affirmations can be cognitive (e.g., reflecting on core values) or behavioural (e.g., acting in a personally congruent way). It is therefore possible that the benefits of the initial cognitive self-affirmation were sustained following value-affirmation because reflecting on values increased motivation to perform self-affirming behaviours (Brady et al., 2016).

1.4.4. Mechanisms of self-affirmation effects.

Self-affirmation theory posits that by maintaining a 'good enough' sense of self, self-affirmations increase access to internal psychological resources (Sherman, 2013), which provide a buffer against the perceived threat (Cohen & Sherman, 2014). Specifically, individuals connect with personally meaningful aspects of the self beyond the source of the threat. This can bolster the sense of self in relation to the threat (Sherman & Hartson, 2011), bring the threat into a broader perspective (Critcher & Dunning, 2015; Sherman, 2013), and decouple the threat from meaningful aspects of the self-concept (Wakslak & Trope, 2009). This psychological

position reduces direct avoidance of the threat and increases the ability to move forward in meaningful ways despite its presence. Behaviours shown to occur following self-affirmation that indicate an increased ability to tolerate and respond adaptively to self-threat include improved problem-solving skills (Creswell, Dutcher, Klein, Harris & Levine, 2013) and increased receptiveness to behaviour change (e.g., Falk et al., 2015). Avoidance behaviours, such as rumination (Koole, Smeets, Knippenberg, & Dijksterhuis, 1999), denigrating others to affirm the self, and substance misuse (see Sherman & Cohen, 2006, for a review) are reduced. Increased openness and flexibility to approach threat is therefore postulated to alter cognitive and behavioural responses, and in turn decrease the impact of the threat on wellbeing (Sherman, 2013).

Some authors have suggested that dispositional traits, such as self-esteem and positive mood/optimism, can act as self-resources that facilitate coping with psychological threats (e.g., Creswell et al., 2005). Given the pivotal role of self-perceptions in self-affirmation, early theoretical explanations considered whether self-affirmation effects were the result of increases in global self-esteem. However, empirical research has not yielded consistent improvements in self-esteem following self-affirmations, suggesting that self-esteem is unlikely to be a mediator of self-affirmation effects (Sherman, 2013; McQueen & Klein, 2006). More recent research has investigated different facets of self-esteem, rather than global self-esteem and has indicated moderation of self-affirmation effects. Haddock and Gebauer (2011) found that individuals with high explicit self-esteem, but low implicit self-esteem, benefitted the most from self-affirmation manipulations. Other studies have found that those who base self-appraisals on social contingencies also benefit more from self-affirmation manipulations (Heppner & Kernis, 2011). These findings dovetail with

the theoretical purpose of value-affirmation, which aims to boost internal personally meaningful aspects of the self (Schimel et al., 2004). High levels of self-esteem have also been linked with spontaneous self-affirmation. Several studies have shown that self-affirmation manipulations are more effective for those with low self-esteem and those under the most threat (e.g., Brady et al., 2016; During & Jessop, 2015; Jaremka et al., 2011). It appears that high self-esteem may engender a wide range of readily available positive self-resources to draw upon to spontaneously affirm the self in the face of a threat. Those with low self-esteem may not have access to these self-resources so readily, thus benefit from the opportunity to engage in self-affirmation procedures (Marigold, Holmes, & Ross, 2007). Therefore, whilst affirmation does not appear to boost self-esteem, self-esteem may indicate those who will benefit the most from affirmation manipulations.

An alternative rival hypothesis for self-affirmation effects is that thinking about one's values and reflecting on important aspects of oneself may cause people to simply feel good. In addition, some researchers have argued that value-affirmation procedures deliberately induce positive mood, by instructing participants to write about their specified value in relation to times when it made them feel good about themselves (Katz et al., 2014). Whether induced positive mood mediates self-affirmation effects has been extensively debated. Some researchers have reported that self-affirmations lead to increased positive affect compared to control (e.g., Koole et al., 1999), although many others have reported no significant difference in positive affect between self-affirmation and control conditions (e.g., Klein, Harris, Ferrer & Zajac, 2011; Sherman, Nelson, & Steele, 2000; Spencer et al., 2001). Some authors have even reported a reduction in positive affect following self-affirmation (Steele & Liu, 1983).

There is evidence from experimental studies to suggest that even if positive affect changes as a result of value-affirmation, these changes are not sufficient to account for the effects of value-affirmation. Research has shown that inducing positive mood and comparing this to value-affirmation, and accounting for change in positive affect in value-affirmation analyses, does not explain value-affirmation effects (e.g., Keough, Markus & Steele, 1997; Schmeichel & Vohs, 2009; Sherman et al., 2000; Spencer et al., 2001). Therefore, it is unlikely that increased positive affect is sufficient to create self-affirmation effects. In addition, whilst affirmation has been shown to increase dimensions of emotional wellbeing (Nelson et al., 2014), the immediate effects of affirmation on positive affect did not persist over time, whilst self-affirmation effects did. Nevertheless, it has been recommended that researchers assess change in positive affect to better understand its potential role in self-affirmation effects (McQueen & Klein, 2006).

1.4.5. Critique of self-affirmation.

Taken together, evidence from theory and empirical research indicates that value-affirmations can have beneficial results at the physiological, cognitive, and behavioural levels. However, it is important to note that self-affirmations are not intended to be a panacea for social and emotional difficulties (Cohen & Sherman, 2014), and indeed, not all studies have found self-affirmation to have beneficial effects. The authors of a recent systematic review concluded that the positive bias within the literature is suggestive of publication bias (McQueen & Klein, 2006). Nevertheless, it is important to note that several published studies have reported limited or no psychological benefit of self-affirmation. In contrast to the work of Cohen et al. (2006), a recent study found that value-affirmation exerted no beneficial

effects in relation to improved academic achievement for negatively stereotyped students in the Netherlands (de Jong, Jellesma, Koomen, & de Jong, 2016). Furthermore, Burgess et al. (2014) found that black patients, who are at risk of stereotype threat, did not benefit from undertaking a 32-item value-affirmation questionnaire, and in fact, showed higher levels of negative mood, lower self-esteem and lower social self-esteem than patients in the control group.

A range of factors have been proposed to account for such differential effects (McQueen & Klein, 2006). These predominantly pertain to methodological constraints concerning the procedures used as discussed in Section 1.4.2. Such factors include differences in the timing of the affirmation in relation to the presentation of the threat, differences in the awareness of the purpose of the affirmation procedures (Sherman et al., (2009), cultural differences (Heine & Lehman, 1997), and constraints linked to the type and number of values affirmed. As it stands, the circumstances within which value-affirmations produce reliable effects remains unclear (Cohen & Sherman, 2014), and further research is required to better elucidate the mechanisms and circumstances within which value-affirmation is most and reliably effective.

1.5. Self-Affirmation and Non-Clinical Paranoia

Following findings that have demonstrated benefits of self-affirmation in buffering interpersonal threats, research has begun to investigate the role of self-affirmation in non-clinical paranoia specifically.

Ellett and Chadwick (2007, study 3) tested the effects of an attribute based self-affirmation procedure on non-clinical state paranoia. Thirty students were primed with either affirming self-cognitions (by listing ten positive characteristics about themselves) or non-affirming self-cognitions (by listing ten negative characteristics

about themselves). Participants were then exposed to a paranoia induction, during which they received failure feedback under conditions of high scrutiny. Significantly less paranoia was reported by participants who had been self-affirmed, suggesting that the positive-self statements induction had moderated the impact of the paranoia induction. However, there was no baseline measure of paranoia, so conclusions about the differences between groups following the paranoia induction rely on inferences that the groups were equivalent on paranoia at baseline.

Two other studies have investigated the effect of priming positive self-cognitions on non-clinical paranoia, controlling for baseline paranoia and reporting similar effects. In one study (Atherton et al., 2016), 26 males who had reported experiencing at least one paranoid thought in the past month entered the same virtual reality social scenario twice, once primed with a positive and once with a negative self-concept. Self-concept was manipulated by instructing participants to select a time in their life where they had felt their most (affirming) or least (non-affirming) self-confident and elaborating on this memory using a visualisation exercise. The order of positive and negative self-concept induction was counterbalanced across participants. The induction of a positive self-concept, relative to a negative self-concept, caused more negative appraisals about the self in relation to others, and increased the incidence of paranoid thinking (Atherton et al., 2016). Similarly, another experimental study found that asking participants to hold positive, compared with negative, self-imagery in mind whilst completing state measures of mood, paranoia and self-beliefs lead to reductions paranoia, and increases in self-esteem and positive mood in individuals with high levels of non-clinical paranoia (Bullock, Newman-Taylor & Stopa, 2016).

Only one study to date has investigated the effect of values-based self-affirmation on non-clinical paranoia. Kingston and Ellett (2014) randomly assigned 55 students to

either value-affirmation or control. Following traditional value-affirmation procedures, participants in both conditions ranked eleven value-domains in order of personal importance. Value-affirmation participants wrote an essay about why their top rated value was meaningful to them, whilst control participants wrote about their lowest ranked value, and why it might be important to the average student. Participants then entered the same paranoia induction as used by Ellett and Chadwick (2003). Immediately following the affirmation manipulation, but before the paranoia induction, value-affirmation participants reported significantly less paranoia than those that had not. The paranoia induction increased paranoia in both groups, but paranoia in the affirmed group remained significantly lower than control. This suggests that the value-affirmation reduced baseline levels of paranoia, although it did not protect against a subsequent increase in response to self-threat. State depression scores did not co-vary with state paranoia, suggesting that mood changes did not account for the attenuations in paranoia following value-affirmation.

The short-term reductions in state paranoia reported following value-affirmation by Kingston and Ellett (2014) are promising. However, their results suggest that value-affirmation functioned by reducing baseline levels of paranoia, rather than buffering against future reactivity to threat, as following paranoia induction, paranoia returned to baseline. Despite research findings in other domains indicating the potential for value-affirmation to have psychological benefits over time (e.g., Stinson et al., 2011; Cohen et al., 2009) whether value-affirmation would attenuate paranoia over time is not clear. In addition, whilst research has indicated some promising effects, research to date has only examined paranoia in laboratory settings, and no study has investigated whether the effects observed immediately following affirmation might attenuate paranoia in the face of naturalistic interpersonal stressors

over time. Such questions are of particular relevance to clinical contexts (Gregg, Namekata, Louie, & Chancellor-Freeland, 2014). Research investigating whether value-affirmation leads to durable attenuations in paranoia in naturalistic settings over time is therefore needed.

1.6. Enhancing Self-Affirmation Effects over Time: Value-based Goals

Self-affirmation theory suggests that affirming a valued domain can lead to long term beneficial effects when the initial process of reflecting on a valued domain is followed by self-affirming behavioural changes (Section 1.4.3). In parallel with this, a large body of research from clinical psychology suggests that reflecting on values can increase motivation to make behavioural changes, reduce avoidance, and improve psychological wellbeing (Huguelet et al., 2016; Plumb, Stewart, Dahl, & Lundgren, 2009; Roemer & Orsillo, 2009). However, whether the benefits following values reflection are sustained through ongoing behavioural affirmation of values has not yet been empirically tested.

1.6.1. Values as motivators to act.

Verbally endorsing a value does not mean that one's behaviour is congruent with it (Hitlin & Pillavin, 2004). However, acting in line with personally meaningful values is more predictive of psychological wellbeing than simply talking about personally meaningful values (Sheldon & Kreiger, 2014). In one value-affirmation study, Czech et al., (2011) predicted that writing about a most important value would lead to lower anxiety responses to giving a five-minute speech. Contrary to expectation, there was no difference in social anxiety between affirmation and control conditions. However, participants who scored higher on measures of valued-living

experienced lower anxiety, regardless of condition. This finding suggests that living in line with personally meaningful values may have powerful effects in buffering the self against social threat, over and above reflection on values. Valued-living may therefore provide ongoing protection from self-threats by acting as an affirmation of the self.

In therapeutic contexts, making contact with personally meaningful values for the purposes of behaviour change and emotional wellbeing is an important aspect of Acceptance and Commitment Therapy (ACT; Hayes et al., 1999, 2011). A significant component of treatment involves working with clients to clarify their core values and increase the extent their life is guided by these. ACT theory purports that increasing values-based action contributes to the development of 'psychological flexibility', whereby clients increase their ability to live a meaningful life in the face of life's inevitable challenges. It is theorised that psychological flexibility is supported by a range of strategies (including mindfulness, acceptance, valued-living, and defusion from cognitive and emotional content). Psychological flexibility enables individuals to respond adaptively to challenges and find balance and meaning in life (Kashdan & Rottenberg, 2010). In this way, psychological flexibility may be similar to the more open and flexible responses to threat that are observed following self-affirmation (Steele, 1988).

One recent study of ACT treatment components compared mindful acceptance with committed values-based action. They found that whilst both approaches were associated with increases in psychological flexibility, values-based action was particularly associated with increases in wellbeing (Villatte et al., 2016). A meta-analysis of research investigating individual components of ACT treatment reported an overall medium effect of values-clarification on a range of dependent variables

linked to psychological flexibility (Levin, Hildebrandt, Lillis, & Hayes, 2012). This finding fits with existing research indicating that reflecting on personally meaningful values can have a powerful role in increasing one's ability to respond more openly and flexibly to self-threats. However, only eight studies were identified, which were drawn predominantly from the value-affirmation literature, highlighting a relative paucity of empirical evidence relating to values-clarification in ACT. One study conducted since this meta-analysis (Gregg et al., 2014) compared value-affirmation using the Bulls Eye Values Survey (BEVS) with a control task (trivia quiz) on cortisol reactivity before and after giving a speech. The BEVS is a tool used clinically in ACT for purposes of value-clarification. Participants describe their personal values in relation to four life domains (relationships, education/employment, fun, and self-care), identify a behavioural goal within each domain, then rate themselves on value-consistency. The authors reported an overall significant interaction, with lower cortisol reactivity in the values-affirmation group, a finding which reflects the attenuations in physiological arousal previously reported following value-affirmation (Creswell et al., 2005; Sherman et al., 2009).

There are some similarities between values-clarification in ACT and value-affirmation, in that both processes aim to lead individuals to make psychological contact with their personally meaningful values in the service of responding in more flexible and adaptive ways to psychological threat. However, there are also some important differences. Firstly, within ACT, as part of values-clarification, clients are encouraged to consider a wide range of values to help prompt and determine what they most value (e.g., Hayes et al., 2011). This is in contrast to current methods of value-affirmation, whereby traditionally only limited selection of values is presented. Secondly, within ACT, values are employed as explicit motivators for committing to

act in meaningful ways (Wilson & Murrell, 2004), whereas in traditional value-affirmation, individuals are not informed about the potential utility of values reflection, and are not encouraged to make behavioural changes in line with this value (see Section 1.4.2). A notable difference between the value-affirmation procedures of Gregg et al. (2014) and traditional value-affirmation procedures is that participants were not only encouraged to identity and reflect on their values, but also set a goal for acting in line with these. Values-based goal-setting significantly increases the effectiveness of goal-setting more generally (Ntoumanis et al., 2014; Fitzpatrick et al., 2016), and is associated with increases in valued-living and psychological wellbeing (Dahl, 2016; Robb, 2007; Williams, Ciarrochi, & Heaven, 2015). Whilst neuroimaging research in relation to self-affirmation is in its infancy, a recent study has indicated that self-affirmation processes appear to be reinforced by future orientation (Cascio et al., 2016). In light of this theory and research, one question not yet addressed within the literature concerns whether harnessing the motivational qualities of values through values-based goal-setting could enhance the psychological benefits of value-affirmation procedures.

1.6.2. Value-based goal-setting.

Research suggests that setting value-congruent goals promotes motivation and persistence in the face of self-threat. For example, framing behaviour in relation to personal values increased non-clinical participants' ability to tolerate core negative-self beliefs (Katz, Catane & Yovel, 2016). Similarly, setting values-based goals was associated with a reduction in cortisol and rumination in a non-clinical sample, which persisted over two days (Teismann, Het, Grillenberger, Willutzki, & Wolf, 2014). This suggests that simply setting values-based goals may have similar effects to

value-affirmation in relation to stress-reduction. However, what is not clear from these studies is the additional gains that may have been attained had participants also been encouraged to act on their goals.

Setting values-based goals has been shown to lead to improvements in academic attainment in university students. In one randomised controlled study (Chase et al., 2013), value-affirmation followed by a values-based goal-setting task, was compared with a standard goal-setting task, and a no goal-setting control. After one term, there was no difference between the standard goal-setting and control, whilst the values-based goal-setting group showed significant improvements in grades, indicating the importance of values exercises in setting effective goals. However, the results are confounded by not having a value-affirmation alone comparison group, as value-affirmation has been shown to have therapeutic effects in and of itself. To date, no study has compared the effects of value-affirmation with values-based goal-setting.

Only one study has directly investigated the role of values-based goal-setting in relation to interpersonal threat (Kashdan & McKnight, 2013). Individuals with social anxiety worked on values-based goals over the course of two-weeks. Working towards values-based goals enhanced wellbeing, and reduced the avoidance strategies which tend to maintain social anxiety. This study highlights how avoidant coping strategies, which maintain distress, might be overcome with values-congruent action. However, to date, no study has directly investigated values-based goal-setting in relation to paranoia.

Research suggests that individuals experiencing paranoia show reduced future-directed thinking (Bennett & Corcoran, 2010; Goodby & MacLeod, 2016), and as a result may set fewer personally meaningful goals. Paranoia across the continuum

is associated with maladaptive, defensive coping strategies including substance misuse, avoidance, rumination and withdrawal (Bebbington, 2015; Freeman et al., 2005; Freeman et al., 2007; Melo & Bentall, 2010). Avoidant and self-defensive responses are postulated to perpetuate paranoid thinking by reducing social integration and increasing the focus on the source of the threat (da Motta, Corvalho, Pinto-Gouveia, & Peixoto, 2014). For example, social avoidance leads to isolation and loneliness in individuals with paranoia (Riggio & Kwong, 2009), whilst reducing loneliness attenuates paranoia (Lamster, Nittel, Rief, Melh, & Lincoln, 2017). Research also suggests that the ability to approach rather than avoid sources of threat may also be one factor that differentiates between high and low non-clinical paranoia. Following laboratory induction, individuals with higher non-clinical paranoia employed more avoidant coping strategies (i.e., thought suppression and worry) compared to individuals with lower non-clinical paranoia (Flower, Newman-Taylor, & Stopa, 2015). These findings suggest that cognitive and behavioural responses focused on avoiding and defending against the perceived threat in paranoia are likely to perpetuate distress, whilst the ability to tolerate and approach sources of potential self-threat might attenuate paranoia.

Whilst there is a growing evidence base for ACT approaches to be used within clinical psychosis populations (e.g., Bach, Hayes & Gallop, 2012; Bloy, Oliver & Morris, 2011; Johns et al., 2016; Ost, 2014), no study to date has specifically investigated the impact of valued-living on paranoia. In one recent study, values-clarification and committed action was included in a four-session ACT group for psychosis (Johns et al., 2016). Whilst change in paranoia was not assessed, overall improvements in psychological flexibility were reported, with improvements in functioning noted at follow-up. Such research highlights the psychological benefits of

committing to values-based action in a psychosis population. Incorporating a values-based goal-setting to value-affirmation procedures indicates potential for a novel integration with existing treatment components of ACT to augment the effects of value-affirmation in reducing responsiveness to threat over time (Cohen & Sherman, 2014).

1.7. The Current Study

Drawing together the reasoning from the theoretical and empirical strands discussed, this thesis intended to investigate whether attenuations in non-clinical paranoia observed following value-affirmation might be enhanced over time through the behavioral enactment of those values.

Given the prevalence of non-clinical paranoia, and the central role that the negative self plays in the onset and maintenance of paranoia, further investigation concerning interventions for the self across the continuum of paranoia are warranted. Self-affirmations have shown promising benefits for a range of difficulties, including interpersonal threats and paranoia. In particular, uniting the two literatures relating to the potential benefits of value-affirmation, and values and committed action in attenuating non-clinical paranoia provides an interesting avenue of exploration.

This thesis aimed to add to existing research in three key ways. Firstly, to investigate whether the attenuations in non-clinical paranoia reported following self-affirmation in the laboratory are maintained over time, state paranoia was assessed immediately following and two-weeks post affirmation.

Secondly, the value-affirmation procedure was adapted to increase the validity of the task and its applicability to clinical settings. Value-affirmation research is becoming increasingly interested in clinical problems, such as wellbeing (Nelson et

al., 2014), alcohol use (e.g., Harris & Epton, 2009), paranoia (e.g., Kingston & Ellett, 2014), social anxiety (e.g., Kashdan & McKnight, 2013) and stress (e.g., Creswell et al., 2005) using methods that were initially developed to investigate social processes such as moral behaviour (Steele, 1989). It therefore feels pertinent to begin to consider developing the methods so as to adapt them for investigating clinical issues, and in time, use with clinical samples. In this study, an ACT-informed explanation of values (e.g., Chase et al., 2013) was provided to participants prior to the value-affirmation procedures, and a broader range of values, drawn from a card sort exercise used in clinical practice for the purposes of value-clarification were provided (Harris, 2013, Harris, 2011). These values represented a broad range of personal attributes, rather than valued-life domains, and aimed to provide participants with a greater choice when selecting their most important core personal value for value-affirmation.

Thirdly, a new affirmation condition, which included a values-based goal-setting task immediately following value-affirmation, was developed. This condition represents the first empirical test of whether values-based goal-setting enhances the effects of value-affirmation over time. This reflects a novel integration of the value-affirmation literature, which suggests that the effects of affirmations can lead to meaningful behavioural changes over time, and the ACT literature, which suggests that values-clarification is most meaningful when it leads to personally meaningful action by setting values-based goals ('committed action').

There were therefore two experimental conditions, Value-Affirmation (VA) and Value-Affirmation plus Goal-setting (VAG), and a Non-Affirmation Control (NAC) condition. State paranoia was assessed immediately before (T1), immediately after (T2), and two-weeks following (T3) the affirmation manipulation. In the experimental affirmation conditions, participants identified their most personally meaningful value

and wrote an essay about this value from their own perspective. Following this, those in the VAG condition were also guided to set a value-based goal to work on over the two-week follow-up period. In the control condition, participants identified their least personally meaningful value and wrote an essay about this from the perspective of an average person.

Given that self-esteem has been proposed as a potential moderator of affirmation effects, this was measured at T1, and positive affect was measured pre and post affirmation to ascertain whether any increases in positive mood associated with the affirmation procedures accounted for effects on state paranoia.

1.7.1. Hypotheses.

Hypothesis 1: The primary hypothesis predicted a significant interaction between group allocation on state paranoia over time. Specifically:

(a) Immediately following a value affirmation task (T2), state paranoia will be significantly lower in VA and VAG conditions, as compared to NAC condition.

(b) Two weeks later, VAG participants will have significantly lower state paranoia than NAC participants. No predictions were made about the VA group. This was because Kingston and Ellett (2014) reported a rise back to baseline following a threat induction, yet non-paranoia based value affirmation research has reported continued benefits over time.

(c) Within-subjects, it was predicted that there would be no change in state paranoia in the NAC condition. In the VA condition, it was predicted that there would be an immediate reduction in state paranoia but again, no directional predictions were made about changes from T2-T3. In the VAG condition, it was predicted that there

would be a progressive reduction in state-paranoia between T1-T2, and between T2-T3.

Hypothesis 2: It was predicted that the interaction between group allocation and state paranoia over time would remain significant when controlling for any change in positive affect between T1 and T2.

2. METHOD

2.1. Design

A randomised-controlled mixed design was utilised. The between-subjects independent variable was affirmation condition. Participants were randomised to either (i) value-affirmation (VA); (ii) value-affirmation plus goal-setting (VAG); or (iii) non-affirmation control (NAC). The within-subjects dependent variable was state paranoia, which was measured at three time points: (i) immediately pre-intervention (T1), (ii) immediately post-intervention (T2), and (iii) at two-week follow-up (T3). State positive affect was measured at T1, T2, and T3. Trait paranoia, mood, self-esteem and valued-living were measured at T1 to check for group equivalences at baseline.

2.2. Sample

An opportunity sample of N = 171 non-clinical adults was recruited. Approximately three-quarters (73%) were university students. At T1 and T2 there were n = 57 participants in each condition. At T3, there was an attrition rate of 7% (n = 12), therefore the final sample of participants completing the study was 159. One hundred and thirty-two participants were female (77%), and the mean age of the sample was 25.58 years (S.D = 8.08, range = 17 - 60 years). Further demographic information is reported in Results, see *Table 3.1*).

2.3. Power Analysis

No study to date has investigated the effect of value-affirmation on paranoia over time, nor compared value-affirmation with a value-affirmation plus goal-setting

condition. To estimate sample size for the present study, the power analysis was conducted by first consulting research on the effect of value-affirmation compared with control on non-clinical paranoia, and then consulting studies that have investigated self-affirmations, and goal-setting over time. The planned analytic strategy involved multiple significance tests, both within and between-subjects, to decompose a significant Time*Condition interaction. To account for this, the power analysis was calculated based on the sample size needed to detect between rather than within-subjects effects, as between-subjects analyses require larger sample sizes than within-subjects analyses (Greenwald, 1976).

Based on the means and standard deviations published by Kingston and Ellett (2014), a medium between-subjects effect size of d = .69 (Cohen, 1988) was obtained for reductions in state paranoia immediately following value-affirmation relative to control. Following exposure to a paranoia induction, this between-subjects effect remained of medium size (d = .61), with participants in the value-affirmation condition reporting less paranoia than those in the control. Medium to large effect sizes were also reported by McQueen and Klein (2006) in their literature review of the effects of value-affirmation on a range of dependent variables (e.g., stress management, risk evaluation, response to negative feedback) in non-clinical samples (mean effect size d = 0.70). Levin et al. (2012) also reported medium effect sizes in their meta-analysis of values-based experimental manipulations of ACT (Hedges g = .61), on a range of dependent variables (e.g., alcohol consumption, academic achievement, coping with pain).

Furthermore, medium to large effect sizes have been obtained by research investigating the effects of self-affirmations over time. One week following value-affirmation, Cooke et al. (2014) obtained a between-groups effect size of d = 1.06 for

increased physical activity, d = .89 for increased positive attitudes towards exercise, and d = 1.02 for increased positive intentions to exercise compared with control group. Similarly, Morgan and Atkin (2016) obtained an effect size of d = 1.11 at two-weeks following self-affirmation for reduced anxiety in primary school relative to control. Within the goal-setting literature, an effect size d = .67 was obtained at two-weeks for the effects of a daily goal-setting exercise on increased optimism compared with control (Meevissen, Peters, & Alberts, 2011).

Taking these effect sizes into account, an expected overall medium effect size (d = 0.60) was estimated for the effect of affirmation (VA and VAG) as compared to control. Power calculations based on an effect size of d = .60, power at .80 and alpha at .05, indicated a sample of 52 per condition (156 in total) to detect effects using a three group between-subjects ANOVA.

Based on previous self-affirmation studies an attrition rate of approximately 10% was predicted (e.g., Creswell et al., 2007; Düring & Jessop, 2015). To reduce attrition, participants were asked to confirm their availability for the two-week follow-up before providing consent to participate. To minimise the effects of any attrition on power, an additional 10% was added to the 156 sample size. Thus the total sample size used for randomisation was 171.

2.4. Recruitment

This study was one of two studies recruiting non-clinical participants and testing the effects of VA and VAG over time. Participants therefore completed two additional measures to those listed here. Each researcher was responsible for recruiting half of the sample.

The inclusion criteria were being 16 years or above, and a having a level of English sufficient to read and understand the information sheet, provide consent, and complete the questionnaires. The study was advertised to first year psychology undergraduates at Royal Holloway, who could participate to earn course credits (n = 71). Interested students read information which described the research as a two-part study investigating the relationship between values and thoughts about the self and other people (see Appendix 2). Students could then sign up to available time-slots to attend the first appointment (T1/T2, worth three course credits). Students were emailed a password 10 days later, which enabled them to sign up to the second appointment (T3) and complete the follow-up questionnaires online on the appointed day, worth one course credit.

The study was also advertised on the Royal Holloway online noticeboard, through the Royal Holloway research participation scheme, and on the researcher's social media (Facebook) pages. Brief information was provided, which described the research as a two-part study investigating the relationship between values and thoughts about the self and other people. Interested individuals contacted the researchers by email to express interest and appointment dates for participation were arranged. All participants not taking part in the research for course credits (n = 100) were entered into a prize draw to win one of five £20 Amazon vouchers as an incentive for participation.

2.5. Measures

2.5.1. Demographics.

Basic demographic information was collected concerning participants' gender, age, ethnicity (using response categories based on the Office for National Statistics,

2016), current student status, history of mental health difficulties, and highest level of education achieved. A summary of descriptive statistics is presented in *Table 3.1* within the results section.

2.5.2. Trait measures.

Measures were selected to assess for group equivalence in the relevant constructs of paranoia, mood, valued-living, and self-esteem at baseline (T1).

2.5.2.1. Paranoia Scale (Fenigstein & Vanable, 1992).

The Paranoia Scale is a 20-item questionnaire designed to estimate trait levels of non-clinical paranoid thinking. Example items include: *Someone has it in for me*; *I sometimes feel as if I am being followed*. Items are rated on a five-point Likert scale (*1 = not at all applicable to me; 5 = extremely applicable to me*). Total scores range from 20 to 100, with higher scores indicating higher levels of paranoia. Fenigstein and Vanable (1992) validated the Paranoia Scale with 581 students, and reported good internal reliability (α = .84). At least one paranoid item was endorsed by 62% of the sample, suggesting good sensitivity to non-clinical paranoia. The authors reported negative correlations with measures of interpersonal trust ($r_{(150)}$ = - .30, p < .01) and positive correlations with a 'Control by powerful others' scale ($r_{(150)}$ = .34, p < .01), indicating good construct validity. The Paranoia Scale has shown good test-retest reliability (α = .70) over six months when administered within a student sample (Fenigstein & Vanable, 1992), and is therefore considered an adequate trait measure of general paranoia levels in this population. The Paranoia Scale achieved a Cronbach's alpha of .91 in the present study, indicating good internal consistency.

2.5.2.2. Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond 1995).

The DASS-21 is 21-item scale designed to assess the core symptoms of depression, anxiety and stress. There are seven items in each subscale. All items are rated on a four-point Likert scale (*0 = never; 3 = almost always)* based on a timescale of *over the last week*. Responses are summed, with scores on each subscale ranging from 0 to 21 and total scores ranging from 0 to 63, with higher scores indicating higher levels of stress, anxiety and depression. Antony et al. (1998) reported good reliability (α = .87 to .94) and concurrent validity (r = .46 to .85) with other scales assessing depression and anxiety in non-clinical samples. The DASS-21 achieved a Cronbach's alpha of .89 in the present study, indicating good internal consistency.

2.5.2.3. The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965)

The RSE is a 10-item measure of global self-esteem. All items are rated on a four-point Likert scale (0 = *strongly disagree* to 3 = *strongly agree*). Five statements describe aspects of positive self-esteem (e.g., *on the whole, I am satisfied with myself*), and five items indicate negative self-esteem (e.g., *at times I think I am no good at all*). Total scores can range from 10 to 40. The negative self-esteem items are reverse coded, so higher total scores indicate higher levels of self-esteem. In a non-clinical sample of 508 undergraduate students, the RSE demonstrated good reliability, ranging from α = .88 to α = .90 (Robins, Hendin, & Trzesniewski, 2001), which is consistent with previous investigations of the psychometric properties of the RSES generally indicating internal reliability of between α = .72 and α = .88 (Vispoel, Boo,

& Bleiler, 2001). Test-retest coefficients have been acceptable for both one week (α = .82; Byrne, 1983) and seven month (α = .67; Silber & Tippett, 1965) intervals, indicating the scale captures trait constructs that show stability over time. In the present study, the RSE achieved a Cronbach's alpha of .88, indicating good internal consistency.

2.5.2.4. The Valued Living Questionnaire (VLQ; Wilson, Sandoz, Richards, & Roberts, 2010)

The VLQ is designed to assess values-based living across ten domains (family, relationships, parenting, friendship, work, education, recreation, spirituality, citizenship, and physical self-care). Each domain is first rated for personal importance on a ten-point Likert scale (*1 = not at all important* to *10 = extremely important*). Participants then rate how consistent their behaviour has been with each value over the past week (*1 = not at all consistent* to *10 = completely consistent).* A composite score is derived by calculating the product of the importance and consistency scores within each domain, and then finding then mean of these scores. Composite scores range from 1 to 100, with lower scores indicating less valued living. The authors reported good overall internal reliability (α = .74), and total scores negatively correlated with measures of experiential avoidance, ($r_{(251)} = -.14$, $p < .05$). Given that experiential avoidance is theorised to impede one's ability to act in line with values (Hayes et al., 2011), this negative correlation indicates good construct validity.

2.5.3. State measures.

2.5.3.1. Paranoia and Depression Scale (PDS; Bodner & Mikulincer, 1998).

The PDS is a 17-item measure of state depressive (ten items) and paranoid (seven items) cognitions. The PDS scale was designed for non-clinical experimental research and is therefore considered sensitive to moment-to-moment cognitive changes (Bodner & Mikulincer, 1998). Bodner and Mikulincer derived items from existing scales of clinical symptoms of paranoia and depression psychopathology (e.g., Beck, 1967; Derogatis, 1979; Hathaway & Mckinley, 1983; Turkat & Maisto, 1985) and made adaptations to the items to better suit non-clinical experimental research. The scale was validated with 149 undergraduate students, who rated items based on the timescale of the past two weeks. A factor analysis with varimax rotation identified two distinct factors, paranoia and depression, accounting for 18% and 28% of variance respectively (Bodner & Mikulincer, 1998).

Only the paranoia subscale was used in this study. Example items include *I feel that people are hostile towards me; I do not trust other people's intentions.* Items are rated on a 6-point scale (*1 = not at all* to *6 = very often*). Total scores range from 7 to 42. In this study, as with previous experimental studies (e.g., Kingston & Ellett, 2014), participants were instructed to rate the paranoia items based on the timescale of *right now*. The paranoia subscale has been reported to show good internal consistency (α = .84), and good convergent validity (r = .67, p < .001) with the paranoia subscale of the Symptom Checklist-90 in a student sample (Bodner & Mikulincer, 1998). Test-retest reliability has been reported as good (interclass correlation coefficient = .75) across three time points over a ten-day period (Matias,

2015). In the present sample, the paranoia subscale of the PDS achieved a Cronbach's alpha of 0.87 at T1, indicating good internal consistency.

2.5.3.2. Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegan, 1988).

The PANAS is a 20-item scale consisting of two subscales measuring positive (PA) and negative affect (NA). Each subscale is comprised of ten single word descriptors of positive (e.g., *Interested; Strong; Proud*) or negative (e.g., *irritable; ashamed; jittery*) affect. Items are rated on a five-point Likert scale (*1 = very slightly or not at all* to *5 = extremely*). The PANAS has been validated for use with seven different temporal time frames. For the purposes of this study, the timescale of *right now, that is, at the present moment* was utilised. Scores on each subscale can range from 10 to 50, with lower scores representing lower levels of positive and negative affect. The two subscales have been shown to be independent, such that no items had a secondary loading of more than .25 onto the opposite affect subscale (Watson, Clark, & Tellegan, 1988). The authors reported normative data from 660 non-clinical adults (predominantly undergraduate students) which indicated good reliability (PA α = .89; NA α = .85) and adequate eight-week test-retest reliability (PA = .54; NA = .45) for the *present moment* version of the PANAS. Convergent validity was good for the *today* version of the PANAS, with significant correlations with the Hopkins Symptom Checklist "today" version (PA r = - .29; NA r = .65). The PANAS-PA subscale was used to assess change in positive affect over time.

2.6. Experimental Manipulations of Self-Affirmation

This study adapted a well-validated value-affirmation procedure utilised by Kingston and Ellett (2014) and developed by Sherman et al., (2000), with three modifications. The modifications aimed to increase the clinical applicability of the procedure by including aspects of clinical values interventions as follows: (i) providing a definition of values; (ii) using a list of values from clinical values-clarification tasks; and (iii) using a card sort task for values-clarification. These changes are described in more detail below. The full text of the instructions is presented in Appendix 8.

2.6.1. Value-affirmation (VA).

Participants read a brief description of values to introduce a definition of values prior to completing the value-affirmation exercise. This description was derived from explanations of values used clinically (e.g., Chase et al., 2013; Harris, 2008; Harris 2011; Harris, 2013). The text defined values and made it clear that the task was not a test to see whether they have the 'correct' values:

> *Values are a life direction, an internal compass. They are leading principles that can guide you and motivate you as you move through life. Values are what matter to you in the big picture, what you want to stand for, and the personal qualities you want to develop. Values are not the same as goals. Values are directions you keep moving in, whereas goals are what you want to achieve along the way. Values are unique to you. Not everyone has the same values, and this is not a test to see whether you have the "correct" values.*

To increase the clinical validity of the value-affirmation task, participants then completed a card-sort rather than a pen and paper ranking of values. Fifty-eight value cards, plus two blank cards with a space for writing 'other' values, taken from a clinical values-clarification exercise (Harris, 2008, 2013, Appendix 9) were provided for sorting into one of three piles: *very important to me*; *quite important to me*; *not important to me* (Ciarrochi & Bailey, 2008; Harris, 2008; 2013). This list of values was chosen to provide participants with a broader range of values, and the values reflected personal attributes rather than life-domains, with the aim of addressing the limitations of existing value-affirmation procedures.

Following Sherman et al., (2000), participants then wrote for up to ten minutes about their most important value, why it is meaningful to them and describing a time it made them feel good about themselves. After completing the essay, participants wrote the top two reasons why their chosen value was important to them (Sherman et al., 2000).

2.6.2. Value-affirmation plus goal-setting (VAG).

The procedure replicated the VA condition, but was followed by a values-based goal-setting task. Drawing on clinical approaches to values-based goal-setting, participants read a brief rationale for values-based goal-setting and were given guidance on setting a personally meaningful, achievable values-based SMART goal (Harris, 2008; 2013):

> *Values can provide a deep motivation that helps us to pursue important goals in life. What could you do to help live your life in accordance*

with this value? We would like you to set a short term goal to focus on over the next two weeks. Ideally, you want to set a 'SMART' goal.

This is what 'SMART' means:

Specific: what exactly will you accomplish?

Meaningful: is this goal in line with your most important value?

Adaptive: is this goal likely to improve your life?

Realistic: can this goal be achieved in your life right now?

Time-framed: can this goal be achieved within the next two weeks?

Participants took a copy of their goal away as a reminder to work on their goal over the coming two weeks.

2.6.3. Non-affirmation control (NAC).

Following validated procedures (e.g., Sherman et al., 2000), the control condition replicated the VA condition, except that participants were asked to write about their least important value and why this might be meaningful and important to someone else. The control task therefore matched the value-affirmation task, except that a non-personally meaningful value and someone else's perspective was used to avoid inadvertent self-affirmation.

2.6.4. Manipulation checks.

Participants completed a series of manipulation check questions following manipulation to assess whether they wrote about a personally important value (VA and VAG conditions) or personally unimportant value (NAC). Participants rated four statements on a six-point Likert scale (*1 = strongly disagree* to *6 = strongly agree*):

This value or personal characteristic has influenced my life; In general, I try to live up to this value; This value is an important part of who I am; I care about this value (see Sherman et al., 2000). Total scores range from 0 to 20, with higher scores indicating greater personal significance of the value written about. It was predicted that the two affirmation conditions (VA and VAG) would have significantly higher scores than the control condition (NAC).

An additional manipulation check was included at T3 for the VAG condition. Participants were asked to answer the following question: *If you were asked to set a goal at the previous appointment, did you complete it?* with response options of *Yes; No;* or *Was not asked to set a goal.*

2.7. Piloting

To assess whether the adapted value-affirmation procedures prompted reflection on values in the affirmation conditions compared with control, the procedures were piloted with an opportunity general population sample. Five individuals completed VA and five completed NAC procedures, followed by the affirmation manipulation check. Manipulation check responses were examined to assess whether individuals in the VA condition reported that their chosen value was important and meaningful to them, and individuals in the NAC condition reported that it was not. Visual inspection suggested that the two groups responded differently on the questionnaire in the predicted direction. Therefore, the tasks were deemed effective and no changes were made.

2.8. Randomisation

Randomisation was carried out by a second person independent to the study to maintain researcher blindness. A randomisation key was generated using www.randomization.com. Using this key, sealed envelopes containing the instructions for the relevant condition were created and labelled sequentially with participant ID numbers.

2.9. Procedure (see Figure 2.1.)

Participation took place over two appointments. The frst appointment was face-to-face, and took place either in a private room at Royal Holloway, or at a suitable location in the participant's local community. Participants first read an information sheet and provided written informed consent (Appendix 3). The procedure was then verbally explained and the experimenter waited outside the room whilst the procedures were completed. Participants were informed that they could ask questions at any stage. All questionnaires were completed online using Qualtrics online survey software (Smith, Smith, Smith & Orgill, 2011) and used forced-choice questionnaire responses to minimise missing data.

Participants sat at a table with a laptop, lined paper, a pen, and two envelopes. One envelope was labelled with their ID number and contained instructions for the condition to which they had been randomly assigned. The second envelope contained values for the card-sort. Participants were informed that they would first be required to complete questionnaires on the laptop. These questionnaires assessed sociodemographics, trait mood, trait paranoia, trait self-esteem, valued-living, and measures of state paranoia and state positive affect (T1).

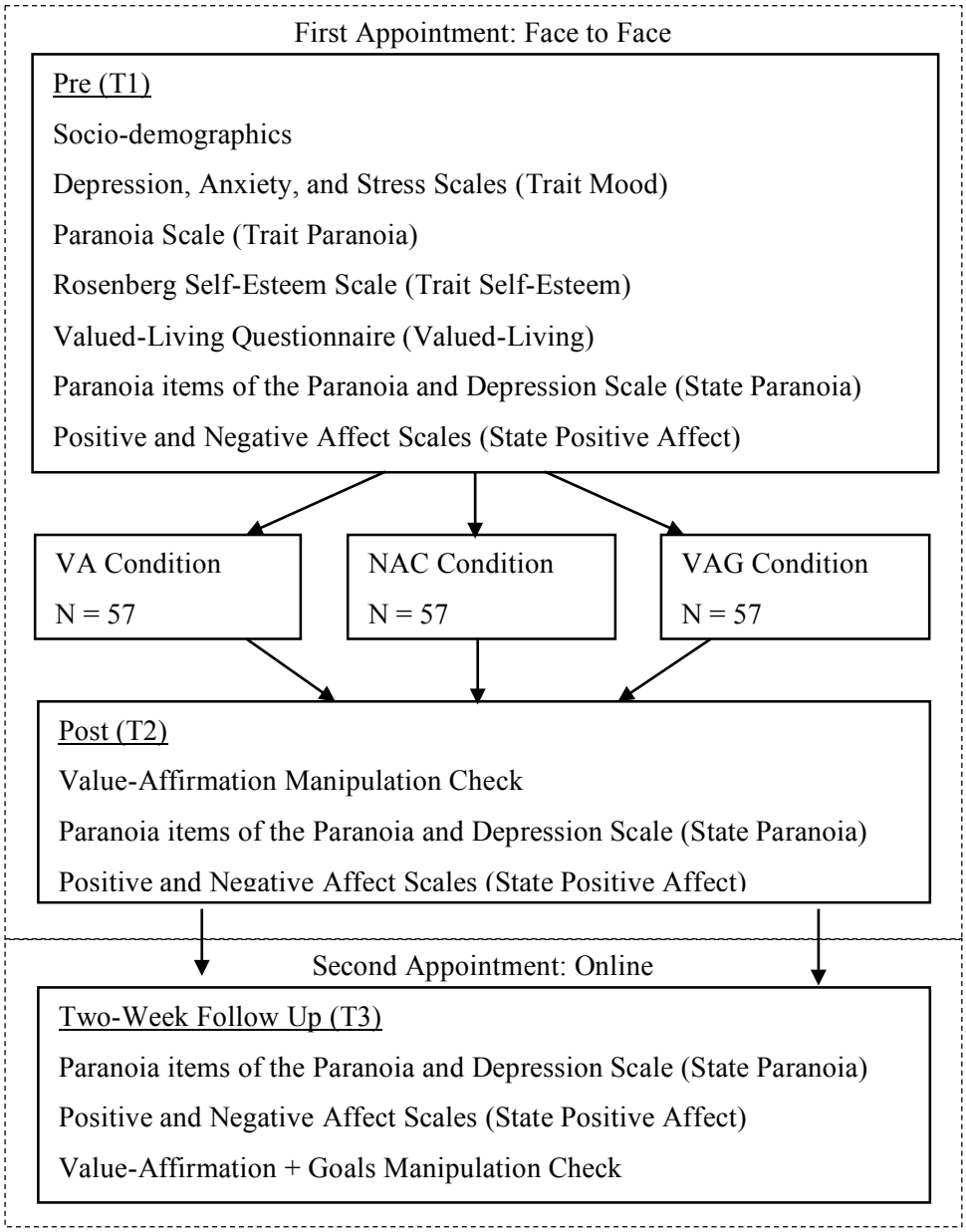

Figure 2.1. Diagram of procedure.

Participants then opened the envelope labelled with their ID number and followed the enclosed instructions for the task (either VA, VAG, or NAC). It was explained to participants that one element of the task would involve sorting cards with values on, and another would involve writing, for which they should spend 10 minutes. Participants were shown how to start and stop a timer for 10 minutes on the

laptop, and instructed to pause the timer if they completed writing before the 10-minute period had elapsed so that the duration of time spent writing could be measured. Participants were instructed to place their completed essay inside the numbered envelope to maintain experimenter blindness to condition. Conditions were matched for duration to complete (approximately 15-20 minutes). Participants then used the laptop to complete the manipulation check questions, measures of state paranoia and positive affect (T2), and provided their email address for receiving the online link to complete the second appointment.

The second appointment (T3) took place online, two weeks after T1/T2. Participants completed measures of state paranoia and positive affect, and the one-item VAG manipulation check (T3). Three days prior to this appointment, all participants were emailed a reminder which enabled participants taking part for course credit to sign up to the study. All participants also received an email on the day with instructions for completing the T3 appointment. Participants who had not completed the questionnaires on their appointed day were sent one reminder email encouraging participation, but also stating their right to withdraw. A debrief sheet (Appendix 4) was provided online at the end of the T3 questionnaires. All participants had the opportunity to enter their telephone number and receive a debrief telephone call from the researchers.

2.10. Ethical Considerations

The study was reviewed and received approval from the Royal Holloway Research Ethics Committee (REC ID: 82; Appendix 1). The procedures were not anticipated to have any negative implications for participants. However, in clinical settings, values-clarification can be a potentially distressing experience (Hayes et al.,

2011). In addition, completing questionnaires that ask participants to reflect on paranoia or negative mood may have negative emotional effects. As such, whilst none of the participants requested this, all participants were offered the opportunity for a telephone call debrief at the end of the study. The debrief sheet also included information about relevant sources of emotional support, and participants were encouraged to contact the researcher by email should they have any questions or concerns about any aspect of their participation in the study.

3. RESULTS

3.1. Overview

This chapter begins with a description of the preliminary statistical procedures employed prior to hypothesis testing, including the procedures used to screen for and manage missing data, investigate the distributions of the data, and manage outliers. Where data were not normally distributed, transformations were performed so that the data met the assumptions for parametric tests. After this, descriptive and statistical analyses were computed to assess whether groups were equivalent at baseline on key study and demographic variables. Each hypothesis is then outlined in turn, with details of the statistical procedures used and the outcome.

All data were processed using Statistical Package for Social Sciences (SPSS, version 21). All values are reported to two decimal places, except from percentages which are reported to one decimal place. Conventional levels of statistical significance were applied, with the alpha level $p < 0.05$ adopted throughout, unless otherwise stated.

3.2. Preliminary Statistical Procedures

3.2.1. Missing data.

All questionnaires were completed online using forced choice responding, which minimised missing data. However, due to an administration error, four participants did not complete the Valued-Living Questionnaire (VLQ) at baseline, and 18 participants did not report on the length of time they spent completing the affirmation essay (six participants from each condition). Where statistical analysis involved variables with missing data, cases were excluded using listwise deletion.

Listwise deletion is one method of managing missing data in which cases with missing data from any variable involved in an analysis are excluded from that analysis. The method of listwise deletion was selected given the relatively limited amount of missing data, and its relative simplicity (Schafer & Graham, 2002).

3.2.2. Attrition.

Twelve participants (7.0%) were lost to T3 follow-up. There was no evidence of systematic attrition as an effect of group allocation, because attrition was similar across conditions (VA: n = 3; VAG: n = 5; NAC: n = 4). For analyses involving T3 variables, cases lost to T3 were excluded using listwise deletion.

3.2.1. Outliers.

Outliers are data points that lie well outside the area of variance expected amongst sample scores. Outliers may represent an error in measurement, responding, or data recording, but may also represent a legitimate extreme value, which occurs because an individual differs from the rest of the sample in a meaningful way (Field, 2013). It is therefore important to identify and examine individual outliers and evaluate the best course of action for managing them in the data set (Field, 2013).

Initially, boxplots were inspected to identify univariate outliers, and data points that fell outside of the upper or lower quartiles were examined. For this thesis, data points were investigated as potential outliers if they fell more than three standard deviations above or below the sample mean (Field, 2013). Given that the planned analysis involved between-group comparisons, all data were examined for outliers based on group means and standard deviations within each condition at each time point.

A total of 13 participants were identified as having extreme high scores on at least one study variable. High scores did not appear to be a systematic effect of condition (VA: $n = 5$; VAG: $n = 6$; NAC: $n = 3$). High extreme scores were obtained at T1 on measures of the DASS-21 Depression, Anxiety and Stress Scales ($n = 7$) and on the measure of trait paranoia ($n = 2$). High extreme scores were also obtained on the state measure of paranoia at T1, T2, or T3 ($n = 7$). No participant had extreme high scores on more than three study variables.

Inspection of the extreme high scores indicated that they were likely to reflect true data points and therefore represent valid and meaningful variation within the sample. Given the aim of recruiting an analogue sample, the inclusion of extreme high scores (which reflect the more severe, clinical end of the symptom scales) was considered meaningful and relevant to the study aims. In addition, excluding meaningful data can lead to a loss of power and therefore increase the likelihood of type 1 error (Bakker & Wichert, 2014). It was therefore decided to retain these extreme high scores within the dataset.

One participant was identified as having extreme low scores on questionnaire responses at T3. Visual inspection of these scores indicated that this was likely to be the result of a response error, as the participant had provided the same responses to all items on all measures collected at that T3, irrespective of item content. This pattern of responding is suggestive of content non-responsivity, and threatens internal validity (Nichols, Greene, & Schmolck, 1989). As such, it was decided to exclude this participant from analyses involving T3 variables. Therefore, at T3, $N = 158$.

3.2.2. Distribution of variance.

Normality and homogeneity of variance are both key assumptions for the use of parametric tests. Normality of distribution was initially assessed by visually examining histograms with normal curves for all study variables within each group. After visually examining histograms, each variable was formally assessed for skew and kurtosis using *z*-scores obtained using the following formulas (Tabachnick & Fiddell, 2007):

$$Skew: z = \frac{S - 0}{s.e.skew}$$

$$Kurtosis: z = \sqrt{\frac{K - 0}{s.e.kurtosis}}$$

Normality was accepted if $z < 3.29$ ($p > .001$), such that a significant score on skew or kurtosis ($z > 3.29$, $p < .001$) was taken to indicate significantly non-normal distributions. Histograms with normal curves, together with skew and kurtosis z scores, indicated that state paranoia at T1, T2, and T3 was positively skewed within all (VA, VAG, and NAC) conditions. Age and DASS-21 Depression were also positively skewed in all three conditions. Trait paranoia and DASS-21 Anxiety were positively skewed in the VAG and NAC conditions, and DASS-21 Stress was positively skewed in the VAG condition only.

Square-root transformations successfully normalised the positive skew in DASS-21 variables, a log10 transformation successfully normalised trait paranoia, and reciprocal transformations normalised age and state paranoia at T1, T2 and T3. Reciprocal transformations inverse scores, such that high scores become low and vice

versa. To correct this, reciprocal transformed scores were then reversed by multiplying the scores by -1. For comparison purposes, variables that were transformed at any time point or within any condition had the same transformation applied to data at all time points and across all conditions. For skew and kurtosis scores for all variables, please see Appendix 10.

Homogeneity of variance was assessed using Levene's tests (for between-subjects t-tests) and Mauchley's Test of Sphericity (for repeated measures ANOVAs). Where these were found to be significant (i.e., equal variances or sphericity could not be assumed), repeated measures ANOVA results were reported using the Huynh-Feldt statistic, and t-tests were reported using t-values in which equal variances had not been assumed. These are stated where relevant.

3.3. Descriptive Statistics

3.3.1. Sociodemographic variables.

The sociodemographic characteristics of the sample are presented in *Table 3.1*. The sample was predominantly white, female, at university, and without a mental health diagnosis. The mean age was 25.58 years (*SD* = 8.08).

Table 3.1. Sociodemographic variables.

Sociodemographic Variables (%)		Condition: VA *n* = 57	Condition: VAG *n* = 57	Condition: NAC *n* = 57	Total Sample *N* = 171	Test Statistic
Gender	Female	40 (70.2%)	49 (86%)	43 (75.4%)	132 (77.2%)	$\chi^2_{(4)} = 6.17, p = .19$
	Male	17 (29.8%)	8 (24.0%)	13 (22.8%)	38 (22.2%)	
	Other	0 (0%)	0 (0%)	1 (1.8%)	1 (0.6%)	
Age	*M (SD)*	23.74 (7.11)	25.44 (8.03)	27.56 (8.70)	25.58 (8.08)	$F_{(2, 168)} = 4.1, p = .02$
Ethnicity	White	40 (70.2%)	41 (71.9%)	47 (82.5%)	128 (74.9%)	$\chi^2_{(8)} = 6.23, p = .62$
	Mixed	1 (1.8%)	2 (3.5%)	2 (3.5%)	5 (2.9%)	
	Asian	14 (24.6%)	11 (19.3%)	6 (10.5%)	31 (18.1%)	
	Black	2 (3.5%)	2 (3.5%)	2 (3.5%)	6 (3.5%)	
	Other	0 (0%)	1 (1.8%)	0 (0%)	1 (0.6%)	
Student Status	Undergraduate	34 (59.6%)	28 (49.1%)	21 (36.8%)	83 (48.5%)	$\chi^2_{(4)} = 6.10, p = .19$
	Postgraduate	11 (19.3%)	15 (26.3%)	17 (29.8%)	43 (25.1%)	

	Not a student	12 (21.1%)	14 (24.6%)	19 (33.3%)	45 (26.3%)	
Highest Education	No education	0 (0%)	1 (1.8%)	1 (1.8%)	2 (3.5%)	$\chi^2_{(4)} = 6.94$, $p = .54$
	GCSE	2 (3.5%)	0 (0%)	2 (3.5%)	4 (2.3%)	
	A-level	31 (54.4%)	28 (49.1%)	22 (38.6%)	81 (47.4%)	
	Bachelor Degree	9 (15.8%)	15 (26.3%)	15 (26.3%)	39 (22.8%)	
	Post-graduate	15 (26.3%)	13 (22.8%)	17 (29.8%)	45 (26.3%)	
Mental Health	Yes	15 (26.3%)	17 (29.8%)	17 (29.8%)	49 (28.7%)	$\chi^2_{(2)} = .23$, $p = .89$
Diagnosis	No	42 (73.7%)	40 (70.2%)	40 (70.2%)	122 (71.3%)	
Mental Health	Yes	7 (12.3%)	10 (17.5%)	11 (19.3%)	28 (16.4%)	$\chi^2_{(2)} = 1.09$, $p = .58$
Ongoing	No	8 (14.0%)	7 (12.3%)	6 (10.5%)	21 (12.3%)	
Recruitment	Ψ Credit Scheme	31 (54.4%)	23 (40.4%)	17 (29.8%)	71 (41.5%)	$\chi^2_{(6)} = 11.45$, $p = .08$
Source	Paid Pool	1 (1.8%)	3 (5.3%)	1 (1.8%)	5 (2.9%)	
	DClinPsy	8 (14.0%)	16 (28.1%)	14 (24.6%)	38 (22.2%)	
	Family/Friends	17 (29.8%)	15 (26.3%)	25 (43.9%)	57 (33.3%)	

Before hypothesis testing, a series of chi-square tests were computed to test whether conditions were equivalent across categorical sociodemographic variables. A one-way ANOVA was used to assess whether conditions were equivalent on the continuous socio-demographic variable of age. As illustrated in Table *3.1*, conditions only differed significantly at baseline on age ($F_{(2,\ 168)} = 4.1$, $p = .018$). Fisher's protected independent t-tests were performed to investigate the significant F value for age. The results indicated that participants in VA were significantly younger (M = 23.74 years) than those in NAC (M = 27.56 years) ($t_{(112)} = -2.82$, $p = .006$). Age was not significantly different between VA and VAG ($t_{(112)} = -1.46$, $p = .15$), nor between VAG and NAC ($t_{(112)} = -1.43$, $p = .16$)[1].

Given this difference between conditions on age, it was important to test whether age was correlated with the key outcome variable of paranoia. A significant relationship between age and paranoia could affect the detection of differences in state paranoia by masking or strengthening the effect of group allocation. Negative correlations, with older age being correlated with lower paranoia, have previously been reported in the literature (e.g., Bebbington et al., 2013). Pearson's correlations indicated that age was significantly negatively correlated with trait paranoia ($r = -.48$, $p < .001$) and state paranoia across group and time (range $r = -.31$ to $r = -.41$, $p < .001$) in the current sample.

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[1] There were four outliers (older participants) on age, distributed across the three conditions. The difference between conditions remained significant when these four age outliers were removed ($F_{(2,\ 164)} = 3.98$, $p = .02$). Fischer's protected independent samples t-tests indicated that the pattern of significance remained the same (i.e., participants in NAC condition were significantly older than participants in VA, $t_{(110)} = -1.47$, $p = .14$). Therefore, the outliers were retained within the dataset.

Because age was significantly associated with the primary study variable (state paranoia) and was unequally distributed across groups, it was decided to run the main analyses involving between-subjects comparisons with and without age as a covariate to assess whether the difference between conditions on age would impact upon the hypothesised relationship between conditions and paranoia over time.

3.3.2. Study variables at baseline

Table 3.2. presents group descriptive statistics on study variables at baseline. Mean levels of trait and state paranoia were similar to those found by other authors (e.g., Fenigstein & Vanable, 1992; Kingston & Ellett, 2014). One-way ANOVAs conducted to assess for group equivalence on key variables at baseline indicated that conditions were not statistically different on any study variables at baseline.

*Table 3.2. G*roup Equivalence on Study Variables at Baseline.

	Condition			
Study Variables	VA	VAG	NAC	Test Statistic
(*M, SD*)	*n* = 57	*n* = 57	*n* = 57	
Trait Variables				
Trait Paranoia	36.21 (11.87)	34.89 (13.21)	32.42 (10.23)	$F_{(2, 168)} = 1.58$, $p = .21$
RSE	18.79 (5.42)	19.54 (4.63)	19.37 (5.09)	$F_{(2,168)} = 0.35$, $p = .71$
DASS-21 Depression	3.05 (3.00)	3.14 (3.45)	3.25 (3.01)	$F_{(2,168)} = 0.03$, $p = .97$
DASS-21 Anxiety	3.46 (3.00)	2.93 (2.88)	3.12 (3.17)	$F_{(2,168)} = 0.45$, $p = .64$
DASS-21 Stress	5.68 (3.05)	5.16 (3.49)	6.00 (3.22)	$F_{(2,168)} = 0.91$, $p = .40$
VLQ	53.96 (12.17)	51.39 (14.27)	51.32 (15.19)	$F_{(2,164)} = 0.66$, $p = .52$
State Variables				
T1 State Paranoia	12.28 (4.34)	13.04 (6.75)	12.18 (4.68)	$F_{(2, 168)} = 0.12$, $p = .89$

T1 PANAS-PA	25.30 (7.07)	26.32 (7.88)	26.93 (8.43)	$F_{(2,168)} = 0.63$, $p = .53$

Note. VA – Value-affirmation; VAG – Value-affirmation plus goal-setting; NAC – Non-affirmation control; DASS-21: Depression, Anxiety and Stress Scale; RSE: Rosenberg Self-Esteem Scale; PANAS-PA: Positive and Negative Affect Schedule- Positive Affect; VLQ: Valued Living Questionnaire. For VLQ, VA: $n = 57$; VAG: $n = 56$; NAC: $n = 54$. Means reported are for untransformed scores; between-group comparisons based on transformed data where required to meet parametric assumptions.

3.3.3. Affirmation manipulation.

3.3.3.1. Manipulation check.

To ascertain whether VA and VAG participants had written about a value that was viewed as personally more important and meaningful than control participants, the manipulation check data were examined. This suggested that eight participants had incorrectly completed the manipulation check items. For example, four VA participants indicated on the Likert scale that they had written about a value that didn't matter to them, but reviewing their essays suggested they had written about a value that did matter to them. This manipulation check data were therefore deemed a response error and was substituted with the sample mean.

It was predicted that individuals in the VA and VAG conditions would score significantly higher on the value-affirmation manipulation check than participants in the NAC condition. A one-way between-subjects ANOVA indicated a significant difference on total score on the manipulation check between conditions ($F_{(2,168)}$ = 261.53, $p < .001$; VA mean: 18.88; VAG mean: 18.39; NAC mean: 9.84). Fisher's protected independent samples t-tests were performed, which confirmed that NAC participants scored significantly lower than VA ($t_{(72.51)} = 17.96$, $p < .001$) and VAG participants ($t_{(76.99)} = 16.65$, $p < .001$), whilst there was no significant difference between the two affirmation conditions ($t_{(110.23)} = -1.82$, $p = .07$). This supported the prediction and indicated that affirmation participants had written about a more personally important and meaningful value than control participants.

3.3.3.2. Values selected for affirmation essays.

To better understand how participants carried out the affirmation tasks, the values selected by affirmation and control participants were analysed. Frequencies

and percentages are presented in *Table 3.3*. Data were available for 159 (93%) of participants. Missing data were the result of participants choosing to keep their essay following the affirmation exercise, and was predominantly from participants in the VAG condition ($n = 9$).

Within the affirmation conditions (VA and VAG), a total of 34 values were selected as *most important*, indicating a relatively broad range of *most important* values across participants. *Love* ($n = 11$; 19.3%) and *Trust* ($n = 9$; 15.8%) were the most commonly selected *most important* values. A relatively smaller range ($n = 14$) were selected across participants in the NAC condition as the *least important* value. *Power* ($n = 27$; 47.7%) was the most commonly selected *least important* value. One participant provided their own value in the VAG condition (*Closeness/Belonging*), and one participant provided their own value in the NAC condition (*Disloyalty*)[2].

[2] Five other participants added 'Other' values to the card sort exercise, however, due to an error in data collection, the condition these values were associated with, or whether these values were chosen as the subject of affirmation essays is not known. The five values that were provided were *Individuality: difference between people and celebrating it*; *Happiness*; *To be rational*; *To think critically*; *Realism: to think in a way that is logical and true to life while avoiding extreme pessimism*.

Table 3.3. Values Selected for Affirmation Essays

	Condition		
Value	VA	VAG	NAC
Frequency (%)	*n* = 57	*n* = 57	*n* = 57
Love	6 (10.5%)	5 (8.8%)	-
Trust	4 (7.0%)	5 (8.8%)	-
Open-mindedness	3 (5.3%)	4 (7.0%)	-
Kindness	2 (3.5%)	4 (7.0%)	-
Honesty	2 (3.5%)	4 (7.0%)	-
Authenticity	4 (7.0%)	1 (1.8%)	-
Contribution	1 (1.8%)	3 (5.3%)	-
Persistence	3 (5.3%)	1 (1.8%)	-
Self-development	2 (3.5%)	2 (3.5%)	-
Independence	2 (3.5%)	2 (3.5%)	-
Gratitude	3 (5.3%)	1 (1.8%)	-
Reciprocity	2 (3.5%)	1 (1.8%)	1 (1.8%)
Forgiveness	3 (5.3%)	-	1 (1.8%)
Freedom	3 (5.3%)	-	-
Compassion	2 (3.5%)	1 (1.8%)	-
Self-control	2 (3.5%)	-	-
Flexibility	-	2 (3.5%)	-
Respect	-	2 (3.5%)	-
Supportiveness	-	2 (3.5%)	-
Humility	-	2 (3.5%)	-

Industry	1 (1.8%)	-	-
Humour	1 (1.8%)	-	-
Friendliness	1 (1.8%)	-	-
Fun	1 (1.8%)	-	-
Acceptance	1 (1.8%)	-	-
Caring	1 (1.8%)	-	-
Courage	1 (1.8%)	-	-
Curiosity	1 (1.8%)	-	-
Equality	1 (1.8%)	-	-
Excitement	-	1 (1.8%)	-
Responsibility	-	1 (1.8%)	-
Self-awareness	-	1 (1.8%)	-
Other:	-	1 (1.8%)	-
Closeness/belonging			
Romance	-	-	1 (1.8%)
Justice	-	-	1 (1.8%)
Mindfulness	-	-	1 (1.8%)
Fitness	-	-	1 (1.8%)
Other: Disloyalty	-	-	1 (1.8%)
Beauty	-	-	2 (3.5%)
Sensuality	-	-	3 (5.3%)
Sexuality	-	-	3 (5.3%)
Order	-	-	4 (7.0%)
Conformity	-	-	4 (7.0%)

Adventure	1 (1.8%)	-	5 (8.8%)
Power	-	-	27 (47.4%)
Missing data	2 (3.5%)	9 (15.8%)	1 (1.8%)

Note. Values chosen as *most important* (VA; VAG), and *least important* (NAC). VA – Value-affirmation; VAG – Value-affirmation plus goal-setting; NAC – Non-affirmation control.

3.3.3.3. Time taken to write essay.

To assess whether participants spent an equivalent amount of time writing the essay across conditions, a one-way ANOVA was computed using time taken as the dependent variable (a squaring transformation was applied to normalise skew). This indicated that participants spent an equivalent amount of time writing across conditions (VA Mean: 8 mins 11.02 secs, *SD* = 119.90; VAG Mean: 8 mins 9.27 secs, S*D* = 133.73; NAC Mean: 7 mins 36.53 secs, *SD* = 123.95); $F_{(2,150)} = 1.54$, $p = .22$).

3.3.3.4. Goals chosen by VAG participants.

Data regarding the values-based goal set were available for 41 (71.9%) participants in the VAG condition (see Appendix 11). Of these, 24 (58.5%) goals mentioned improving relationships with other people in the service of their specified most important value (e.g., spending time with loved ones, being kinder, more tolerant, more helpful to others). Four related to academic goals in the service of the specified values (e.g., completing a coursework assignment, revising regularly), and 13 related to other self-development or life goals associated with the participant's specified most important value (e.g., to move house, to try something new, to let go of worries).

3.3.4. T3 follow-up.

3.3.4.1. Timing of T3 completion.

Participants were requested to complete the T3 follow-up questionnaires 14 days after completion of T2. The majority of participants (66.0%) completed T3 at 14 days, with a range of 11 to 25 days across the response sample. A leeway of seven days was considered acceptable. Three participants completed T3 responses outside of this seven-day window, but as no outliers were obtained in their responses, their data were retained. A one-way ANOVA confirmed there were no systematic differences in the timing of T3 completion by condition ($F_{(2, 156)} = 0.15$, $p = .87$).

3.3.4.2. Completion of Goals in VAG

Thirty-four (65.3%) participants in the VAG condition reported having completed their value-based goal at T3.

3.4. Hypothesis Testing

3.4.1. Hypothesis 1: the effect of condition on state paranoia over time.

The primary hypothesis predicted a significant interaction between group allocation and state paranoia over time. Specifically, the following between-groups differences were predicted: (a) At T2, state paranoia will be significantly lower immediately in VA and VAG than in NAC; (b) At T3, state paranoia will be lowest in the VAG condition. There was no a priori prediction concerning between-subjects differences between VA and NAC at T3; and (c) differences in within-groups changes in paranoia over time were predicted. Specifically, a reduction in paranoia between T1 and T2 was predicted within VA, with no a priori prediction concerning within-

group change between T2 and T3. Within the VAG group, a progressive reduction in state paranoia between T1 and T2, and between T2 and T3 was predicted. No change in paranoia over time was predicted within the NAC group.

These hypotheses were tested by computing a mixed 3 X 3 ANOVA, with Time as the within-subjects factor (three levels: T1, T2, T3), Condition as the between-subjects factor (three levels: VA, VAG and NAC) and State Paranoia as the dependent variable. The statistical analysis was run twice, both with and without age as a covariate in the model (see section 3.3.1). Raw means for state paranoia are presented in *Figure 3.1*.

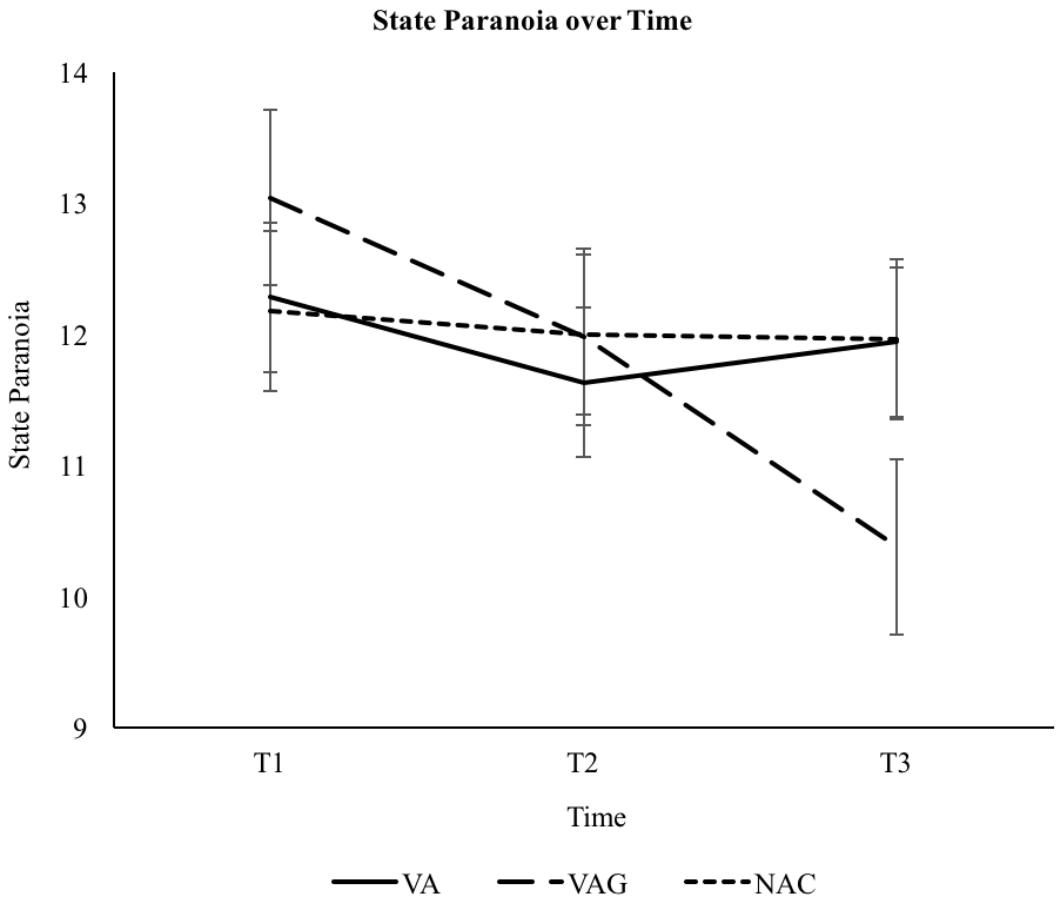

Figure 3.1. State Paranoia Scores for VA, VAG and NAC over Time (vertical lines depict standard error of means).

For both analyses, Mauchley's test of sphericity was significant. Without age entered as a covariate in the model (3 X 3 ANOVA), there was a significant main effect of Time within subjects ($F_{(1.74,\ 270.01)} = 6.15$, $p = .004$), and a significant Time*Condition interaction ($F_{(3.49,\ 270.01)} = 2.63$ $p = .04$). There was no significant main effect of Condition between-subjects ($F_{(2,\ 155)} = 2.09$, $p = .13$).

With age entered as a covariate in the model (3 X 3 ANCOVA), there was no significant main effect of Time within-subjects ($F_{(1.75,\ 269.1)} = 0.50$, $p = .59$), a trend towards a main effect of Condition between-subjects ($F_{(2,\ 154)} = 2.98$, $p = .055$), and a significant Time*Condition interaction ($F_{(3.5,269.1\ )} = 2.74$, $p = .04$).

Comparing the results of these analyses indicates that whilst the Time*Condition interaction was significant in both models, different results were obtained for the main effects, with the main effect of Time not significant and the main effect of Condition becoming a trend when age was entered as a covariate. This suggests that the significant difference between conditions on age at baseline may have had a potential impact on the hypothesised relationship between conditions and paranoia over time. It was therefore decided to retain age as a covariate and the 3 X 3 ANCOVA analysis was interpreted.

The significant Time*Condition interaction was fully decomposed according to a priori predictions (Clarke-Carter, 2004). First, to test the prediction that VA and VAG would have lower levels of state paranoia than the NAC condition at T2, two independent samples t-tests were computed. Contrary to prediction, these were not significant for NAC vs. VA ($t_{(112)} = -0.54$, $p = .59$) or for NAC vs. VAG $t_{(112)} = -1.14$, $p = .29$). Therefore, H1 (a) was not supported, as there was no significant difference in state paranoia between experimental and control conditions at T2.

To test H1 (b), a one-way univariate ANCOVA with least significant difference (LSD) planned comparisons was carried out to test for between-groups differences on state paranoia at T3. T3 State Paranoia was entered as the dependent variable, Condition was the fixed factor, and age was entered as the covariate. This revealed a significant difference between conditions on state paranoia ($F_{(2, 154)} = 4.90$, $p = .009$, $\eta_p^2 = 0.06$) [3]. Planned LSD contrasts showed that at T3, state paranoia was significantly lower in VAG vs. NAC ($p = .004$), and VAG vs. VA ($p = .02$). There was no significant difference between VA and NAC, ($p = .54$). Therefore, H1 (b) was partially supported. The prediction concerning VAG was supported in that state paranoia was significantly lower in VAG than in both VA and NAC groups. Given that there was no a priori prediction concerning the VA condition at T3, the analysis supported a null hypothesis, as there was no difference between VA and NAC at two-week follow-up.

Taken together, these results indicate that state paranoia was significantly lower following affirmation in VAG compared with the VA and NAC conditions, and that this between-subjects difference was only significant at T3 follow-up, not immediately following affirmation at T2.

To test H1 (c), the interaction was also decomposed by assessing for within-group change in state paranoia scores over time. Repeated measures ANOVAs were performed for each condition to test for within-subjects change over time. There was no overall significant change in state paranoia over time in VA ($F_{(1.45, 76.75)} = 1.71$, $p = .19$, sphericity not assumed) or NAC ($F_{(1.80, 91.83)} = 0.61$, $p = .53$, sphericity not

[3] Running this analysis without age as a covariate did not significantly alter *p*-values ($F_{(2, 158)} = 4.94$, $p = .008$, $\eta_p^2 = 0.06$).

assumed). In the VAG condition, a repeated measures ANOVA indicated a significant change in state paranoia scores over time ($F_{(2, 102)} = 8.23$, $p < .001$). Paired-sample t-tests adjusted for family-wise error using Bonferroni correction ($p = .017$) showed a significant reduction in state paranoia between T1 and T2 ($t_{(56)} = 2.69$, $p = .009$), and between T1 and T3 ($t_{(51)} = 3.95$, $p < .001$), but the reduction in state paranoia from T2-T3 did not reach statistical significance ($t_{(51)} = 1.77$, $p = .08$). Therefore, H1 (c) was partially supported. Consistent with prediction, there was no overall effect of time in the NAC condition, and there was an overall significant progressive reduction in paranoia over time in the VAG group, although the reduction did not reach statistical significance between T2 and T3. Contrary to prediction, analysis did not indicate any within-subjects reduction in paranoia in the VA condition between T1 and T2.

Taken together, these results indicate that the beneficial effects of value-affirmation on state paranoia were only apparent over time in the VAG condition.

3.4.1.1. Exploratory post-hoc analysis.

To examine whether goal completion (i.e., rather than simply stating a goal at T2) was a mechanism that contributed to the superior effects of VAG on state paranoia at T3, exploratory analyses were computed to assess whether there were different effects on state paranoia within the VAG condition according to whether the value-based goal was completed or not. Given the relatively small sample size and unequal groups, change in state paranoia between T2 and T3 on state paranoia was assessed within-subjects using paired-samples t-tests. There was a significant reduction in state paranoia between T2-T3 for participants completing their goal ($t_{(33)} = 2.14$, $p = .04$), but no significant change for participants who did not complete their

goal ($t_{(16)}$ = - 3.12, p = .76). These post-hoc analyses indicate that goal completion, over and above simply stating a goal, may have made a contribution to the significantly lower state paranoia scores in VAG at T3. However, loss of randomisation in this analysis means that third variables (i.e., a moderator) cannot be excluded.

3.4.2. Hypothesis 2: impact of positive affect on the interaction between condition and state paranoia over time.

Given that previous research has queried whether changes following value-affirmation are the result of the value-affirmation procedures inducing positive mood (e.g., Koole et al., 1999), the second hypothesis predicted that differences in state paranoia as an effect of condition allocation would remain, even after controlling for any change in positive affect between T1 and T2.

Means and standard deviations for positive affect across time per condition (see *Table 3.4*.) indicate that positive affect did increase between T1 and T2 in the VA and VAG conditions, but then decreased at T3. Paired-sample t-tests with alpha level adjusted for family-wise error, using a Bonferroni correction (p = .008), showed that the increase in positive affect between T1 and T2 was only significant in the VA condition ($t_{(53)}$ = -2.91, p = .005). There was no statistical increase in positive affect in the VAG condition ($t_{(56)}$ = -1.03, p = .31), and there was a trend towards a significant reduction in positive affect in the NAC condition ($t_{(56)}$ = 2.18, p = .03). Between T2 and T3, there was a significant reduction in positive affect in both the VA ($t_{(53)}$ = 3.13, p = .003) and VAG ($t_{(51)}$ = 3.41, p = .001) conditions, but no significant change in affect in the NAC condition ($t_{(51)}$ = 1.70, p = .10).

The primary analysis was re-run to control for the changes in affect between T1 and T2. Change in positive affect was calculated by subtracting positive affect at T2 from positive affect at T1. This variable was entered as a covariate alongside age in the 3 X 3 ANCOVA with state paranoia. Mauchley's test of sphericity was significant. The Time*Condition interaction remained significant ($F_{(3.45, 264.17)} = 3.08$, $p = .02$) indicating that the changes in state paranoia presented in section 3.4.1 were independent of changes in positive affect occurring immediately following affirmation.

Table 3.4. State Positive Affect: Means and Standard Deviations

	Condition		
Variable (*M, SD*)	VA	VAG	NAC
T1 PANAS-PA	25.30 (7.07)	26.32 (7.88)	26.93 (8.43)
T2 PANAS-PA	27.32 (7.46)	27.11 (8.70)	25.68 (9.29)
T3 PANAS-PA	24.22 (8.54)	22.50 (7.77)	24.06 (8.61)
PANAS-PA Change T1 to T2	2.02 (5.23)	0.79 (5.80)	-1.25 (4.31)

Note. VA – Value-affirmation; VAG – Value-affirmation plus goal-setting; NAC – Non-affirmation control. PANAS-PA – Positive and Negative Affect Scales: Positive Affect. At T1 and T2, $n = 57$ per condition. At T3, VA: $n = 54$; VAG: $n = 52$, NAC: $n = 52$.

4. DISCUSSION

4.1. Overview

This thesis made novel theoretical and methodological contributions to the paranoia and self-affirmation literatures by investigating adaptations to value-affirmation procedures, and their effect on non-clinical paranoia both immediately and over time. Specifically, this thesis predicted that there would be differential effects on state paranoia across the value-affirmation (VA and VAG) and control (NAC) conditions immediately following affirmation (T2), and at two-week follow-up (T3), with VAG having superior effects in reducing state paranoia at T3 as a result of the addition of values-based goal-setting. It was also predicted that the interaction between conditions and state paranoia over time would be independent of any change in positive affect resulting from the value-affirmation procedures.

Hypothesis 1 was partially supported, as there was a significant interaction between state paranoia over time across conditions. State paranoia was significantly lower at the two-week follow-up in the VAG condition as compared with VA and NAC conditions. However, contrary to prediction, there was no significant difference in state paranoia between conditions immediately following value-affirmation. Although there was no directional a priori prediction concerning the long-term effects of VA, state paranoia was also not significantly lower in VA as compared with NAC at two-week follow-up. Within-subjects analysis indicated that there was no overall benefit of VA in reducing state paranoia, but that state paranoia reduced over time in the VAG condition. Exploratory analysis indicated that goal completion, over and above setting a values-based goal, may have contributed to the superior effects of VAG in attenuating paranoia over time.

Hypothesis 2 was supported. Whilst there was an increase in positive affect immediately post-affirmation in the VA condition, the interaction between condition and state paranoia over time remained significant when accounting for this increase in positive affect. In addition, and contrary to expectations, positive affect reduced between T2 and T3 in the VAG condition, indicating that increased positive affect did not account for the effects of the value-affirmation over time.

This chapter will discuss these findings in relation to theory and research, before considering their research and clinical implications. The strengths and limitations of the study will then be discussed. The findings of the thesis will then be drawn together with conclusions.

4.2. Values-based Self-Affirmations and Non-Clinical Paranoia

Based on the theory that paranoid thoughts build on negative self-perceptions, boosting positive self-perceptions has been investigated as a possible means of attenuating non-clinical paranoia. Initial research has indicated that self-affirmations may reduce non-clinical paranoia in laboratory settings. For example, Ellett and Chadwick (2007, study 3) found that undergraduate students who had been primed with positive self-statements prior to a paranoia induction task had significantly lower state paranoia after the task than participants who had been primed with negative self-statements. Similarly, Atherton et al. (2016) reported that males with high levels of non-clinical paranoia reported less state paranoia and increased self-confidence when entering a neutral VR social scenario after being primed with a positive self-representation compared with a negative self-representation. Further, Kingston and Ellett (2014) found that after completing a value-affirmation exercise, undergraduate students experienced an immediate reduction in state paranoia relative to controls.

This reduction in paranoia was subject to a subsequent increase following a laboratory paranoia induction. Despite this, state paranoia following affirmation remained significantly lower than in the control.

These studies have indicated some promising findings, suggesting that boosting psychological self-resources may have a role in buffering non-clinical paranoia. However, existing findings were limited in external validity due to having only investigated cross-sectional effects in laboratory contexts. This constrains the extent that conclusions can be drawn concerning the longevity of affirmations in the real-world. The present thesis aimed to address this limitation by measuring naturalistic state paranoia two-weeks after the affirmation manipulations, to assess whether any immediate gains following value-affirmation are maintained over time. This thesis also aimed to develop existing value-affirmation procedures to address some of their limitations, and more closely resemble values interventions used in clinical contexts (Czech et al., 2011, Harris, 2010). This was done by providing participants with a brief rationale concerning values, providing a broader list of values from which to affirm, and using a card-sort rather than a pen-paper ranking exercise for identifying a personally meaningful value (e.g., Harris, 2011). A final, and central adaptation to traditional value-affirmation procedures was the addition of a values-based goal-setting exercise following value-affirmation. Previous research investigating the effect of affirmations on non-clinical paranoia has been limited to cognitive affirmation, such as reflecting on values, rather than investigating the role of self-affirming values-based behaviours (Cohen & Sherman, 2014; McQueen & Klein, 2006). A large literature, both within self-affirmation specifically, and mental health more generally, suggests that acting in line with personally meaningful values has psychological benefits in buffering against threats and stressors (e.g., Cohen & Sherman, 2014;

Hayes et al., 2011; Villatte et al., 2016). In the current study, the potential benefits of self-affirming actions in attenuating non-clinical paranoia was investigated within the VAG condition, in which participants set a values-based goal to complete before the T3 follow-up.

The primary hypothesis predicted a significant interaction between conditions (VA, VAG, and NAC) over time on state paranoia. This prediction was supported, in that a significant interaction was found between conditions over time on state paranoia. Decomposing this interaction showed that specific predictions concerning the attenuation of paranoia within VAG relative to other conditions at T3 were supported, whilst other predictions concerning between-groups differences and the pattern of change in state paranoia across the study were only partially supported. The following sections will discuss each key finding in turn.

4.2.1. The effect of value-affirmation plus goal-setting.

Investigating the longevity of value-affirmation on attenuations in real-world paranoia was central to the study aims, with the effects of value-affirmation being compared to a value-affirmation plus goal-setting condition (VAG) for the first time. Following empirical and theoretical evidence, VAG was predicted to have superior effects in attenuating paranoia over time, compared with VA alone. This prediction was supported. Participants in VAG reported significantly less paranoia at two-weeks as compared with VA and control.

This is consistent with literature reporting on the psychological benefits of values-based goal-setting for other social and emotional difficulties. For example, relatively brief goal-setting interventions have been shown to significantly improve psychological wellbeing in both depressed and general population samples (e.g.,

Coote & MacLeod, 2012; MacLeod, Coates & Hetherton, 2008). There is also evidence to show that writing about goals improves psychological wellbeing, positive affect, and physical health (e.g., King, 2001; Teismann et al., 2014). Values-based goal-setting has also been shown to lead to psychological benefits in individuals perceiving interpersonal threats (Kashdan & McKnight, 2013). The present finding adds to this literature in demonstrating the benefits of goal-setting for reducing paranoia. This is consistent with self-affirmation theory, which postulates that being able to reflect and act on internal strengths buffers against a range of self-threats (Steele, 1988).

In support of predictions, value-affirmation plus goal-setting appeared to have progressive effects in reducing non-clinical paranoia over time. State paranoia scores were not only protected from increasing back to baseline in the goal-setting condition, but continued to fall over the course of the study, although the reduction in paranoia between T2 and T3 did not reach statistical significance. The progressive attenuations of paranoia in the VAG condition is in contrast to the effects observed following value-affirmation by Kingston & Ellett (2014), in which paranoia reduced initially, but was not protected against subsequent increases in response to threat. This raises interesting questions concerning what happens over time if value-affirmation occurs as a one-off cognitive event, and does not translate into meaningful behavioural changes. According to self-affirmation theory, both cognitive and behavioural changes contribute to the process by which affirmations buffer against self-threats over time (Steele, 1988; Cohen & Sherman, 2014). The present finding extends empirical evidence and suggests that making explicit plans for values-based behaviours augments traditional cognitive value-affirmation. Importantly, in this study, setting a value-based goal maintained the initial benefits of value-affirmation,

despite potential exposure to naturalistic stressors that might trigger and maintain non-clinical paranoia over time.

The exploratory analysis conducted in this study offers some indications about the mechanisms responsible for the progressive reduction of paranoia over time in the VAG condition. It showed that only participants who reported completing their value-based goal had a significant reduction in paranoia. This suggests that the superior effects of VAG may have been due to participants acting on their values-based goal, rather than simply setting it. This is consistent with existing research, which has shown that cognitively reflecting on personally meaningful values is more powerful when combined with valued actions (Armitage, 2016; Cohen & Sherman, 2014; Nelson et al., 2014; Sheldon & Kreiger, 2014). In addition, this finding is consistent with empirical and theoretical evidence that valued-living confers psychological benefits (e.g., Huguelet et al., 2016; Villatte et al., 2016). In their value-affirmation study, Czech et al., (2011) found that valued-living moderated participants' anxiety response to an interpersonal self-threat induction, irrespective of whether they had completed a value-affirmation prior to the threat induction or not. Similarly, Kashdan and McKnight (2013) found similar results in relation to social anxiety. They reported that over two weeks, individuals with social anxiety experienced boosts in wellbeing in direct association with their engagement in behaviours that reflected what was personally important to them. Consistent with the present finding, this suggests that behavioural forms of engaging with values intensifies the cognitive reflection on personally meaningful action in buffering against interpersonal threats to the self.

Theory suggests that engaging in meaningful behaviours may enable threat to be perceived from a broader perspective (Baumeister, 1992; Critcher & Dunning, 2015; Sherman, 2013), thus reducing the overall impact of the threat in relation to the

self (Wakslak & Trope, 2009). Individuals experiencing non-clinical paranoia have an increased tendency to self-attack in relation to self-threats (Mills et al., 2007). It is possible that this is due to having access to fewer psychological resources with which to self-reassure when things go wrong (Hutton, Kelly, Lowens, Taylor, & Tai, 2013). Whilst cognitive affirmation of values provides a space for reflecting on existing psychological resources, it is possible that behavioural enactments of values might be a powerful mechanism through which individuals generate new evidence of their psychological resources. This, in turn, increases the resources available for self-affirmation in the face of threat. Indeed, Cohen and Sherman (2014) have argued that the behaviour of self-affirmed individuals might perpetuate itself over time through positive feedback loops, in which access to new self-affirming resources (e.g., memories, thoughts and experiences) grows over time. As a result, access to resources with which to spontaneously self-affirm in the face of threats would increase over time (Gilbert et al.,1998; Marigold et al., 2007; Pietersma & Dijkstra, 2012), engendering ongoing protection against perceptions of self-threat.

Alternatively, it may be that completing value-based goals interrupts negative cycles of self-defensive responses to self-threat (Cohen & Sherman, 2014). An interesting theoretical link between the present findings and those of Kashdan and McKnight (2013) is the maintaining role of avoidance in theoretical models of both paranoia and social anxiety. Avoidance behaviours are conceptualised as understandable direct survival responses to perceived self-threat (e.g., Allden & Taylor, 2011; Heimberg, Brozovich, & Rapee, 2010), but in the long-term, function to maintain distress (Hayes et al., 2011). Cognitive models of paranoia identify avoidance behaviours (such as withdrawal, rumination, and self-focussed attention) as directly maintaining paranoia by preventing disconfirmation of paranoid beliefs

(Freeman, 2007; Freeman et al., 2007). Avoidance therefore perpetuates negative affect, negative thoughts about the self, and increased attentional focus on the source of perceived threat (da Motta et al., 2014; Flower et al., 2015; Fornells-Ambrojo et al., 2015; Freeman et al., 2005; Melo & Bentall, 2010). In contrast to self-defensive avoidance, acting in line with personal values is characterised by motivation to behave in ways that despite the potential risks, ultimately provide greater meaning and purpose in life (Elliot, 2006). Thus, in this study, it is possible that values-based goal completion increased engagement in personally meaningful behaviours, which in turn lead to an attenuation of paranoia over time by interrupting the maladaptive cycles of avoidance behaviours that maintain paranoid thinking.

Such a mechanism would be consistent with ACT theory, which purports that setting values-based goals contributes to developing psychological flexibility through committed action. ACT theory supports the findings of this thesis in that it suggests that it is not just thinking about personal values that is important, but acting in line with them (Hayes et al., 2011). Committing to act in line with personally meaningful values is theorised to reduce the tendency to respond to distress with avoidance, and instead increase motivation to perform behaviours that are inherently rewarding and promote wellbeing (Hayes et al., 2011; Roemer & Orsillo, 2009). In this way, values-based goal-setting may directly interrupt cycles of avoidance by providing a verbal prompt for approach, rather than avoidance, despite the presence of the self-threat (Gregg et al., 2014; Ntoumais et al., 2014). Alternatively, it may be that engaging with personally meaningful values acts to attenuate paranoia indirectly, by increasing wellbeing and reducing stress. High levels of stress are associated with non-clinical paranoia (Freeman et al., 2011). Therefore, reducing stress by increasing wellbeing may provide an indirect route to reducing paranoid appraisals. Although it is well

established that increased symptomology is associated with reductions in valued-living, to date no research has examined the links between valued-living and paranoia. This study presents the first initial evidence that setting values-based goals, and acting on these, might be a key skill for attenuating paranoia in non-clinical samples. Future research should therefore also seek to examine the links between valued-living and paranoia, including factors that might facilitate or prevent acting in line with one's values whilst experiencing clinical or non-clinical paranoia.

Discussion is warranted concerning the type of values affirmed, given that in this study, despite a broader range of values being available for affirmation, the most frequently affirmed values related to connections with others (e.g., *love* and *trust*). In addition, a large majority of goals set by participants related to improving relationships with other people, irrespective of the value affirmed. This finding is consistent with theories which suggest that self-affirmation may function by enhancing psychological resources in relation to connections with others ('self-transcendence'), as opposed to self-enhancement (Crocker et al., 2008; Schnabel et al., 2013; Schwartz, 1994). Burson et al. (2012) found that affirming a self-transcendent value, as opposed to a self-enhancement value, attenuated the effects of intentional social exclusion. Similarly, Kingston and Ellett (2014) reported that *family and friends* was the most commonly affirmed value by participants in their study. In this study, nearly half of participants in the control condition selected a self-enhancement value (*power*) as their least important value, whilst self-transcendent values were selected most commonly in both value-affirmation conditions. Thus, value-affirmation appeared to frequently affirm aspects of self-transcendence, or connection with others. This is of particular pertinence to paranoia, given that paranoia is associated with loneliness (Riggio & Kwong, 2009), and reductions in

loneliness attenuates paranoia (Lamster et al., 2017). Social support might provide an avenue for being able to regulate emotions and provide an alternative perspective on self-threats that might otherwise trigger paranoia (Allen-Crooks & Ellett, 2014). Future research could therefore investigate whether affirmations for attenuating paranoia are more effective when they encourage connections with others in meaningful ways, or whether affirmation and action on any personally meaningful aspect of the self is effective.

Given that acting on a values-based goal appears to have been the most important factor in attenuating paranoia in this study, it is important to note that not all participants in the goal-setting condition reported completing their goal. Although an assessment of the factors associated with goal-completion was beyond the scope of this thesis, a number of factors are potential candidates for contributing to the likelihood of goal-completion. Future investigation of these factors is important for clinically understanding the barriers and facilitators to completing personally meaningful goals. One potential factor is confidence in one's ability to achieve the goal. Rodebaugh and Shumaker (2012) showed that having low confidence in one's ability to achieve an important goal was predictive of higher negative affect during a stressful social situation (giving a speech). This suggests that in the current study, even if participants set personally meaningful goals following value-affirmation, if they had low confidence in their ability to achieve them, they may have experienced greater negative affect than participants who did not set personally meaningful goals.

A range of other factors are linked to goal-completion (Wade, 2009). In their application of ACT in a psychosis population, Johns et al., (2016) used values-clarification and committing to act in personally meaningful ways as a significant component of the four-session treatment. To support participants to engage with their

behavioural commitments, a weekly 'check in' phone call was made by the therapists. Strategies suggested to overcome the cognitive and emotional barriers to valued-living included acceptance and mindfulness of one's experience. Such strategies promote the ability to take an observer view of one's experience and therefore make a conscious effort to reduce ineffective and avoidant coping. In turn, these skills enhance one's ability to make behavioural connections with personal values. Future research could profitably investigate whether the addition of further transdiagnostic emotion regulation skills, such as those incorporated within ACT, might further augment the effect of cognitive and behavioural affirmations of values on reducing paranoia, by better equipping individuals to be able to achieve their values-based goals.

4.2.2. The effect of value-affirmation.

Contrary to prediction, there was no significant difference between groups on state paranoia immediately following the value-affirmation procedures. Specifically, no significant reduction in state paranoia in either value-affirmation, or the value-affirmation plus goal-setting conditions, relative to control, was found immediately following value-affirmation. This is in contrast to previous findings, which have shown that self-affirmations have led to lower levels of non-clinical paranoia relative to controls, when paranoia has been measured immediately following self-affirmation (e.g., Atherton et al., 2016; Kingston & Ellett, 2014). In addition, there was apparently no benefit of value-affirmation alone in attenuating paranoia over time. This is in contrast to previous empirical work which has suggested that the effects of value-affirmation confer psychological benefits that grow and extend over time in

relation to a range of self-threats (e.g., Cohen & Sherman, 2014; Cohen et al., 2009; Nelson et al., 2014; Stinson et al., 2011).

Specifically, Kingston and Ellett (2014) found that immediately after value-affirmation, state paranoia was significantly decreased relative to controls. The failure to replicate this finding is somewhat surprising, given the methodological similarities between the present study and that of Kingston and Ellett (2014). Both studies invited participants to participate in the value-affirmation in a similar laboratory setting, used the same measures to assess change in non-clinical paranoia, and employed the same manipulation check for value-affirmation. In addition, in both studies, the effects of value-affirmation were measured before exposure to self-threats, either in the form of a paranoia-induction (Kingston & Ellett, 2014), or prior to assumed exposure to naturalistic interpersonal stressors (the present study). Therefore, the possible confound of timing of affirmation in relation to exposure to self-threat (Critcher & Dunning, 2010) was controlled for in this study.

However, there were also a number of methodological differences that may account for the difference in findings. One difference is the sample used. Most affirmation research to date has used homogenous samples, either comprised of university students, or a group of individuals facing the same or a similar self-threat (see Cohen & Sherman, 2014; McQueen & Klein, 2006). The present sample was comprised of students and members of the general population, and was therefore relatively heterogeneous, representing a diverse range of ages and life circumstances. Cohen and Sherman (2014) have suggested that affirmation interventions may have larger benefits if timed to occur during key developmental transitions, for example, at the start of adolescence, or at the beginning of university. Such transitional periods present challenges that are typically experienced as threatening, stressful, and

unpredictable, thus rendering affirmation procedures more relevant and their effects more potent. It is possible that as a result, that value-affirmation was more effective within a homogenous sample of first year undergraduate students (Kingston & Ellett, 2014) than in the present sample.

This explanation would be consistent with research that has only found significant effects of value-affirmation among a sub-group of participants facing the greatest self-threat. In a recent study, Layous et al. (2017) recruited an undergraduate sample and, contrary to other studies, found no immediate benefit of value-affirmation on improving performance in a threatening maths test. However, long-term benefits following affirmation were observed in a sub-group of the affirmation participants who were identified as experiencing the most chronic self-threat. Similarly, During and Jessop (2015) found that no benefit of value-affirmation in increasing openness to self-threat amongst individuals with high self-esteem, suggesting that impact of self-threat may moderate value-affirmation effectiveness. Indeed, Cohen and Sherman (2014) have argued that experimental self-affirmation studies have typically demonstrated specific effects on specific domains of self-threat because affirmations only appear to benefit individuals for whom the self-threat is most salient. It is therefore possible that subgroup responses in the value-affirmation group may have been present in the current sample, although analysis did not account for the effects of moderation in this thesis. Future studies could consider the potential role of age, life-stage, and threat levels on the effectiveness of affirmations.

In addition, for affirmation to have effects over time, it has been suggested that self-threats should not only be salient, but chronic, thereby exerting detrimental effects over time that value-affirmations can reverse (Cohen & Sherman, 2014). Given that self-affirmation theory purports that the effect of affirmation is to buffer

against self-threats by increasing a person's perception that they are good enough, there is the potential for 'ceiling effects' of self-affirmations if individuals already perceive themselves to be 'good enough', or are not experiencing persistent self-threat. In this study, baseline levels of self-esteem and trait paranoia were assessed for the purposes of ensuring that randomisation was successful between groups. However, it is possible that the sample may not have been experiencing chronic or salient self-threat sufficient to show benefits from value-affirmation alone. This could be in contrast to value-based goal-setting, which may have relatively diffuse psychological benefits within the general population (Meevissen et al., 2014; MacLeod et al., 2008).

Linked with this, the increased heterogeneity within the present sample may have introduced more extraneous variability, leading to larger standard deviations in mean scores as compared with other research investigating the immediate effects of self-affirmation on attenuating paranoia. Although there was no significant difference in paranoia between groups at T2, the pattern of change within the value-affirmation conditions is very similar to that reported by Kingston and Ellett (2014). This suggests that the variance in the present sample may be masking possible effects. Comparing the raw degree of change in paranoia scores between the present study and that of Kingston and Ellett (2014) shows that similar, relatively small, mean reductions of approximately one point on the state paranoia scale were obtained in both studies between T1 and T2. Given this similarity in the within-subjects raw changes following affirmation, one explanation is that this study lacked the power to detect statistical differences between-subjects. Given that the power analysis for this study was computed based on mean differences in the context of standard deviations (Cohens *d* measures of effect size, Cohen, 1992), the larger standard deviations in the

present study may have reduced the power to detect effects. Indeed, in the present study, although similar degrees of raw mean change were observed within the VA condition, the between-subjects effect size between VA and control at T2 was d = 0.08.

Alternatively, it is possible that the changes made to the value-affirmation procedures rendered them less effective at reducing state paranoia in the immediate term. Several changes to the procedures warrant consideration in this regard.

Firstly, in this study, a larger number of values were presented from which participants could choose to affirm, and the values presented to participants were of personal characteristics or attributes (e.g., *honesty, kindness, trust*), rather than valued life domains (e.g., *religion, family, politics*). This change was intended to increase both the clinical validity of the affirmation task (Czech et al., 2011), and to increase the choice of values (Silverman et al., 2013; Harris, 2013). Theory and research also suggests that the type of value affirmed might differentiate the type of threat buffered against. Personal attribute affirmation has been found to bolster self-esteem resources against social comparison threat, whereas affirmation of life-domains bolsters self-concept clarity against cognitive dissonance threat (Stapel & van der Linde, 2011). Theories concerning paranoia and the self suggest that both social comparison (i.e., negative self-other beliefs) and cognitive dissonance (i.e., self-discrepancies) might give rise to paranoia (Bentall et al., 2001; Garety & Freeman, 2013; Kesting & Lincoln, 2013; Tiernan et al., 2014). In the context of the present study procedures (i.e., being alone in the laboratory as a research participant), it is possible that paranoia was triggered by cognitive dissonance, rather than social comparison threat. In Kingston and Ellett's study, 75% of participants affirmed a life-domain ('family and friends', Kingston, 2011), whereas in this study, the values available for

affirmation represented personality traits and attributes. It is therefore possible that participants in Kingston and Ellett's study experienced greater benefit in response to cognitive dissonance threat as a result of affirming a life-domain. Future research could directly compare traditional value-affirmation procedures, in which participants affirm valued life domains, with the values used in the present affirmation procedures. This would better tease apart potential differentiating effects of the type of values affirmed on the immediate reductions of non-clinical paranoia.

Secondly, theory purports that affirmations must be within a domain unrelated to the source of threat in order to be effective (Steele, 1988). Concerning the lack of effect of value-affirmation at T3, in Kingston and Ellett's study, the paranoia-induction manipulated conditions of high self-awareness under conditions of academic failure, a threat purportedly unrelated to the most commonly affirmed domain of family and friends. In this study, there was a greater range of values affirmed by participants, which may have introduced variance into the effects of value-affirmation. In addition, exposure to self-threat was naturalistic over time, and was therefore uncontrolled. Thus, it is possible that participants faced threat in the value with which they had affirmed, and therefore did not benefit from value-affirmation alone. That this was not measured in this study represents a limitation. It would be interesting for future research to assess exposure to naturalistic threat, and to further explore how the addition of values-based goal-setting may protect against this, as participants in VA and VAG affirmed similar values, yet VAG participants still gained benefits and showed reduced paranoia at follow-up.

Thirdly, in the current study, participants were provided with an introduction into the clinical utility of values prior to the affirmation task, whereas in Kingston and Ellett (2014), participants completed the affirmation without prior explanation about

values or the affirmation task. It is therefore possible that in the present study, participants had a greater conscious awareness about the task, which rendered it less effective (Sherman et al., 2009). However, more recently it has been suggested that awareness of affirmation does not eradicate the effects, so long as individuals are able to maintain their autonomous participation in the affirmation experience by retaining choice (Silverman et al., 2013). This study aimed to provide greater choice in the experience of affirmation, by providing an increased number of values from which to affirm, therefore it is unlikely that this reduced the effectiveness of the value-affirmation.

Aside from these methodological differences, an alternative explanation for the present finding is that the immediate effect of value-affirmation in reducing state paranoia is not robust or reliable. Whilst the finding that affirmation did not have a significant immediate effect on state paranoia relative to the control condition was contrary to expectation, this finding is in line with other published studies that have failed to replicate immediate benefits of value-affirmations. For example, Burgess et al. (2014) found that black healthcare patients, who are at risk of stereotype threat, did not benefit from undertaking a value-affirmation. In fact, affirmed patients reported higher levels of negative mood, lower self-esteem and lower social self-esteem relative to controls immediately after affirmation. Similarly, in an attempt to replicate the effects of value-affirmation in academic settings, Layous et al. (2017) found that amongst a white undergraduate student sample, affirmed and non-affirmed participants performed equally well on a threatening maths test, suggesting that there was no immediate advantage conferred from undertaking value-affirmation in facing the threat.

The literature concerning the effectiveness of affirmations continues to face many questions about how value-affirmation exerts effects (Cohen & Sherman, 2014) and the extent to which extraneous variables might have moderated the effectiveness of value-affirmation on state paranoia is not clear. Whilst behavioural enactment of values has been flagged as a potential mediator in the present study, the methodological limitations and lack of empirical evidence concerning the mechanisms of value-affirmation mean that future work must investigate potential moderator and mediator variables to better understand how value-affirmation leads to attenuations of paranoia.

4.2.3. The effect of control procedures.

Some researchers have queried whether ranking values in order of personal preference may in and of itself be sufficient to lead to value-affirmation (e.g., Cohen et al., 2000; Burson et al., 2012). However, in this study, there was no significant change in state paranoia across time within the control condition. Methodologically, this study therefore adds to the empirical evidence in showing that reflecting on personally unimportant values does not lead to changes associated with self-affirmation, and can therefore be considered an effective control condition for experimental value-affirmation studies.

4.3. The Role of Positive Affect

The second hypothesis predicted that positive affect would not account for reductions in paranoia following value-affirmation. This hypothesis was supported, as co-varying for change in positive affect pre-post value-affirmation did not alter the significance of the interaction between state paranoia and value-affirmation over time.

In line with some theoretical and empirical research (e.g., Koole et al., 1999), positive affect did increase immediately following value-affirmation, although this was only found to be significant in the VA condition. Given that the interaction between condition and state paranoia remained significant when controlling for changes in positive affect immediately following affirmation, changes in positive affect as a result of value-affirmation is unlikely to account for the effects observed on levels of state paranoia in this study. This finding replicates that of Kingston and Ellett (2014), who did not find any differential effects of mood following value-affirmation between conditions on state paranoia. It also joins a body of research which has indicated that increases in positive mood do not account for the effects observed following value-affirmation (e.g., Keough et al., 1997; Schmeichel & Vohs, 2009; Sherman et al., 2000; Spencer et al., 2001).

In reviewing the patterns of change in positive affect across the study, one intriguing and unexpected finding emerged. Overall, across all conditions, positive affect decreased across the course of the study, with the most striking reductions in positive affect observed in the VAG condition. Whilst some studies have found a decrease in positive affect following value-affirmation (e.g., Steele & Lui, 1983), overall, research supports the view that values-based reflection and valued-action improves wellbeing and maintains positive affect (e.g., McQueen & Klein, 2006; Kashdan & McKnight, 2013). One possible explanation for this overall decrease in positive affect could be the context in which the positive affect questionnaires were completed. Items in the positive affect scale used to assess positive affect in this study primarily include described activated mood states (e.g., *attentive; alert; active; interested; enthusiastic*.). On a very practical level, it is possible that attending a study and entering a novel situation in the laboratory may have been associated with

increased positive affect as operationalised on the scale used, than was associated with completing questionnaires online at T3.

There are also theoretical reasons which may account for the reduction in positive affect over the course of the study. Within ACT, values are theorised as being inherently rewarding, but consequently, also inherently painful if attention is drawn to the discrepancy between one's actual and idealised values (Harris, 2011). ACT theory purports that given the personal significance of values, there are likely to be important reasons why individuals have not already taken steps to live in line with them. In particular, inherent to all approach behaviours is the risk of failure, whereas avoidance of personally meaningful challenges brings short-term safety. Whilst successful enactment of values, through completion of goal-directed approach behaviours, boosts self-resources (Katz, Catane, & Yovel, 2016), it is possible that the contemplation of these risks and undertaking these challenges lead to reductions in positive affect over the course of the study.

4.4. Implications for Future Research

In light of the findings described above, there are several areas in which future research is needed. Given the lack of replication of the immediate benefits of value-affirmation in reducing baseline levels of paranoia, future research should attempt to replicate this finding with consideration to the potential methodological factors described above. As discussed in earlier sections, these would pertain primarily to the methods used to bring about self-affirmation through reflection on personally meaningful values, such as type of values affirmed, the characteristics of the sample with whom value-affirmation might fruitfully be applied, and the level of awareness and choice participants have during the affirmation process. In order to more fully

investigate the robustness of the effect of value-affirmation on attenuating non-clinical paranoia, research could compare the affirmation procedures in the present sample with those of Kingston and Ellett (2014). This would help to clarify the variance caused by the methodological differences between these two studies and thereby determine with greater clarity the benefits of value-affirmation alone on non-clinical paranoia.

In addition, replicating this research with a sample high in non-clinical paranoia, and with a sample of clinically paranoid participants, would indicate whether there is scope for the present conclusions to extend to clinically paranoid samples. Utilising a sample with higher levels of clinical paranoia might provide greater insights into the magnitude of the effects. As discussed above, the reductions in paranoia observed following value-based affirmations to date are relatively small, and therefore may not have clinical significance. Whether this is in proportion with the relatively low levels of paranoia experienced in non-clinical samples, such that samples with higher levels of paranoia might experience larger reductions, is not known. Replicating the present research, with a sample that provides a closer analogue to a clinical sample, would provide important insights into the clinical significance of the reductions in paranoia observed following affirmation.

In addition, there are likely to be clear differences between clinical and non-clinical populations in terms of the way that paranoia is experienced and therefore the ability to engage in value-affirmation as a psychological intervention. It is known that the tendency to spontaneously self-affirm varies in the population as a function of self-esteem (Gilbert et al.,1998; Marigold et al., 2007; Pietersma & Dijkstra, 2012). It is therefore likely that individuals with clinically significant distress associated with paranoia might be less able to use affirmation techniques, and may require more

support to develop the psychological skills required to enable the process of self-affirmation to feel genuine. Developing the skills required to be able to genuinely identify and draw on personal strengths and resources in the face of threat is central to many third-wave CBT approaches to psychosis, including compassion-focussed therapy (CFT; e.g., Ascone, Sundag, Schlier, & Lincoln, 2016), and ACT (e.g., Johns et al., 2016). In both approaches, acceptance and mindfulness form key components of treatment. Future research could therefore replicate this study, but consider including a mindfulness or acceptance component to test whether this adds further benefits in terms of enhancing value-affirmation and supporting value-based goal completion.

Such research would also advance the literature concerning the application of ACT-based engagement with values, a component of ACT treatment which has yet to be directly empirically tested in a clinically paranoid sample. The rationale for incorporating values work into clinical practice is growing (e.g., Grumet & Fitzpatrick, 2016). A recent systematic review and meta-analysis of mindfulness and acceptance based interventions (Cramer, Lauche, Heidemarie Haller, Langhorts & Dobos, 2016) has recommended ACT based interventions for psychosis. However, as identified in this thesis, as it stands, the number of studies pertaining to values-clarification and committed action components of treatment is relatively small. Therefore, further research, to replicate the promising results seen, is required to support existing findings and provide convincing evidence to recommend components of ACT treatment to clinical practice.

Whilst positive affect was considered in this study, future research should seek to understand the mechanisms by which affirmation has its effects in reducing paranoia. There are several possible methodologies which could shed light onto this question.

For example, a qualitative analysis of the experience of affirmation, either by conducting a content analysis of the essays, or an interview process concerning the experience of the affirmation procedures, may give rise to themes concerning potential mechanisms of change arising from the procedures. Alternatively, mediation and moderation analyses could be planned, exploring likely candidates for change following affirmation, such as self-esteem (e.g., During & Jessop, 2015), the tendency to spontaneously self-affirm (e.g., Emanuel et al., 2016; Brady et al., 2016), awareness of the purpose of the affirmation (e.g., Sherman et al., 2009), age, gender, ethnicity, and current level and type of psychological threats being experienced by the sample (e.g., Layous et al., 2017), the chronicity vs. acute nature of the threat (Cohen & Sherman, 2014), the type of values used for value-affirmation (e.g., Burson et al., 2012; Stapel & van der Linde, 2011; Crocker et al., 2008; Schnabel et al., 2013), and valued-living. Alternatively, an experience-sampling methodology would assist researchers in tracking the moment-to-moment changes in paranoia and its potential links with spontaneous self-affirmations, providing insights into how self-affirmation may attenuate paranoia in naturalistic settings.

Given that much self-affirmation research has looked at follow-up periods significantly longer than two-weeks for other dependant variables (e.g., Cooke et al., 2014; During & Jessop, 2015; Brady et al., 2016), future research could also investigate whether the reductions in paranoia observed in this study are durable, or continue to grow, beyond the two-week follow-up period assessed in the present research. In line with clinical practice, studies employing a longer follow-up period could compare a condition with reminders of the value-affirmation and values-based goals (e.g., Johns et al., 2016), with a condition in which no reminders are given. Similarly, future research could investigate whether there are additional reductions in

paranoia from instructing participants to perform multiple affirmations over time, as has been found in some educational and workplace settings (Cohen et al., 2009; Morgan & Atkin, 2016). This may be of particular relevance for samples experiencing more chronic threats, or experiencing paranoia at a higher intensity than in the current sample. Such research would provide insights into whether repeating the affirmations over time may enhance their effects in buffering against ongoing self-threat.

A final research implication from this study is whether increasing valued-living through values-based goal-setting leads to attenuated clinical paranoia. Research has shown that paranoia across the continuum is associated with a number of negative lifestyle correlates, including substance misuse, poverty, mental health difficulties and physical health problems (e.g., Freeman et al., 2005; Bebbington et al., 2013). It can therefore be inferred that greater paranoia is likely to be associated with lower levels of valued-living. No research has looked at the associations between paranoia, valued-goals and valued living in clinical or non-clinical samples. Given the findings reported in this thesis, this is likely to be a profitable area for future research.

4.5. Implications for Clinical Practice

The primary implication from the present thesis is that whilst reflection on personal values may be beneficial in buffering against increases in paranoia, encouraging individuals to set values-based goals and act in line with their values may lead to greater benefits, acting as an intervention for reducing paranoia over time.

The key implication from these findings is that values-clarification and committing to values-based actions may be a means for attenuating paranoia in non-clinical populations. The design and implementation of preventative community psychology interventions is an increasingly prominent clinical task (Wolff, 2014). It

has been suggested that the presence of paranoia in the general population is an indicator of the health and success of society as a whole, as society depends on functional relationships between its members in order to operate (Freeman et al., 2011; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). Whilst some low-level paranoia may be of evolutionary value in interpersonal interaction (Green & Phillips, 2004), the reduction of paranoia in non-clinical samples is considered important in its own right (Freeman et al., 2011). Even brief and mild paranoid thoughts have been shown to be distressing (Freeman et al., 2005) and are predictors of dysfunction, life stress, and poor health (Freeman et al., 2011; Freeman, Startup, et al., 2014; Melo & Bentall, 2010). Furthermore, the presence of non-clinical paranoia increases the odds of later experiencing clinically significant symptoms and distress (e.g., Kaymaz et al., 2012). Given the brief nature of values-based affirmation procedures, one implication following the present work concerns whether the widespread use of values-based affirmations would be of benefit to reducing paranoia in non-clinical samples (Cohen & Sherman, 2014). Self-affirmation procedures have already been found to be effective, when trialled in large community samples, at buffering against reductions in wellbeing (Armitage, 2016), stress in the workplace (Morgan & Harris, 2015; Morgan & Atkin, 2016), and underachievement in education (e.g., Cohen et al., 2009; Brady et al., 2016; Walton et al., 2015). The present findings indicate that values-based affirmation techniques may be usefully applied in community settings associated with increased paranoia, an area which could be explored in future research.

If the findings were replicated in a clinical sample, they would have implications concerning the utility of value-affirmation and valued action in the reduction of paranoia symptoms. The present findings indicate that increasing valued-living may be an effective target for early change amongst individuals with clinically distressing

paranoia symptoms. Chronic exposure to stressors and ongoing mental health difficulties is associated with a loss of positive identity and sense of meaning in life (Huguelet et al., 2016). Furthermore, levels of valued-living have been shown to mediate the relationship between a range of outcome variables (including self-esteem, depression, psychosis, and hopelessness) and life meaning (Huguelet et al., 2016). Increasing valued-living should therefore be a key component of treatment in those experiencing clinical levels of distress and dysfunction. Traditional psychological approaches to treating psychosis including Cognitive-Behaviour Therapy (CBTp) have recently been criticised for their focus on symptom reduction instead of service-user defined recovery (Thomas, 2015). Qualitative studies of service users show that affirming identity and increasing personally meaningful activities is a priority for service users in terms of treatment outcome (Byrne, & Morrison, 2014). Consistent with this, a recent and brief goal-setting and planning intervention has been shown to improve wellbeing for individuals with psychiatric disorders (Farquharson & MacLeod, 2014). The move towards finding personal meaning through recovery is a position reflected in current mental health policy (e.g., Department of Health, 2001; Leamy, Bird, Le Boutiller, Williams, & Slade, 2011; Shepherd, Boardman, & Slade, 2008). These contemporary directions in psychological treatments for psychosis dovetail with the findings of this thesis that increasing valued-action should be an early target in psychological therapy.

As such, the findings from the present thesis overlap with a number of existing approaches to intervention, most notably, ACT. Reductions in paranoia were observed in the value-affirmation plus goal-setting condition, thus representing the first direct evidence that values-based goal-setting leads to attenuations in paranoia. However, the finding that not all participants completed their values-based goal also links in

with ideas from ACT that the teaching of other skills, such as mindfulness and acceptance, might increase the ability to accomplish values-based goals, and thereby attain the psychological benefits (Hayes et al., 2011).

Despite the overlap between the clinical implications of the present research and existing ideas within clinical practice, it is important not to overstate the current findings. Future research is needed to replicate the findings with larger samples and address the limitations of the present work, in order to be able to draw firm conclusions regarding the benefits of values-based affirmations on the attenuation of paranoia.

A final clinical implication of the findings from this research is that they add to the growing literature indicating that paranoia is present in non-clinical populations. The findings of the present research are therefore in support of the view that paranoia exists along a continuum with common interpersonal experiences such as suspiciousness and feelings of vulnerability (e.g., Freeman et al., 2005; Bebbington et al., 2013). A direct clinical implication of this finding is the normalisation of paranoia. Internalised and social stigma is high amongst individuals presenting to services with psychotic symptoms (Chen et al., 2016) and is a significant predictor of help-seeking, engagement with services, and recovery (Munoz, Sanz, Perez-Santos, & de los Angeles Quiroga, 2011). Therefore, presenting a rationale to individuals who are experiencing clinical distress that paranoid experiences can be understood in terms of normal, everyday experiences is important to facilitate engagement (Wood, Burke, Byrne & Morrison, 2016) and reduce distress and conviction (Freeman et al., 2005).

4.6. Strengths and Limitations

This research has a number of methodological strengths, but also limitations, which constrain the conclusions that can be drawn. This section will consider the strengths and limitations of different aspects of the current research in turn.

4.6.1. Design.

The present design was unique within the affirmation and paranoia literature. This was the first study to measure the effects of affirmation on state paranoia over time. The unique design therefore adds to existing research concerning the extent that value-affirmations make meaningful differences to attenuating paranoia in the longer-term, as is relevant to clinical settings. In addition, a number of features of the design increased the internal validity of the study, strengthening confidence in the conclusions that can be drawn. The use of a randomised controlled design eliminates sources of potentially confounding bias in the allocation of participants to condition. In addition, all participants completed baseline measures prior to randomisation, which showed that the groups were equivalent on all study variables at baseline. The design also permitted the inference of temporal causality by measuring state paranoia and positive affect both pre and post affirmation. Further, the randomisation was carried out by an individual who was independent to the study, such that the researchers remained blind to group allocation. This reduced experimenter bias and the possibility that participants experienced the study in a systematically different way.

However, an unfortunate outcome of the randomisation in the current study is that randomisation of age was not successful; participants in the NAC condition were significantly older than participants in the VA condition. In line with the findings of

other research (Freeman et al., 2005; Bebbington et al., 2013), age was significantly negatively correlated with both state and trait paranoia. It was therefore possible that age introduced systematic between-groups confounds. To manage this, the analytic strategy was adjusted and age was included as a covariate within the analysis. However, the appropriateness of using covariate-adjusted analyses to account for group differences at baseline has been debated within the literature (Pocock, Assman, Enos, & Kasten, 2002). Despite this, it is important to note that age was not significantly different in VAG as compared with VA and NAC groups, thus, age is unlikely to have impacted the key finding of the study, which was that state paranoia was lower within the VAG as compared with both VA and NAC at T3 follow-up.

4.6.2. Sample.

The final sample size at T1/T2 slightly exceeded that indicated by the power analysis, whilst the final sample at T3 matched that indicated by the power analysis. This suggests that the sample used was sufficiently powered to detect significant effects, whilst reducing the likelihood of Type II error. However, given that the effects of value-affirmations at two-weeks were relatively unknown, particularly in relation to non-clinical paranoia, and the heterogeneity of the sample actually recruited, it is possible that the power analysis underestimated the sample size required. The actual effect sizes achieved in this study were smaller than expected at T3 (VAG vs. NAC $d = 0.33$; VAG vs. VA $d = 0.34$). Therefore, future research would benefit from recruiting a larger sample to ensure adequate power to detect significant effects.

This study benefitted from relatively low levels of attrition at T3 (7%). Whilst attrition did not appear to be a systematic effect of condition, it is not clear whether

those that dropped out from providing data at T3 differed from the rest of the sample in any meaningful ways. This is particularly important, given that between-subjects differences were only significant at T3. Given that missing data were managed using listwise deletion, rather than, for example, intention to treat analysis, power was lost in T1 and T2 analysis, as cases that dropped out at T3 were not included at any stage of multivariate analysis. If the participants that dropped out were different in some meaningful way, this may have led to bias in the results. Analysis was not carried out to determine whether attrition was a function of a process related to the main study variable of paranoia, for example, higher levels of paranoia, lower mood or lower levels of valued-living. Were this to be the case, those that dropped out may have reported different results to the sample that did not drop out, thereby limiting the generalisability of the findings.

Attention should also be drawn to limitations concerning the sample as a whole. On the one hand, the current sample could be considered relatively diverse, as a combination of both students and non-students were recruited. This is a relative strength in comparison to the majority of value-affirmation research, which is typically conducted within undergraduate student samples (Armitage, 2016; McQueen & Klein, 2006). In other respects, the sample was fairly homogenous in that the majority of participants were white, female, and well educated. In addition, whilst the convenience sampling methodology facilitated the recruitment of a relatively large sample, it is likely to have led to a self-selecting and idiosyncratic sample. This bias within the sample constrains the generalisability of the findings. In particular, the characteristics of the present sample may be in contrast with those populations most in need of affirmation procedures, such as those identified at greater risk of experiencing paranoia, both within the general population, and in clinical groups.

Therefore, the extent to which the findings from this research can be conclusively generalised to other groups, particularly within populations with high levels of paranoia, remains limited, and should be interpreted with caution.

4.6.3. Measures.

A strength of the study is that well-validated measures with good psychometric properties were used to measure the study variables. Change in state paranoia was assessed both between and within-subjects, which increased the ability to draw conclusions about the causal effects of the affirmation procedures on state paranoia. These aspects of the design increased the internal validity of the study.

In addition, naturalistic paranoia, rather than paranoia following a laboratory induction was measured at T3. Measuring paranoia in a participant's real-world environment increases the external validity of the study, supporting inferences concerning the real-world relevance of value-affirmation procedures. However, the limitation of this approach is that it was not possible to falsify the paranoia reported. The ability to demonstrate that paranoia is unfounded is central to its definition (Freeman, 2007; Freeman & Garety, 2000). Although unlikely, it is therefore possible that the rates of paranoia obtained in this study were inflated by participants' experience of actual persecution. In addition, the lack of a controlled paranoia induction introduces potential confounds, as participants may have been differentially exposed to naturalistic stressors, and no assessment of daily perceptions of persecution or suspiciousness was made. On the one hand this is a strength, in that the repeated use of self-report measurements can alter the experience of psychological phenomenon through measurement reactivity (Nisbett & Wilson, 1977). However, it

does limit the extent to which conclusions can be drawn about the daily experiences of the participants in relation to paranoia.

Furthermore, the operationalisation of attenuations in paranoia, in terms of reduced frequency of paranoid thoughts, could limit the clinical validity of the findings. Perhaps more pertinent to clinical samples would be operationalising attenuations in paranoia in relation to the distress and conviction associated with those thoughts, and the impact of paranoia on daily functioning (Haddock, McCarron, Tarrier, & Faragher, 1999). Future research could assess these different dimensions of paranoia for change, and in so doing, potentially elucidate further insights concerning the mechanisms of change in paranoia following values-based affirmations. The external validity of the measurements of paranoia could also be further increased using an experience sample methodology in which momentary assessment of non-clinical paranoia using diary methods could increase the validity of measurements of paranoia. This would also allow more precise measurement concerning the factors that might be implicated in the generation, maintenance or attenuation or paranoia.

4.6.4. Value-affirmation procedures.

A strength of this study is that it utilised well-validated value-affirmation procedures (Sherman et al., 2000), and developed aspects of these in order to address some of their limitations. Specifically, this study aimed to increase the clinical applicability of the affirmation procedure, bringing them more in line with values exercises already used in clinical practice (Czech et al., 2011; Harris, 2008; 2011; 2013). In this study, participants were presented with a rationale for values work (Harris, 2011), a broader choice of values (Silverman et al., 2013), and values which

reflected personal attributes as opposed to life-domains (Stapel & van der Linde, 2011).

However, limitations in the current value-affirmation procedures remain, and require future research to address. Firstly, as already discussed, it is not clear whether these adaptions may have reduced the effectiveness of value-affirmation alone on immediate reductions of non-clinical paranoia. Secondly, whether existing affirmation procedures would be accessible to a wider range of community populations is not clear. This sample was predominantly highly educated, white, and a large proportion of participants had studied psychology at degree level and so may have been more able to engage with the idea of values presented in the study. Thirdly, completion of value-affirmation procedures requires a good level of academic ability to complete the reading and writing exercises. Whether the same results would be obtained in a community sample that is less biased towards psychological academia is an important question relating to the generalisability of the current findings and their applicability to clinical practice. Only one study to date has considered how self-affirmation procedures could be adapted to be more accessible to individuals with low literacy skills (Hall, Zhao & Shafir, 2014), using an audio recorder rather than a pen and paper writing task for the affirmation essays. Further research is therefore required to investigate ways to make value-affirmation tasks accessible to a wider range of sample characteristics.

A fundamental strength of the procedures used is that this study was the first to introduce an active goal-setting task and compare this with value-affirmation. This is a novel advance in the literature, joining together the theory and empirical evidence supporting the utility of values for self-affirmation from social psychology (e.g., Steele, 1988; Cohen & Sherman, 2014) with contemporary theories from clinical

psychology (e.g., Hayes et al., 2011). The apparent advantages of this unique goal-setting component of value-affirmation opens up new possibilities for future researchers to develop ways to attenuate paranoia in both clinical and non-clinical samples. This study also represents the first direct empirical comparison of values-clarification exercise with a values-based goal-setting exercise, providing tentative support for the importance of acting in line with values, and not simply reflecting on them and clarifying them, when values are used as a component of treatment within ACT (Wilson & Murrell, 2004). However, a limitation of the present study is that there was no goals-only condition. Other research has shown that there is a difference in outcomes between goal-setting conditions as compared with a value-clarification followed by goal-setting (e.g., Chase et al., 2013). The lack of this comparison condition constrains the extent to which it can be conclusively inferred that the values component of the value-affirmation plus goal-setting condition contributed to the superior effects, rather than goal-setting alone.

A final consideration in relation to the existing affirmation procedures is the lack of value-consistency ratings in the present study. Obtaining consistency ratings is common within ACT (e.g., Lundgren, Luoma, Dahl, Strosahl, & Melin, 2012). In clinical practice, consistency ratings provide an indication of the discrepancy between personal values and current ratings of value consistent living, thereby aiding values-based goal-setting. In this study, it could be assumed that individuals who reported completing their value-consistent goal increased value-consistent living in relation to that specific value. However, having no pre-post measures of value-consistency limits the extent that conclusions about this change can be drawn. Obtaining pre-post ratings of value-consistency would also provide an indication regarding whether individuals tend to value-affirm in domains in which they are already living relatively

consistently, or whether affirmation takes place in domains of relative value-discrepancy. Such findings would advance the current understanding concerning the types of values that individuals might fruitfully affirm in order to buffer against self-threats.

4.6.5. Exploratory analysis.

A strength of this study is that post-hoc exploratory analysis was carried out to better understand the superior effects of VAG on attenuating paranoia at T3. This revealed theoretically important insights about the potential added benefit of acting on personally meaningful values and completing values-based goals on the attenuation of state paranoia following value-affirmation. However, these findings should be interpreted with caution. Carrying out unplanned subgroup analysis has statistical limitations, including unequal groups and relatively small sample sizes, which consequently have implications for statistical power. In addition, the elimination of randomisation in the sub-group analysis means that other variables (e.g., moderators) cannot be excluded as having accounted for the effects. It has been argued that sub-group *p*-values can therefore be misleading (Pocock et al., 2002). Although the risk of type I error is purportedly reduced if the subgroup differences are compatible with the hypothesised main effects (Pocock et al., 2002), the extent to which the subgroup comparisons should affect the interpretation and conclusions of the current findings should be limited. Future research could set out to determine whether goal completion is a factor which affects the attenuation of paranoia a priori, and therefore overcome many of the statistical limitations inherent in the present exploratory analysis.

4.6.6. Role of affect.

One strength of the current study is that positive affect was measured and considered as a potential cause of variation in state paranoia following affirmation procedures, enabling more conclusive inferences to be drawn about the effects of value-affirmation on state paranoia. However, a limitation in this study is that negative affect, or depressed mood, was not assessed.

According to theoretical and empirical evidence, positive and negative affect are the two dominant and independent dimensions of affect (Watson, Clark & Tellegan, 1988). Whilst high positive affect (e.g., feeling active, alert, engaged, motivated) has been considered a potential outcome and mediator of self-affirmation, high levels of negative affect (e.g., distressed, ashamed, nervous) is implicated in cognitive models of paranoia (Freeman et al., 2002; Garety, Kuipers, Fowler, Freeman & Bebbington, 2001). In particular, higher levels of negative affect have been shown to be strongly linked with state paranoia by increasing the availability of negative self-other representations (i.e., increasing depressive thoughts about self and the world, and anxiety based threat-based appraisals about others, Freeman et al., 2013). These theoretical accounts concerning the contribution of negative affective in the generation and maintenance of paranoia are supported by correlational evidence showing that the link between persecutory delusions and cognitive biases is partially explained by anxiety and depression (Freeman et al., 2012), and by the finding that negative affect precedes the onset of paranoid thinking (Fowler et al., 2011). In light of the links between negative affect and paranoia discussed above, it is possible that the value-affirmation procedures may have had an impact on negative mood, particularly in the goal-setting condition where reductions in state paranoia were

observed. That these changes were not tracked is a limitation of the present study, and should be addressed in future research.

4.6.7. Mechanisms of change.

Whilst this thesis was able to exclude change in positive affect as a confound of the effects of affirmation on state paranoia, the mechanisms of change in value-affirmations remain unknown (Cohen & Sherman, 2014). This thesis has not sought to elucidate the mechanisms of change observed, and this is a significant limitation in terms of the extent that conclusions can be drawn about how the observed reductions in state paranoia came about. Therefore, the interpretations concerning the effects observed rely on theoretical inferencing and speculation.

This thesis has provided initial indications that setting and completing a values-based goal leads to significant reductions in state paranoia over the course of two weeks. Much literature concerns correlational improvements in psychological flexibility and wellbeing with valued-living, but no research has investigated the mediators in how this process comes about. In relation to paranoia for example, it may be that valued-living acts as an ongoing behavioural affirmation of the self, bolstering the self from potential threats (Steele, 1988). Alternatively, it may be that valued-living increases the ability to refocus away from threats and gain meaning in life, despite its challenges (Hayes et al., 2011). The ability to elucidate the processes through which an effect occurs will be key in making decisions about how to target and develop effective interventions for attenuating paranoia.

4.7. Conclusions

Notwithstanding the limitations discussed, the findings of this thesis indicate that a value-affirmation exercise followed by a values-based goal-setting task leads to reductions in non-clinical paranoia over the course of two weeks. In contrast to previous research, in this study, there was no buffering effect of value-affirmation alone on state non-clinical paranoia. However, setting a values-based goal appeared to intervene in levels of non-clinical paranoia, leading to reductions from baseline at two-week follow-up. Taken together, the findings from this thesis suggest that living in line with personally meaningful values may have powerful effects in buffering against self-threat, over and above reflection on personally meaningful values.

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6. APPENDICES

6.1. Appendix 1: RHUL Ethics Committee Approval

6.1.1. Original approval.

From: Ethics Application System <ethics@rhul.ac.uk>
Sent: 14 July 2016 08:21
To: Evans, Nicole (2014); Macleod, A; ethics@rhul.ac.uk
Subject: Result of your application to the Research Ethics Committee (application ID 82)

PI: Andy Macleod
Project title: Values and non-clinical paranoia: Examining the impact of brief values interventions on state paranoia over time

REC ProjectID: 82

Your application has been approved by the Research Ethics Committee.
Please report any subsequent changes that affect the ethics of the project to the University Research Ethics Committee ethics@rhul.ac.uk

6.1.2. Amendment approval.

From: Ethics Application System <ethics@rhul.ac.uk>
Date: Wednesday, 16 November 2016 at 14:13
To: Nicole Evans <Nicole.Evans.2014@live.rhul.ac.uk>, "Macleod, A" <A.Macleod@rhul.ac.uk>, "ethics@rhul.ac.uk" <ethics@rhul.ac.uk>
Subject: Result of your application to the Research Ethics Committee (application ID 82)

PI: Andy Macleod
Project title: Values and non-clinical paranoia: Examining the impact of brief values interventions on state paranoia over time

REC ProjectID: 82

Your application has been approved by the Research Ethics Committee.
Please report any subsequent changes that affect the ethics of the project to the University Research Ethics Committee ethics@rhul.ac.uk

6.2. Appendix 2: Advertisement of the Study

6.2.1. Credit pool study information.

Study Name	The study of how values relate to our thinking style and thoughts about other people PART 1
Study Type	**Standard (lab) study** This is a standard lab study. To participate, sign up, and go to the specified location at the chosen time.
Study Status	**Not visible to participants :** Not Approved Send Request **Inactive study :** Does not appear on list of available studies
Duration	60 minutes
Credits	3 Credits
Abstract	We are interested in finding out how our values relate to thoughts about ourselves and other people.
Description	In this study, values are aspects of life that are important and meaningful to someone. Examples of values include: adventure, respect, freedom, power, humour, etc. Taking part in this study will involve two appointments two weeks apart, one at Royal Holloway and one online. This study information relates to part 1. At the first appointment, you will be asked to complete a set of questionnaires about your mood, your thinking style, and your thoughts about others. You will then be asked to complete a short piece of writing that is related to values. The exact piece of writing will be one of three possible ones, decided at random. There are no right or wrong answers when completing the tasks and your work is not marked. Immediately after completing the task, you will be asked to complete another set of questionnaires about your mood, your thinking style and your thoughts about others. Once you have completed the first part of the study, please sign up for the second part, which requires an invitation code that we will send you. The second part must be completed two-weeks after the first part. It is an online study that asks you to complete the same set of questionnaires again. This second appointment will take 20 minutes and can be completed any time on the day two-weeks after your first appointment. For this part you will awarded 1 credit.

6.2.2. Text from community poster.

WOULD YOU LIKE TO TAKE PART IN A BRIEF RESEARCH STUDY?

How do values relate to our thinking style and thoughts about other people?

What is it about?

We are interested in finding out how our values relate to thoughts about ourselves and other people.

What does it involve?

Two appointments: one in person (takes about 40 minutes) and one online questionnaire two weeks later.

First appointment: complete questionnaires, complete a short piece of writing that is related to values (the exact piece of writing will be one of three possible ones, decided at random, no right or wrong answers!), then some more questionnaires. In total it will take around 40 minutes.

Second appointment: Two-weeks later, complete a brief set of questionnaires **online** (we'll email them to you).

What is it for?

The research will be written up for Nicole and Becci's doctoral theses.

Any incentives?

You will be entered into a prize draw to win one of five £20 Amazon vouchers!

Can anyone do it?

Yes! Anyone 18 years or older

Any questions?

Just message us and ask!

Want to take part?

Just message us and we will arrange a date and time to suit you.

Is it safe?

There are no known risks involved in taking part. The study has been approved by the Royal Holloway University Research Ethics Committee (Study ID 64 and 82).

6.3. Appendix 3: Information Sheet and Consent Form

Department of Psychology
Royal Holloway, University of London
Egham, Surrey TW20 0EX
www.royalholloway.ac.uk/psychology

+44 (0) 1784 443526
PSY-enquiries@rhul.ac.uk

Information Sheet

'The study of how values relate to our thinking style and thoughts about other people'

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 is the study about?
We are interested in finding out how our values relate to thoughts about ourselves and other people. In this study, values are aspects of life that are important and meaningful to someone. Examples of values include: achievement, family, freedom, spirituality, power, humour, etc.

2. What does the study involve?
Taking part in this study will involve two appointments two weeks apart, one at Royal Holloway (or a suitable location within your local community) and one online. At the first appointment, you will be asked to complete a set of questionnaires about your mood, your thinking style, and your thoughts about others. You will then be asked to complete a short piece of writing that is related to values. The exact piece of writing will be one of three possible ones, decided at random. There are no right or wrong answers when completing the tasks and your work is not marked. Immediately after completing the task, you will be asked to complete another set of questionnaires about your mood, your thinking style and your thoughts about others. This first appointment will take between 45-60 minutes.

Two-weeks later, at the second appointment, we will ask you to complete the same set of questionnaires again, which can be done online. The second appointment will take around 20 minutes.

3. Who is involved in this study?
The principal investigators for this study are Rebecca Carpenter and Nicole Evans, Trainee Clinical Psychologists. Other investigators are Professor Andy Macleod, Dr

Jessica Kingston and Dr Lyn Ellett, lecturers in Clinical Psychology at Royal Holloway University.

4. Do I have to take part?
It is up to you to decide if you would like to take part in the study. You can withdraw at any time without giving a reason. The data you have supplied up to that point can be removed and won't be used in the study.

5. What are the incentives to complete the study?
If you are a first year undergraduate psychology student you earn 4 course credits for your participation in this study. If you are not, you will be entered into a prize draw to win one of five £20 Amazon vouchers.

6. How will my data be used?
All information that is collected during the course of the research will be kept confidential. The questionnaire scores and task data will be anonymised and stored securely on a database, separate from your personal details. Only the researchers will have access to the information you give during the study. Two different aspects of the research study will be written up and submitted in two separate Doctoral Theses.

7. Who has reviewed the study?
The study has been reviewed by the Royal Holloway University of London Department Research Committee.

8. Who is organizing the funding of the research?
The research is a requirement of Nicole Evans' and Rebecca Carpenter's doctoral training in Clinical Psychology. Their training is funded by Camden and Islington NHS Foundation Trust.

9. How can I get more information?
Please do not hesitate to contact Rebecca Carpenter or Nicole Evans via email (Rebecca.carpenter.2014@live.rhul.ac.uk; Nicole.evans.2014@live.rhul.ac.uk) should you need any further information about the study.

Consent Form

'The study of how values relate to our thinking style and thoughts about other people'

ID number: ……..

You have been asked to participate in a study about how values relate to thoughts about ourselves and other people.

Have you (please circle yes or no):

Read the information sheet about the study?	Yes	No
Had an opportunity to ask questions?	Yes	No
Got satisfactory answers to your questions?	Yes	No
Understood that you're free to withdraw from the study at any time without giving a reason (and without it affecting your care/education if applicable)	Yes	No
Understood that you are free to deny answering any questions that you do not want to?	Yes	No
Do you agree to take part in the study?	Yes	No

Name: _____

Signature: _____

Date: _____

This consent form will be stored separately from the anonymous information you provide.

6.4. Appendix 4: Debrief Sheet

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Royal Holloway, University of London
Egham, Surrey TW20 0EX
www.royalholloway.ac.uk/psychology

+44 (0) 1784 443526
PSY-enquiries@rhul.ac.uk

'The study of how values relate to our thinking style and thoughts about other people'

This study is being written up as part of two Doctoral theses: one about rumination, which is a particular type of thinking style involving repetitive patterns of negative thinking; the other is about paranoia, which is unfounded thoughts that others intend you harm. Rumination and paranoia are both common and distressing, so we are seeking to understand factors that may help reduce them.

This study is looking at one potential intervention, known as value-affirmation. Value-affirmation involves reflecting on personally meaningful values, and has been shown to lead to self-affirmation. Self-affirmation refers to any event that boosts the perception of the self as being sound, moral, capable and cohesive. Previously, research has found that when people are self-affirmed they respond more adaptively to experiences and information that could threaten their self-concept. Rumination and paranoia are two ways that people might respond to such negative experiences, however, these responses are usually maladaptive and lead to further distress. We are interested in whether self-affirmation might reduce the tendency to respond in these ways.

In this study, there were two experimental conditions: value-affirmation, where you selected and wrote about your most important value; and value-affirmation plus goal-setting, where you did the same, but also set two value-consistent goals to achieve in the following two weeks. These conditions were compared to a standardized control condition, where you were asked to write about a personally unimportant value. The experimenter does not know which treatment group you were in.

We predicted that both value-affirmation conditions would reduce rumination and paranoia over the two-week period. We also thought that value-affirmation with the additional component of setting values-consistent goals would result in further reductions. We measured these changes by asking you to complete questionnaires at different time points. If you are interested in hearing about the results and conclusions of the study, please inform the principal researcher via email

(Rebecca.carpenter.2014@live.rhul.ac.uk; Nicole.evans.2014@live.rhul.ac.uk) who will send you a summary once the research is complete.

We do not expect people to feel worse after completing this study, but if you do feel you would like some support to help with difficult emotions, please contact your GP and inform the principal researcher via email. The university also offers a counselling service, and you may also wish to contact the Samaritans:

Royal Holloway Counselling Service
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

6.5. Appendix 5: Trait Measures

6.5.1. Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995).

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all- NEVER
1 Applied to me to some degree, or some of the time- SOMETIMES
2 Applied to me to a considerable degree, or a good part of time- OFTEN
3 Applied to me very much, or most of the time- ALMOST ALWAYS

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g. in my hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3

16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

6.5.2. The Paranoia Scale (Fenigstein & Vanable, 1992).

Here are some statements below about certain feelings and beliefs that people usually have concerning themselves, others, and certain situations. Your task is to choose how well each statement is applicable to you. Please note that all information provided by you is confidential. Please use the following scale to indicate your answers:

1= not at all applicable to me
2= slightly applicable to me
3= somewhat applicable to me
4= applicable to me
5= extremely applicable to me.

	1	2	3	4	5
Someone has it in for me.					
I sometimes feel as if I'm being followed.					
I believe that I have often been punished without cause.					
Some people have tried to steal my ideas and take credit for them.					
My parents and family find more fault with me than they should.					
No one really cares much what happens to you.					
I am sure I get a raw deal from life.					
Most people will use somewhat unfair means to gain profit or an advantage, rather than lose it.					
I often wonder what hidden reason another person may have for doing something nice for you.					
It is safer to trust no one.					
I have often felt that strangers were looking at me critically.					
Most people make friends because friends are likely to be useful to them.					
Someone has been trying to influence my mind.					
I am sure I have been talked about behind my back.					
Most people inwardly dislike putting themselves out to help other people.					
I tend to be on my guard with people who are somewhat more friendly than I expected.					
People have said insulting and unkind things about me.					

People often disappoint me.					
I am bothered by people outside, in cars, in stores, etc. watching me.					
I have often found people jealous of my good ideas just because they had not thought of them first.					

6.5.3. Rosenberg Self-Esteem Scale (Rosenberg, 1965).

Below is a list of statements dealing with your **GENERAL** feelings about yourself. If you strongly agree, tick 'strongly agree'. If you agree with the statement, tick 'agree'. If you disagree, tick 'disagree' and if you strongly disagree, tick 'strongly disagree'.				
	Strongly Agree	Agree	Disagree	Strongly Disagree
On the whole I am satisfied with myself.				
At times, I think I am no good at al.				
I feel that I have a number of good qualities.				
I am able to do most things as well as other people.				
I feel I do not have much to be proud of.				
I certainly feel useless at times.				
I feel that I'm a person of worth, at least on an equal plane with others.				
I wish I could have more respect for myself.				
All in all, I am inclined to feel that I am a failure.				
I take a positive attitude toward myself.				

6.5.4. Valued Living Questionnaire (VLQ; Wilson et al. 2010).

Self-Care Assessment Part 1

Below are areas of life that are valued by some people. This questionnaire will help clarify your own quality-of-life in each of these areas. One aspect of quality-of-life involves the importance you put on different areas of living. Rate the importance of each area (by circling a number) on a scale of 1-10. A "1" means that area is *not at all important*. A "10" means that area is *very important*. Not everyone will value all of these areas, or value all areas the same. Rate each area according to **your own personal sense of importance**.

Area:	**not at all important**									**extremely important**
1) Family (other than marriage or parenting)	1	2	3	4	5	6	7	8	9	10
2) Marriage/couples/ intimate relationships	1	2	3	4	5	6	7	8	9	10
3) Parenting	1	2	3	4	5	6	7	8	9	10
4) Friends/social life	1	2	3	4	5	6	7	8	9	10
5) Work	1	2	3	4	5	6	7	8	9	10
6) Education/training	1	2	3	4	5	6	7	8	9	10
7) Recreation/fun	1	2	3	4	5	6	7	8	9	10
8) Spirituality/meaning & purpose in life	1	2	3	4	5	6	7	8	9	10
9) Citizenship/ Community Life	1	2	3	4	5	6	7	8	9	10
10) Physical self-care (nutrition, exercise/ movement, rest/sleep)	1	2	3	4	5	6	7	8	9	10

Valued Living Questionnaire
Self-Care Assessment Part 2

In this section, please give a rating of how **consistent** your actions have been with each of your values. Please note that this is **not** asking about your ideal in each area, **nor** what others think of you. Everyone does better in some areas than in others. People also do better at some times than at others. **Please just indicate how you think you have been doing during the past week.** Rate each area (by circling a number) on a scale of 1-10. A "1" means that your actions have been *completely inconsistent with your value*. A "10" means that your actions have been *completely consistent with your value*.

During the past week…

Area:	**not at all consistent**									**completely consistent**
1) Family (other than marriage or parenting)	1	2	3	4	5	6	7	8	9	10
2) Marriage/couples/ intimate relationships	1	2	3	4	5	6	7	8	9	10
3) Parenting	1	2	3	4	5	6	7	8	9	10
4) Friends/social life	1	2	3	4	5	6	7	8	9	10
5) Work	1	2	3	4	5	6	7	8	9	10
6) Education/training	1	2	3	4	5	6	7	8	9	10
7) Recreation/fun	1	2	3	4	5	6	7	8	9	10
8) Spirituality/meaning & purpose in life	1	2	3	4	5	6	7	8	9	10
9) Citizenship/ Community Life	1	2	3	4	5	6	7	8	9	10
10) Physical self-care (nutrition, exercise/ movement, rest/sleep)	1	2	3	4	5	6	7	8	9	10

6.6. Appendix 6: State Measures

6.6.1. Paranoia and Depression Scale: paranoia items (Bodner & Mikulincer, 1998).

Please indicate on the scale below how much you agree each statement describes your thoughts and feelings RIGHT NOW: 1= not at all 6= very often						
	1	2	3	4	5	6
1. I feel that my behaviour is being analysed,						
2. I feel that people talk about me.						
3. I feel that people are hostile to me.						
4. I feel that others are picking on me.						
5. I feel that others are examining my actions.						
6.I feel that others influence my performance.						
7.1 do not trust other people's intentions.						

6.6.2. Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988).

This scale consists of a number of words that describe different feelings and emotions. Read each item and then choose the number on the scale below to indicate to what extent you feel this way **RIGHT NOW**, that is, at the present moment.

1 = Very slightly or not at all
2 = A little
3 = Moderately
4 = Quite a bit
5 = Extremely

_____	1. Interested	_____	11. Irritable
_____	2. Distressed	_____	12. Alert
_____	3. Excited	_____	13. Ashamed
_____	4. Upset	_____	14. Inspired
_____	5. Strong	_____	15. Nervous
_____	6. Guilty	_____	16. Determined
_____	7. Scared	_____	17. Attentive
_____	8. Hostile	_____	18. Jittery
_____	9. Enthusiastic	_____	19. Active
_____	10. Proud	_____	20. Afraid

6.7. Appendix 7: Value-affirmation Manipulation Check (see Sherman et al., 2000).

	1= strongly disagree 6= strongly agree					
	1	2	3	4	5	6
1. *This value or personal characteristic has influenced my life*						
2. *In general, I try to live up to this value*						
3. *This value is an important part of who I am*						
4. *I care about this value*						

6.8. Appendix 8: Experimental Manipulations

6.8.1. Task instructions (VA)

This task is about values. Please read the following information and complete the task. Once you have completed the task, you will be asked to complete some more questionnaires on the computer.

Values are a life direction, an internal compass. They are leading principles that can guide you and motivate you as you move through life.
Values are what matter to you in the big picture, what you want to stand for, and the personal qualities you want to develop.
Values are not the same as goals. Values are directions you keep moving in, whereas goals are what you want to achieve along the way.
Values are unique to you. Not everyone has the same values, and this is not a test to see whether you have the "correct" values.

1. On the table in front of you is a pack of cards listing aspects of life that are valued by some people. Please read each card and sort it into one of three piles:

Very important to me
Quite important to me
Not important to me

If you wish to include a value that you feel is missing, you can do so by writing it on one of the "other" cards in the values pack.

ONCE YOU HAVE DONE THIS, PLEASE TURN OVER FOR THE NEXT TASK

2. Now you have sorted the cards, please discard the values in the 'quite important' and 'not important' pile, so you only have values that are 'very important' left.

Which of these values is **the most** important to you? Choose the **one** value that is **the most important** to you.

3. Please use the lined paper to describe why this value is important and meaningful to you. Think about a time in your life that this was particularly important to you and made you feel good about yourself. Write as much or as little as you wish and don't worry about how well it's written. Just focus on expressing your memory of the event and the feelings that you had at the time.

Please do your best to think and write about this event and your feelings about this value for the next 10 minutes. This is personal to you. There are no right or wrong answers.
Set the timer for **10 minutes**. If you complete the task before the 10 minutes is up please 'pause' the timer- please do not close the timer window.

4. Again, think about your most important value. Below your essay, list the top two reasons why this value is important to you.

5. Now you have finished writing, please leave the cards on the table and place these instructions and your lined paper in the envelope.

You can now complete the next set of questionnaires on the computer.

6.8.2. Task Instructions (VAG)

This task is about values. Please read the following information and complete the task. Once you have completed the task, you will be asked to complete some more questionnaires on the computer.

Values are a life direction, an internal compass. They are leading principles that can guide you and motivate you as you move through life.
Values are what matter to you in the big picture, what you want to stand for, and the personal qualities you want to develop.
Values are not the same as goals. Values are directions you keep moving in, whereas goals are what you want to achieve along the way.
Values are unique to you. Not everyone has the same values, and this is not a test to see whether you have the "correct" values.

1. On the table in front of you is a pack of cards listing aspects of life that are valued by some people. Please read each card and sort it in to one of three piles:

Very important to me
Quite important to me
Not important to me

If you wish to include a value that you feel is missing, you can do so by writing it on one of the "other" cards in the values pack.

ONCE YOU HAVE DONE THIS, PLEASE TURN OVER FOR THE NEXT TASK

2. Now you have sorted the cards, please discard the values in the 'quite important' and 'not important' pile, so you only have values that are 'very important' left.

Which of these values is **the most** important to you? Choose the **one** value that is **the most important** to you.

3. Please use the lined paper to describe why this value is important and meaningful to you. Think about a time in your life that this was particularly important to you and made you feel good about yourself. Write as much or as little as you wish and don't worry about how well it's written. Just focus on expressing your memory of the event and the feelings that you had at the time.

Please do your best to think and write about this event and your feelings about this value for the next 10 minutes. This is personal to you. There are no right or wrong answers.
Set the timer for **10 minutes**. If you complete the task before the 10 minutes is up please 'pause' the timer- please do not close the timer window.

4. Again, think about your most important value. Below your essay, list the top two reasons why this value is important to you.

ONCE YOU HAVE DONE THIS, PLEASE TURN OVER FOR THE NEXT TASK

5. Values can provide a deep motivation that helps us to pursue important goals in life.

What could you do to help live your life in accordance with this value?
We would like you to set a short term goal to focus on over the next two weeks.

Ideally, you want to set a 'SMART' goal. This is what 'SMART' means:
Specific: what exactly will you accomplish?
Meaningful: is this goal in line with your most important value?
Adaptive: is this goal likely to improve your life?
Realistic: can this goal be achieved in your life right now?
Time-framed: can this goal be achieved within the next two weeks?

Please write your goal here:

Please also write your goal underneath your essay.

Please take this piece of paper home with you as a reminder of the goal you have set today, to be completed in the next two weeks.

6. Now you have finished writing, please leave the cards on the table and place these instructions and your lined paper in the envelope. Please take this piece of paper with your goal written on home with you.

You can now complete the next set of questionnaires on the computer.

6.8.3. Task Instructions (NAC)

This task is about values. Please read the following information and complete the task. Once you have completed the task, you will be asked to complete some more questionnaires on the computer.

Values are a life direction, an internal compass. They are leading principles that can guide you and motivate you as you move through life.
Values are what matter to you in the big picture, what you want to stand for, and the personal qualities you want to develop.
Values are not the same as goals. Values are directions you keep moving in, whereas goals are what you want to achieve along the way.
Values are unique to you. Not everyone has the same values, and this is not a test to see whether you have the "correct" values.

1. On the table in front of you is a pack of cards listing aspects of life that are valued by some people. Please read each card and sort it in to one of three piles:

Very important to me
Quite important to me
Not important to me

If you wish to include a value that you feel is missing, you can do so by writing it on one of the "other" cards in the values pack.

ONCE YOU HAVE DONE THIS, PLEASE TURN OVER FOR THE NEXT TASK

2. Now you have sorted the cards, please discard the values in the 'quite important' and 'very important' pile, so you only have values that are 'not important' left.

Which of these values is **the least** important to you? Choose the **one** value that is the **least** important to you.

3. Although this value is not important to you, please use the lined paper to describe why this value might be important and meaningful to **someone else**. Describe a time in someone else's life that this may have been particularly important to them and made them feel good about themselves. Write as much or as little as you wish and don't worry about how well it's written.

Please do your best to think and write about why this value might be important to someone else for the next 10 minutes. There are no right or wrong answers.
Set the timer for 10 minutes. If you complete the task before the 10 minutes is up please 'pause' the timer- please do not close the timer window.

4. Again, think about your least important value. Below your essay, list the top two reasons why this value is **NOT** important to you.

5. Now you have finished writing, please leave the cards on the table and place these instructions and your lined paper in the envelope.

You can now complete the next set of questionnaires on the computer.

6.9. Appendix 9: Values List (Harris, 2011)

1. Acceptance: to be open to and accepting of myself, others, life, etc.
2. Adventure: to be adventurous; to actively seek, create, or explore novel or stimulating experiences
3. Assertiveness: to respectfully stand up for my rights and request what I want
4. Authenticity: to be authentic, genuine, real; to be true to myself
5. Beauty: to appreciate, create, nurture or cultivate beauty in myself, others, the environment etc.
6. Caring: to be caring toward myself, others, the environment, etc.
7. Challenge: to keep challenging myself to grow, learn, improve
8. Compassion: to act with kindness towards those who are suffering
9. Connection: to engage fully in whatever I'm doing and be fully present with others
10. Contribution: to contribute, help, assist, or to make a positive difference to myself or others
11. Conformity: to be respectful and obedient of rules and obligations
12. Cooperation: to be cooperative and collaborative with others
13. Courage: to be courageous or brave; to persist in the face of fear, threat, or difficulty
14. Creativity: to be creative or innovative
15. Curiosity: to be curious, open-minded, and interested; to explore and discover
16. Encouragement: to encourage and reward behavior that I value in myself or others
17. Equality: to treat others as equal to myself and vice versa
18. Excitement: to seek, create, and engage in activities that are exciting, stimulating or thrilling
19. Fairness: to be fair to myself or others
20. Fitness: to maintain or improve my fitness to look after my physical and mental health and wellbeing
21. Flexibility: to adjust and adapt readily to changing circumstances
22. Freedom: to live freely; to choose how I live and behave, or help others do likewise
23. Friendliness: to be friendly, companionable, or agreeable toward others
24. Forgiveness: to be forgiving toward myself or others
25. Fun: to be fun loving; to seek, create, and engage in fun-filled activities
26. Generosity: to be generous, sharing and giving, to myself or others
27. Gratitude: to be grateful for and appreciative of myself, others, and life
28. Honesty: to be honest, truthful, and sincere with myself and others
29. Humour: to see and appreciate the humorous side of life
30. Humility: to be humble or modest; to let my achievements speak for themselves

31. Industry: to be industrious, hardworking, and dedicated
32. Independence: to be self-supportive, and choose my own way of doing things
33. Intimacy: to open up, reveal, and share myself, emotionally or physically in my close personal relationships
34. Justice: to uphold justice and fairness
35. Kindness: to be kind, compassionate, considerate, nurturing, or caring toward myself or others
36. Love: to act lovingly or affectionately toward myself or others
37. Mindfulness: to be conscious of, open to, and curious about my here-and-now experience
38. Order: to be orderly and organized
39. Open-mindedness: to think things through, see things from other's points of view, and weigh evidence fairly.
40. Patience: to wait calmly for what I want
41. Persistence: to continue resolutely, despite problems or difficulties.
42. Pleasure: to create and give pleasure to myself or others
43. Power: to strongly influence or wield authority over others, e.g. taking charge, leading, organizing
44. Reciprocity: to build relationships in which there is a fair balance of giving and taking
45. Respect: to be respectful towards myself or others; to be polite, considerate and show positive regard
46. Responsibility: to be responsible and accountable for my actions
47. Romance: to be romantic; to display and express love or strong affection
48. Safety: to secure, protect, or ensure safety of myself or others
49. Self-awareness: to be aware of my own thoughts, feelings and actions
50. Self-care: to look after my health and wellbeing, and get my needs met
51. Self-development: to keep growing, advancing or improving in knowledge, skills, character, or life experience.
52. Self-control: to act in accordance with my own ideals
53. Sensuality: to create, explore and enjoy experiences that stimulate the five senses
54. Sexuality: to explore or express my sexuality
55. Skillfulness: to continually practice and improve my skills and apply myself fully when using them
56. Supportiveness: to be supportive, helpful, encouraging, and available to myself or others
57. Trust: to be trustworthy; to be loyal, faithful, sincere, and reliable
58. Other:

_____

59. Other:

_____

6.10. Appendix 10: Skewness and Kurtosis *z* scores pre-post transformation

	Variable	Pre-Transformation		Post-Transformation		
		Skew (*z*)	Kurtosis (*z*)	Skew (*z*)	Kurtosis (*z*)	Transformation
VA	Trait Paranoia	2.53 (*p* >.001)	-0.62 (*p* >.001)	No transformation required		-
	DASS-21-D	5.33* (*p* <.001)	0.55 (*p* >.001)	0.69 (*p* >.001)	0.55 (*p* >.001)	Square-root
	DASS-21-A	3.01 (*p* >.001)	1.03 (*p* >.001)	No transformation required		-
	DASS-21-S	0.84 (*p* >.001)	-1.10 (*p* >.001)	No transformation required		-
	Age	5.99* (*p* <.001)	3.01 (*p* >.001)	1.63 (*p* >.001)	-1.23 (*p* >.001)	Reciprocal
	RSE	0.46 (*p* >.001)	-1.15 (*p* >.001)	No transformation required		-
	VLQ	0.91 (*p* >.001)	-0.82 (*p* >.001)	No transformation required		-
	T1 State Paranoia	4.64* (*p* <.001)	2.25 (*p* >.001)	1.69 (*p* >.001)	-0.31 (*p* >.001)	Reciprocal
	T1 PANAS-PA	-0.80 (p <.001)	-1.19 (p <.001)	No transformation required		-
	T2 State Paranoia	4.84* (*p* <.001)	2.18 (*p* >.001)	-0.27 (*p* >.001)	-1.16 (*p* >.001)	Reciprocal
	T2 PANAS-PA	1.84 (*p* >.001)	0.49 (*p* >.001)	No transformation required		-
	T2 Manipulation Check	-3.22 (*p* >.001)	0.18 (*p* >.001)	No transformation required		-
	T2 Time Spent Writing Essay	2.06 (*p* >.001)	-1.08 (*p* >.001)	No transformation required		-
	T3 State Paranoia	4.15* (*p* <.001)	1.48 (*p* >.001)	0.08 (*p* >.001)	-0.31 (*p* >.001)	Reciprocal
	T3 PANAS-PA	0.29 (*p* >.001)	-1.10 (*p* >.001)	No transformation required		-
VAG	Trait Paranoia	4.59* (*p* <.001)	1.77 (*p* >.001)	2.35 (*p* >.001)	-0.47 (*p* >.001)	Log10
	DASS-21-D	7.98* (*p* <.001)	3.64* (*p* <.001)	1.94 (*p* >.001)	1.41 (*p* >.001)	Sqare-root
	DASS-21-A	4.08* (*p* <.001)	1.67 (*p* >.001)	-0.18 (*p* >.001)	-1.09 (*p* >.001)	Sqare-root
	DASS-21-S	5.60*	2.72	-0.25	1.76	Sqare-root

		(p <.001)	(p >.001)	(p >.001)	(p >.001)	
	Age	6.60* (p <.001)	3.16 (p >.001)	1.15 (p >.001)	-1.03 (p >.001)	Reciprocal
	RSE	-0.33 (p >.001)	0.57 (p >.001)	No transformation required		-
	VLQ	0.25 (p >.001)	0.79 (p >.001)	No transformation required		-
	T1 State Paranoia	5.08* (p <.001)	1.71 (p >.001)	0.65 (p >.001)	-1.66 (p >.001)	Reciprocal
	T1 PANAS-PA	1.94 (p >.001)	0.59 (p >.001)	No transformation required		-
	T2 State Paranoia	6.38* (p <.001)	2.36 (p >.001)	1.44 (p >.001)	-0.87 (p >.001)	Reciprocal
	T2 PANAS-PA	0.88 (p >.001)	-1.11 (p >.001)	No transformation required		-
	T2 Manipulation Check	-0.83 (p >.001)	-1.49 (p >.001)	No transformation required		-
	T2 Time Spent Writing Essay	-3.58* (p <.001)	0.66 (p >.001)	-0.79 (p >.001)	-1.01 (p >.001)	Squaring
	T3 State Paranoia	7.68* (p <.001)	3.42* (p <.001)	2.17 (p >.001)	-0.61 (p >.001)	Reciprocal
	T3 PANAS-PA	1.46 (p >.001)	-0.78 (p >.001)	No transformation required		-
NAC	Trait Paranoia	3.96* (p <.001)	1.84 (p >.001)	1.51 (p >.001)	-0.62 (p >.001)	Log10
	DASS-21-D	4.21* (p <.001)	1.52 (p >.001)	-0.02 (p >.001)	-0.64 (p >.001)	Sqare-root
	DASS-21-A	4.63* (p <.001)	1.99 (p >.001)	0.23 (p >.001)	-0.92 (p >.001)	Sqare-root
	DASS-21-S	1.16 (p >.001)	-0.57 (p >.001)	No transformation required		-
	Age	4.65* (p <.001)	2.37 (p >.001)	-0.70 (p >.001)	-1.18 (p >.001)	Reciprocal
	RSE	-0.84 (p >.001)	-0.58 (p >.001)	No transformation required		-
	VLQ	1.88 (p >.001)	-0.84 (p >.001)	No transformation required		-
	T1 State Paranoia	3.76* (p <.001)	1.25 (p >.001)	-0.32 (p >.001)	-0.73 (p >.001)	Reciprocal
	T1 PANAS-PA	-0.04 (p <.001)	-1.20 (p >.001)	No transformation required		-
	T2 State Paranoia	4.00* (p <.001)	1.64 (p >.001)	-0.48 (p >.001)	-1.08 (p >.001)	Reciprocal
	T2 PANAS-PA	0.50	-1.08	No transformation required		-

	(p >.001)	(p >.001)			
T2 Manipulation Check	1.16 (p >.001)	-0.49 (p >.001)	No transformation required		-
T2 Time Spent Writing Essay	-2.30 (p >.001)	0.84 (p >.001)	No transformation required		-
T3 State Paranoia	7.86* (p <.001)	3.85* (p <.001)	-0.06 (p >.001)	-0.97 (p >.001)	Reciprocal
T3 PANAS-PA	0.88 (p >.001)	-1.18 (p >.001)	No transformation required		-

Note. VA – Value-affirmation; VAG – Value-affirmation plus goal-setting; NAC – Non-affirmation control; DASS-21: Depression (D), Anxiety (A) and Stress (S) Scale; RSE: Rosenberg Self-Esteem Scale; PANAS-PA: Positive and Negative Affect Schedule- Positive Affect; VLQ: Valued Living Questionnaire. For VLQ, VA: n = 57; VAG: n = 56; NAC: n = 54.

6.11. Appendix 11: Goals Set (VAG Condition)

Value	Frequency	Percentage	Goal
Love	5	8.8 %	1. Unknown 2. Take time every day to tell someone that I love them and give them a compliment. Every day remember something good I did. 3. To tell my close friends and family that I love them at least once a week out loud or via text 4. To love those I encounter on the street: the homeless, the beggars etc. To stop, to engage with them, to help them, to care for them, to love them. 5. To enable my husband to have a better/longer nights' sleep by going to bed earlier myself thereby not preventing his early night. Aim for 10-10.30 except bridge nights when it would have to be 11.
Trust	5	8.8 %	1. I will arrange with my partner time for us to spend together (quality time) over the next two weeks. I will also arrange to spend quality time to see friends, meanwhile he will no doubt spend time away from me. 2. Do at least one hour of maths revision a day until Jan 14th to help me hopefully pass my maths test first time. 3. Unknown. 4. Open up properly to the people that I live with about how I feel and make them understand that equally it is not their fault. 5. To contact two friends via text/call to have a catch up and see how they're doing
Honesty	4	7.0 %	1. Share my thoughts when I really want to share my feelings or thoughts but feel prohibited for no good reason (by fear of being too straightforward, or the answer I will get) I will just do it, as long as it does not affect others negatively.

			2. Always try to be honest to myself. If I don't want to stay with my friends, have a time to be alone. Don't hesitate to tell my friends that I'm tired and want to stay in my room. When I want to stay with my friends, just enjoy time with my friends. 3. To be honest with my boyfriend about how I am feeling when we speak about making plans for the next year. 4. To talk to accommodation on Monday about doing a room swap, as living at X is doing more damage to my mental health than good, and to see if they will let the room swap happen after the Christmas holidays.
Kindness	4	7.0 %	1. I will only buy organic dairy products over the next two weeks. 2. I will try to help my Dad convert the videos to DVD to save him time over the next week. 3. Becoming volunteer tutor for young refugees in the local area by completing the application form asap. 4. I will be more tolerant of people I don't know (public!). Be kinder to them and their needs. Take a deep breath when frustrated and smile.
Open-mindedness	4	7.0 %	1. To have written up notes to begin my next assignment. 2. Not quickly attribute blame to someone when something goes wrong. 3. In the next two weeks I will engage with the American news (read article?) regarding Trump/Clinton election. I am not currently open-minded about this - could do to weigh up some evidence more fairly. 4. Reading up on things that I have deep interest for and developing my knowledge which I can apply to my character and life experiences.
Contribution	3	5.3 %	1. To start looking into voluntary charity work over the next fortnight, specifically those which only require a few hours a week.

			2. Unknown. 3. Unknown.
Flexibility	2	3.5 %	1. Get a job 2. I will be flexible in coming up with a plan for moving house, taking all the information into account. The plan will be agreed on in the next two weeks
Freedom	2	3.5 %	1. To immerse myself in books, education and learning without being distracted or restricted by social obligations. 2. To try something new that I haven't done before, so that I can find and express who I truly am.
Humility	2	3.5 %	1. Unknown. 2. When I receive my grade for my next assignment which should be in the next two weeks, I will not boast about my result if I do well and only tell my friends/peers if they ask.
Independence	2	3.5 %	1. Spend time with my 6 year old little brother 2. Unknown.
Respect	2	3.5 %	1. To try and understand people's opinions which aren't the same as mine so that I can see their point of view more clearly 2. To be respectful towards myself and others. To help other people who are in need if it is achievable for me and give others and myself positive feedback
Self-development	2	3.5 %	1. To focus on my degree by studying and catching up 2. To research cultural things to do with Madrid and make a plan for our trip
Supportiveness	2	3.5 %	1. Support my ex boyfriend and help him achieve his mental and physical goals whilst being friendly. 2. I wish to spend more quality time with my family, without distractions that are trivial (phones, social media). They need to feel that I am always there even if I'm away at university
Authenticity	1	1.8 %	1. Feel happier about myself as a person.

			Notice specific behaviours, such as judgement of others, and make a concerted effort to change them (behaviours which are not in line with who I am)
Compassion	1	1.8 %	1. Speak to a homeless person to understand their history and background. This will help me to understand what other people go through
Excitement	1	1.8 %	1. Unknown
Gratitude	1	1.8 %	1. At the end of each day, think of one thing I am grateful for.
Other: closeness /belonging	1	1.8 %	1. I will arrange to meet with my close friends in London and do a christmas night together
Persistence	1	1.8 %	1. To try and not get so worked up about events in my life I cannot change. To pinpoint when they are affecting me and to try and not let them worry me or make me anxious.
Reciprocity	1	1.8 %	1. To encourage and allow others to help me, I do not need to keep all my worries to myself and panic when I have supportive people around me
Responsibility	1	1.8 %	1. To show my children I am responsible for the way I act by admitting when I don't act in line with one of my important values e.g. patience, kindness
Self-awareness	1	1.8 %	1. Within the next two weeks, I would like to have done my best with my coursework essay, been preparing further for my lab report and enjoyed my weekend away without feeling over run or anxious. I want to make time for myself, as well as my family, friends, and work. I would like to make progress instead of dwelling on previous weeks.
Unknown	9	15.8 %	