Who I am and how I feel: The role of identity and self-concept in psychological distress

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Doctor of Philosophy

Aston University

December 2023

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The main aim of this thesis was to examine how factors relating to 'the self' contribute to subclinical psychopathology symptoms. This is important because these symptoms are associated with marked distress and are a risk factor for clinically significant mental health problems. Initial work examined relationships between measures of psychopathology and facets of autobiographical memories (Study 1) and self-defining memories (Study 2). Study 2 also examined links between psychopathology and confidence in achieving life goals. Study 3 examined relationships between psychopathology and use of autobiographical memory (AM) to support a 'sense of self'. Results (Study 1) revealed that depression was associated with lower specificity of positive memories (involuntary retrieval), rating unpleasant memories as more negative, and a trend for more negative self-defining memories (Study 2). Hypomania was linked to less negative ratings of involuntary unpleasant memories (Study 1), and a trend for more negative self-defining memories (Study 2). Depression and anxiety, but not hypomania, were associated with lower confidence in goal achievement (Study 2). All measures of psychopathology were associated with increased use of AM for supporting 'the self' (Study 3). Importantly, these links were mediated by self-concept clarity. Study 4 investigated the impact on psychological wellbeing of losing objects central to identity (e.g., relationships or roles). Remaining work investigated links between adverse childhood experiences (Study 5) and recent stressors (Study 6) and psychopathology. Social support, but not lost objects, predicted psychopathology (Study 4). Adverse childhood experiences (Study 5) and recent stress (study 6) were associated with increases in depression, anxiety, and hypomania. Self-concept clarity mediated the pathway between aversive childhood experiences and all psychopathology (Study 5) and the link between recent stress and hypomania (Study 6). Interventions to increase self-concept clarity have the potential to reduce subclinical symptoms of psychopathology and decrease the risk of symptom escalation to clinical levels.

Key words: identity, self-concept clarity, self-continuity, autobiographical memory, subclinical psychopathology, hypomania, depression, anxiety

Acknowledgements

Firstly, I would like to thank my supervisor Dr Nathan Ridout for his support and guidance. This has been a massive undertaking for me, and his encouragement has been a huge help. Not every supervisor would take on a research student with a full time job. I'm very grateful for his time and have very much enjoyed working together. I've learned a lot.

I'm also very grateful to Dr Michael Larkin, my associate supervisor, who recognised the potential in my enormous initial proposal and understood what I was trying to do. His support and belief in me helped make this possible, and his contributions have made this a richer thesis.

I would like to thank my husband Paul, my daughter Rhiannon, my mum Jackie and my aunt Gill, and my other family and close friends who've seen much less of me than they might have liked over the past six years. Thank you for bearing with me and believing in me. I am also grateful to my nan, Sallie, and my aunt, Anita, who are no longer with us, but without whom I would not have gone down this road. I hope they would be proud.

I would also like to express my appreciation to all my colleagues at Aston University, especially Professor Adrian Burgess and Dr Rob Nash who provided hugely helpful input at key points. I would also like to thank the participants who volunteered to take part in my research, without whom this research would not have been possible, and who made the experience pleasant and interesting.

Finally I would like to thank my colleagues at SARMAC for giving me the opportunity to present my work and to be part of a community.

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CHAPTER 1 – GENERAL INTRODUCTION

1.1. Overview

It has been estimated that in 2020, 7% of ill health in the UK, measured by disability adjusted life-years (DALYs), was accounted for by mental health conditions (McDaid et al., 2022). The DALY measure combines years of living with a disability and years of life lost due to premature mortality. Mental health problems were found to be the second highest underlying cause of years lived with disability, and the fourth highest cause of DALYs. The associated cost was conservatively estimated at around £118 billion, 72% of which comprises lost productivity of individuals with poor mental health and their unpaid carers, and this total cost equates to 5% of the total UK GDP in 2019. To equate this with overall government spending on healthcare, the monetary cost of the NHS for the 2019-20 period was £150 billion, while the COVID support scheme cost £70 billion (McDaid et al., 2022). These figures underline both the burden placed on public finances by the elevated levels of psychological distress in current society, and the benefit of looking at methods by which these can be identified and alleviated, if possible, prior to worsening of the condition. Although individuals falling below levels of 'caseness' have traditionally been neglected in both research and clinical practice due to categorical research and diagnostic approaches, nosology is beginning to move towards dimensional approaches (Cuthbert & Insel, 2013; Kotov et al., 2017; Kotov et al., 2021; Kozak & Cuthbert, 2016; Krueger et al., 2018) which present a broader view of psychopathology. Given that individuals with subclinical symptomology also suffer from the distress and life disruption associated with mental health challenges, but are unlikely to receive professional support, there is a strong case for research within subclinical populations, with a view to increasing understanding and identifying potential interventions which may prevent escalation to clinical levels of psychopathology.

Childhood adversity is acknowledged to have a harmful impact that endures into adult life and predicts poor physical and psychological outcomes (Kessler et al., 2010). For example, Felitti et al. (1998) found a positive association between the number of aversive experiences in childhood and poor health behaviours (e.g., number of sexual partners; obesity) and various psychopathologies (e.g., addiction, depression, attempted suicide) in adolescence and adulthood. Work to elucidate the factors underpinning the relationship between childhood trauma and later physical and mental health has tended to focus on biological mechanisms. For example, it is suggested that adversity and toxic stress in childhood impact development of the brain, endocrine and immune systems (Boullier & Blair, 2018). However, recent research has begun to explore the psychological mechanisms that

may also contribute to the link between childhood adversity and psychological distress in adulthood. Three factors that have been identified as having a potential role in the development of psychological distress are self-concept clarity (see section 1.3.6, page 27), self-esteem (see section 1.3.5, page 26), and intolerance of uncertainty (see section 1.2.2, page 11).

Aside from the cost to the taxpayer, there is a more direct and immediate cost to those living with the daily burden of a mental health condition. Studies have shown that having a mental health condition can place downward pressure on earnings. For example, a study of registry data in Denmark (Biasi et al., 2021) found that people with major depressive disorder and bipolar disorder earned respectively 36% and 38% less than the general population, were 99% and 120% likelier to have earnings in the bottom decile, and were 110% likelier not to be earning at all. Controlling for socioeconomic status and other confounding variables had only a marginal impact on these results (Biasi et al., 2021). These findings suggest that the cost to those who suffer from a mental health impairment is not just to the quality of their life and emotional wellbeing, but also to their material and financial wellbeing. The predominant disorders underlying the cited £118 billion cost are major depressive disorder (23%), anxiety disorders (18%) and bipolar disorder (17%) (McDaid et al., 2022).

1.2. Affective Disorders

1.2.1. Depressive Disorders

The core symptoms of major depressive disorder (MDD), one of which must be present in order for a clinical diagnosis, are low mood, and anhedonia, the loss of interest and pleasure in nearly all activities (Kennedy, 2022). MDD is also characterised by physiological changes such as sleep disturbance, crying and suicidal thoughts (Belmaker & Agam, 2008). Symptom severity and role impairment are often substantial, with severe or very severe role impairment reported in 59.3% of cases of 12 month duration (Kessler et al., 2003) and suicide rates 26.7 times higher than the general population (Angst et al., 2002). Research has shown lifetime prevalence at 16.2% (Kessler). The Office for National Statistics (2023) gives this figure as one person in six for depression. A review of cost of illness studies (Berto et al., 2000) showed the primary underlying cost to be due to hospitalisation.

Dysthymia refers to milder but persistent depression. Symptoms may include dysregulated appetite and sleeping patterns, low self-esteem, poor decision-making and concentration, feelings of hopelessness and low self-esteem (American Psychological Association, 2013). Although the

symptoms are less severe than those observed in MDD, their longer duration may have disabling consequences in the long-term, adversely impacting social skill learning, psychosocial functioning and career development, and potentially increasing risk of developing major depression in the future (Nobile et al., 2003).

A recent literature review (Zhang et al., 2023) suggests a prevalence rate of 11.02% for subclinical depression (dysphoria), with the highest prevalence being among adolescents (14.17%) followed by the elderly (12.95%). These findings support previous reviews suggesting prevalence of subclinical depression in adolescents of up to 29% (Carrellas et al., 2017) which has a high associated cost and a high risk of development of MDD in later life (Bodden et al., 2022). Given findings of the presence of functional impairment in dysphoria (Kroenke, 2006; Lee et al., 2019), in addition to a public health cost higher than that relating to MDD due to prevalence (Liu et al., 2020) and evidence that subclinical depression is a risk factor for MDD (Cuijpers & Smit, 2004; Lee et al., 2019; Tuithof et al., 2018), research to grow the body of evidence on subclinical depression, and to support the development of interventions, could provide a valuable contribution to the wider field of depressive disorders. From a theoretical angle, a dimensional model of depression has been suggested (Benvenuti et al., 2015; Bowins, 2015; McElroy et al., 2021).

The cognitive theory of depression remains the dominant theory of depressive symptomology and is the basis for cognitive behavioural therapy. Dysfunctional attitudes or negative self-schemas are a foundational part of the cognitive theory of depression (Beck et al., 1979), and along with cognitive biases such as overgeneralising, catastrophising and focusing on negatives are believed to maintain the negative cognitive triad of self (e.g. “I am worthless”), the world (e.g. “the world is unfair”) and the future (e.g. “I will always be a failure”). The role of the triad is considered to be triggering and maintaining depressive symptoms. Negative self-schemas are assumed to form through aversive childhood experiences, and to be activated by later adverse life events. Negative depressive schemas bias incoming information, leading to negative interpretation of events, with attentional maintenance on, and memory biases for, depression-relevant stimuli (Beck et al., 1979). It has been suggested that this triad may in fact map onto a single factor of ‘self-relevant negative attitude’ (McIntosh & Fischer, 2000) but this is not proven. Whether or not this is the case, if self-relevance is a heavily weighted factor within the depressive schema, issues based around identity may play a large role in development and maintenance of depression.

Rumination, which involves repetitive, prolonged, and recurrent negative thinking about self, emotions, distressing experiences and personal concerns, is a hallmark of depression (Watkins, 2008). Rumination has been highlighted as a key cognitive vulnerability factor for development and

maintenance of depression (Nolen-Hoeksema et al., 2008; Watkins & Roberts, 2020) and a bidirectional longitudinal relationship has been demonstrated between depression and rumination (Whisman et al., 2020). The original Ruminative Response Styles hypothesis (Nolen-Hoeksema, 1991) suggests that rumination prolongs depression in non-clinical (Nolen-Hoeksema & Morrow, 1991) and clinical participants (Kuehner & Weber, 1999). A revised Ruminative Responses Hypothesis (Treynor et al., 2003) divided rumination into separate components of reflection and brooding. In reflection, the inner focus is purposefully directed to reducing depression by focusing on problem-solving, while brooding is a passive dwelling on discrepancy between a current and desired state. Brooding was associated with heightened depression both concurrently and longitudinally, while reflection was also associated with more heightened depression concurrently, but not longitudinally (Treynor et al., 2003). It appears therefore that reflection and brooding may represent the adaptive and maladaptive aspects of rumination, respectively, with the pertinent point being not that the depressed individual dwells upon the self and their personal concerns, but whether they do so in an active and positive, or passive and negative manner.

Persistent negative self-referent thinking is associated with depression (Belmans et al., 2023). Several models (e.g. Hull, 1981) have suggested that high-risk behaviours may be an attempt to reduce self-referent thinking (Spina & Arndt, 2020), and this may explain earlier findings that participants scoring high on ruminative responses are at high risk from substance abuse (Nolen-Hoeksema & Morrow, 1991). If depression and rumination lead to risky behaviour, this is an additional factor which may lead to poorer outcomes for individuals with psychological distress. It is unclear whether such behaviours would be triggered by external events, or might occur solely as a response to unpleasant thoughts without any external catalyst.

The theory of ruminative response styles (Nolen-Hoeksema, 1991; Treynor et al., 2003) does not assume that any external event is required to trigger brooding or reflection. In contrast, other theories, such as self-regulatory perseveration theory (Pyszczynski & Greenberg, 1987), have focused on depression in response to external events; such depression, which was formerly termed ‘reactive depression’, now falls under the category of ‘adjustment disorder with depressed mood’ (American Psychological Association, 2013). Here the focus is on the actual compared to the ideal, with the deficit causing negative affect (Duval & Wicklund, 1972). Early research suggested that individuals could remove neither the discrepancy not their focus on it, because the object was central to identity, self-esteem or emotional security (i.e. a ‘transference object” (Becker, 1973; see Pyszczynski & Greenberg, 1987) or linked to primary motivational commitments with few alternative commitments (Klinger, 1975). Consequently, rumination could become maladaptive (Carver & Scheier, 1981) and depression would occur (Oatley & Bolton, 1985). These theories align

with self-discrepancy theory (SDT; Higgins, 1987) which proposed that discrepancies between the 'actual self' and an 'ideal self' and 'ought self' underpinned, respectively, depression and anxiety. A contemporary literature review (Mason et al., 2019) has provided support for SDT, but suggests that the discrepancy between the actual and ideal self, that is, who we are and who we aspire to be, is stronger for both depression and anxiety, and potentially for other psychopathologies such as disordered eating. There is also experimental evidence suggesting a direct relationship between both ideal and ought discrepancies and depression and anxiety (Schlechter et al., 2022). However, a strong relationship between self-discrepancy and rumination is also supported (Mason et al., 2019). This suggests that external events may trigger rumination, regardless of whether rumination may occur without a triggering event.

1.2.2. Anxiety Disorders

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (American Psychological Association, 2013) categorises the following as anxiety disorders: panic disorder, agoraphobia, generalised anxiety disorder, social anxiety disorder, specific phobia, separation anxiety disorder and selective mutism. Mental Health UK (2023) report one in ten people living with an anxiety disorder in the UK at any one time.

Generalised anxiety disorder is the most commonly occurring anxiety disorder and is characterised by chronic and pervasive worry occurring on more days than not over a period of at least six months (American Psychological Association, 2013), causing problems in relationships, social functioning and career (Massion et al., 1993; Przeworski et al., 2011; Wittchen et al., 1994) and increased rates of physical health problems (Newman et al., 2013). It is characterised by feelings of threat, irritability, restlessness, tension, sleep disturbance and physical symptoms such as palpitations, sweating and dry mouth (Tyrer & Baldwin, 2006). The somatic symptoms such as insomnia, chest pain, cardiac and gastrointestinal problems are such that many patients presenting for medical care do so due to physical issues prior to the anxiety diagnosis (DeMartini et al., 2019; Kendall et al., 2011; Kessler et al., 2001; Roy-Byrne & Katon, 1997). Anxiety may also lead to challenges with career progression, given that individuals with GAD have shown reduced workplace productivity related to stress (job and non-job related), high absence rates and higher unemployment rates (McKnight et al., 2016). GAD is considered to be chronic, with symptoms unlikely to remit without intervention (Newman et al., 2013).

A systematic review of studies on subclinical anxiety (Haller et al., 2014) found prevalence rates to be consistently twice as high as for GAD across all studied populations, which included primary care, general community samples, young women and older populations. Subthreshold GAD was reported as a risk factor for development of generalised anxiety disorder (Kertz & Woodruff-Borden, 2011; Rucci et al., 2003). The high prevalence rates of subclinical anxiety, combined with its role as a risk factor for GAD, and the impairment to quality of life suffered by individuals experiencing even subthreshold anxiety disorders (Mendlowicz & Stein, 2000) imply that advancing research on subclinical anxiety, and supporting potential interventions, would add value.

Until recently, there has been debate as to whether heredity plays a role in the development of anxiety, or whether it can solely be accounted for by environment (Thapar & McGuffin, 1995). However, recent research suggests that there may be a heritable factor to anxiety, with both genetic and epigenetic risk markers identified (Gottschalk & Domschke, 2016). Epigenetics is the study of how behaviours and environment combine to change gene function, and unlike genetic changes, epigenetic changes are reversible and do not alter the DNA sequence, though they may change how the DNA sequence is read (Bird, 2007; Isles & Wilkinson, 2008). It has been suggested that both genetic and epigenetic markers should be considered for risk stratification (Pashayan et al., 2016). Anxiety-specific studies support both genetic and epigenetic risk factors in anxiety (Meier & Deckert, 2019), implying that individuals genetically at risk may suffer increased risk via stressful life events.

As defined by the predatory imminence model (Quinn & Fanselow, 2006), unlike fear, which is a response to a specific threat, anxiety is an emotional response to a non-specific threat. The emotion dysregulation model (Mennin, 2004), which suggests that GAD is marked by the rapid, intense and easy experiencing of emotions, which makes affect difficult to regulate, has empirical support, for example, in evidence of deficits in emotional clarity, emotional acceptance, ability to pursue goal-directed behaviour while distressed, ability to control impulsive behaviour while distressed, and access to affect regulation strategies (Salters-Pedneault et al., 2006). It has also been posited that the underlying cause of anxiety is uncertainty over the ability to control one's own environment (Alloy et al., 1990; Beck et al., 2005). Beck's cognitive model (see Section 1.2.1, page 8) has also been used to explain anxiety, with schema content relating to anxiety rather than depression, and anxiety-related cognitive biases (Beck et al., 2005). The model has been applied to GAD and subclinical anxiety (Dugas et al., 2007) with four main components: intolerance of uncertainty, positive beliefs about worry, negative problem orientation, and cognitive avoidance. Intolerance of uncertainty appears to manifest as desire for predictability, certainty seeking and cognitive paralysis in the face of uncertainty, and has been suggested as a potential predictor for Generalised Anxiety Disorder (Birrell et al., 2011). Intolerance of uncertainty has been shown to relate negatively to self-concept

clarity (Kusec et al., 2016)(see section 1.3.6, page 27) and self-esteem (Lowe & Harris, 2019) (see section 1.3.5, page 26). Intolerance of uncertainty has also been shown to predict the frequency of social comparisons (Butzer & Kuiper, 2006). Social comparisons, i.e. comparing oneself to others, have been suggested to occur more frequently when an individual is uncertain about their abilities and opinions (Festinger, 1954). An additional point of note given its clinical implications is that intolerance of uncertainty has been reported to increase resistance to therapy (Leite & Kuiper, 2008), which is logical given that content and results of therapy are unknown and thus uncertain, but may have a detrimental effect if it prevents the uptake of psychological support.

Psychological interventions are considered to be more effective than pharmacological interventions for anxiety (Tyrer & Baldwin, 2006). A meta-analysis of psychological treatments for GAD (Cuijpers et al., 2014) found that the majority of studies have examined cognitive behavioural therapy (CBT) as the primary psychological intervention for GAD and results supported CBT as an effective therapy for GAD. Various versions of CBT are available, however it was found in a comparison of three CBT protocols for GAD (Cognitive Therapy, Rational Emotive Therapy and Acceptance and Commitment Therapy) that all treatments resulted in a large reduction of anxiety-related symptoms, and no significant difference was found between groups based on therapy type (Stefan et al., 2019). Rumination has been shown to be a predictor of anxiety symptoms (Nolen-Hoeksema, 2000), and may partially mediate the relationship between anxiety and depression (McLaughlin & Nolen-Hoeksema, 2011). Potentially, continual worry about lack of control (Carver & Scheier, 1990; Martin & Tesser, 1996; Nolen-Hoeksema et al., 1999) leads to enduring rumination and the hopelessness about the future and negative evaluations of self which are typical of depression (McLaughlin & Nolen-Hoeksema, 2011), but with anxiety-focused negative self-schema, and consequent automatic anxiety-related negative thoughts. Research based on self-discrepancy theory (see section 1.2.1, page 10) (Mason et al., 2019) suggests that deficits between actual and ideal self may be a factor in anxiety. Dwelling on variances between current and desired identity could lead to rumination, negative cognitions on the self-aspect of the cognitive triad, and negative automatic thoughts, all anxiety-based.

1.2.3. Bipolar Disorder

Bipolar disorder is characterised by extreme fluctuations in mood, ranging between mania, hypomania and irritability or depression, and associated swings in self-esteem (Grande et al., 2016).

Periods where mood disturbance falls below the threshold for a manic, hypomanic or depressive episode are termed as euthymic (Fava & Bech, 2016). Bipolar disorder has been demonstrated to have comorbidities with various physiological health conditions such as chronic fatigue syndrome, migraine and asthma (McIntyre et al., 2006; Simon et al., 2004) in addition to psychological comorbidities such as that demonstrated with anxiety (Simon et al., 2004), and to be associated with impaired cognitive functioning (Martínez-Arán et al., 2004) and biased cognition (Newman et al., 2002). However, bipolar disorder has also been associated with creativity in a number of sources (Goodwin & Jamison, 2007). Potentially, this may be due to ambition and goal pursuit associated with this disorder (Murray & Johnson, 2010). Difficulties in diagnosis are caused by a crossover of symptoms with borderline personality disorder (BPD), and it has been suggested that differences in self-concept clarity (see section 1.3.6, page 27) and self-esteem (see section 1.3.5, page 26) may be used to differentiate, given that bipolar disorder shares some of the predominant identity diffusion issues, but these tend to be internally rather than interpersonally triggered (Wright et al., 2022).

Bipolar disorder is widely believed to follow a spectrum from the mild form of cyclothymia to the most extreme form of Bipolar I disorder (Goodwin & Jamison, 2007), although some research has challenged the existence of a spectrum (Baldessarini, 2000). Impact is severe, with suicide rates 12.3 times higher for bipolar disorder than in the general population (Angst et al., 2002). Bipolar UK states that one person in fifty has bipolar disorder. Lifetime prevalence has been estimated at around 1% but research suggests it may be as high as 5% if participants who experience only manic symptoms are included (Lewinsohn et al., 1995). These participants may meet the criteria for "Bipolar Disorder – Not Otherwise Specified" (BD-NOS) following classification changes in DSM-5 (American Psychological Association, 2013). The primary factor in annual cost is hospitalisation (Fajutrao et al., 2009). Cyclothymia is a less severe form of bipolar disorder where mood fluctuates between depression and hypomania consistently across multiple periods, for a duration of at least two years, and without symptoms having been absent for more than two months.

Hypomanic traits are a vulnerability factor for bipolar disorder (Eckblad & Chapman, 1986; Kwapil et al., 2000). Hypomania, or subclinical bipolar disorder, is defined by a distinct period of persistently elevated, expansive or irritable mood, with traits of inflated self-esteem or grandiosity, decreased need for sleep, increased talking, flight of ideas or racing thoughts, distractibility, increase in goal-directed behaviour and excessive involvement in risky behaviour, three of which symptoms must occur consistently over a period of four days or longer (American Psychological Association, 2013). It is distinguished from mania by the absence of significantly impaired functioning (American Psychological Association, 2000).

Though research suggests a strong genetic component to bipolar disorder, with one study of monozygotic and dizygotic twins (McGuffin et al., 2003) giving an estimate of 85% heritability, a review of prospective studies suggests that bipolar is a neurodevelopmental disorder with clinical, biological and psychological indicators, and that from a psychological perspective the interrelated processes of reward sensitivity, rumination, unstable self-esteem, and positive self-appraisal are all risk factors (Duffy et al., 2016).

Regarding reward sensitivity, it has been suggested (Akiskal, 1986) that what is inherited may be a dysregulated temperamental response to environmental events, with environmental causes being responsible for any development of bipolar disorder. The BAS Dysregulation Model (Depue & Iacono, 1989) is a psychobiological model of bipolar disorder that explains bipolar highs and lows as fluctuations in activation and deactivation of the behavioural approach system (BAS). The BAS is hypothesised as a system that links to rewards and goals, and is cued by potential threats and gains An obstructed or achieved reward would trigger an irritated or euphoric BAS response. Low BAS activation causes decreased energy, anhedonia (the loss of ability to feel pleasure), and few or no approach behaviours. Dopaminergic activity in the pre-frontal cortex is implicated in the BAS response (Depue & Iacono, 1989). The BAS Dysregulation Theory (Urosevic et al., 2008) was developed from the original model, to take into account research findings on specific factors pertaining to bipolar disorder, which support BAS sensitivity around anger-invoking events, goal-attainment events, BAS-relevant factors of cognitive style around perfectionism, autonomy and goal-striving, and high dysfunctional attitude scores on goal-attainment, dependency and achievement (Urosevic et al., 2008). Preliminary positive support was found for (hypo)mania being linked to exaggerated appraisal of goal importance and success expectancy, and more moderate support for an inverse link with depression. Research has shown that in individuals with cyclothymia and bipolar II disorder, the neural circuitry of BAS activation is activated specifically by events that are both challenging and provide a reward (Harmon-Jones et al., 2008). The basis of the expanded BAS model is that individuals with bipolar disorder have exaggerated behavioural and neurological responses to cues signalling reward gain or loss opportunity. A relevance appraisal construes an event as BAS relevant/irrelevant and goal congruent/incongruent, and an efficacy appraisal assesses success likelihood; these appraisals can be conscious or subconscious, voluntary or automatic (Urosevic et al., 2008). There is support for BAS dysregulation as a factor in hypomania. Behavioural activation scores have been found to be linked to higher mania risk and lower depression risk, and behavioural inhibition scores to lower mania risk and higher anxiety risk, in a non-clinical sample (Dickson et al., 2017), and greater reactivity to life events has been demonstrated in individuals with high BAS dysregulation in a student sample (Kim, 2020).

Rumination has been well researched in depression (see section 1.2.1., page 9) but has also been demonstrated in individuals with bipolar disorder, including during remission (Jones et al., 2006; Thomas et al., 2007). While depressive rumination tends to be on negative themes, there is evidence that rumination within bipolar disorder may focus on achievements and positive mood and may be a risk factor for hypomania (Feldman et al., 2008). There is experimental evidence that hypomanic traits are associated with risk-taking and rumination, rather than with attempts at distraction and problem-solving, as a response to depression, in bipolar disorder (Knowles et al., 2005). Potentially, in the same way that a positive association between ruminative response styles and high risk behaviour that has been demonstrated in unipolar depression (Nolen-Hoeksema & Morrow, 1991), and given that high risk behaviours can be used to reduce negative self-referent thinking (Spina & Arndt, 2020), this may be a strategy to reduce rumination which produces negative affect.

This response would be compatible with low self-esteem and dysfunctional cognitive attitude, and unstable self-esteem and dysfunctional attitudes are also cognitive vulnerability factors that appear to play a role in bipolar disorder in addition to unipolar depression (Alloy et al., 2006; Blairy et al., 2004; Lam et al., 2004; Scott & Pope, 2003; Scott et al., 2000). Experimental evidence has shown remitted bipolar participants to score higher on dysfunctional attitudes and lower on self-esteem than controls, but showed no significant differences from unipolar participants (Fuhr et al., 2017), with attachment scores suggesting that adverse childhood experiences may play a role in development of bipolar disorder, supporting earlier findings (Kökçü & Kesebir, 2010). Beck's cognitive model (Newman et al., 2002) suggests dysfunctional attitudes underlie cognitive vulnerability to bipolar disorder, as with depression, with the distinction that during the manic phase the contents of the cognitive triad (see section 1.2.1, page 9) are positive and euphoria related, and there is experimental evidence for cognitive vulnerability due to excessive focus on self (Bobrowicz-Campos et al., 2016). However, it is not specified in the cognitive model (Newman et al., 2002) whether the dysfunctional attitudes underlying bipolar are the same as those of depression. Furthermore, the role of dysfunctional attitudes and self-esteem in bipolar disorder is not clear, with other research suggesting that self-esteem and dysfunctional attitudes affected symptoms of depression, but not symptoms of mania, over time (Atuk & Richardson, 2021). However, it does appear that dysfunctional beliefs about the self, others and the world are involved in the development of manic or hypomanic symptoms in addition to affect regulation (Mansell et al., 2007). Given that bipolar patients have been demonstrated to show fluctuating self-esteem even in remission (Knowles et al., 2007), and the implicit self-esteem issues that have been demonstrated to

persist when explicit self-esteem is elevated by mania (Neale, 1988), it is viable to suggest that mania may serve some type of adaptive function.

This is not a new idea. The Depression Avoidance Hypothesis (Neale, 1988), also known as the "manic defence hypothesis", proposed that unstable self-esteem combined with unrealistic goals contribute to development of bipolar disorder in vulnerable individuals. Grandiose self-appraisals and goals are viewed as an attempt to protect self-esteem from negative events and cognitions. The theory is supported by earlier findings (Winters & Neale, 1985) that while remitted bipolar participants scored higher than remitted unipolar depressed on explicit (self-report) measures of self-esteem, this was not reflected in implicit measures (Pragmatic Interference Test); additionally, bipolar participants scored higher on social desirability and self-deception. Similarly, manic participants demonstrated self-serving attribution bias on an explicit self-report measure (Attributional Styles Questionnaire) but on the implicit Pragmatic Interference Test, showed the same internal negative attributions and external positive attributions as depressed participants (Lyon et al., 1999). Recently, interest in the manic defence hypothesis has been revived, with a new study (Granger et al., 2021) replicating the findings of the original manic defence research, supporting the theory that implicit low self-esteem lies beneath the euphoria and grandiose self-assessments of mania and hypomania even in the euthymic phase of bipolar disorder. Taken with evidence of perfectionism and need for approval (Scott et al., 2000), these findings suggest that there may be a benefit to hypomania, with its associated grandiose self-appraisals and elevated expectations of goal achievement, in that they provide a more positive view of the self, defending from negative affect and cognitions that may be distressing. There may also be practical advantages, as creativity, energy, goal focus, inspiration and concentration have all been cited to be increased in mania (Galvez et al., 2011; Murray & Johnson, 2010) and there is evidence that hypomania may elevate success across global functions (Benazzi, 2004).

A model of mood swings in bipolar disorder (Mansell et al., 2007) supports the contribution of each of the above models to the etiology of the condition, and posits that intrusions into awareness (i.e. changes in internal state in physiological, emotional or cognitive domains) are erroneously appraised. Appraisals are multiple, contradictory, and erroneously assign extreme personal meaning, triggering responses to the event in an attempt to assert control that are either ascent behaviours (Mansell & Lam, 2003) e.g. goal motivated, risk taking, social stimulation; or descent behaviours e.g. social withdrawal, rumination, extended sleeping. These behaviours elevate or lower mood, and the respective manic or depressive symptoms. Appraisals and behaviours are posited to be determined by the individual's underlying cognitive triad (i.e. beliefs about self, others and the world) and by

affect, which form due to early experience and are subsequently influenced by behavioural responses, life experiences and the manic or depressive episode.

Given the body of research evidence that demonstrates individuals with bipolar disorder are driven to excel, achieve and be recognised and approved for their achievements, that beneath an explicit display of confidence and high self-esteem they show many of the same results as individuals with unipolar depression (e.g. negative attributional styles, low self-esteem), and that there is high heritability and a neurologically-based trait-like sensitivity to reward gain or loss, hypomania might be argued to potentially provide a degree of adaptive advantage, which would become maladaptive above certain levels of elevation.

1.2.4. Comorbidity

Comorbidity is habitually high across psychopathologies, and this is particularly the case for anxiety and depression. A worldwide survey (Kessler et al., 2015) showed 45.7% of individuals diagnosed with a lifetime major depressive disorder also had a lifetime history of anxiety. 43% of individuals with generalised anxiety disorder showed comorbidity with depression (Brawman-Mintzer et al., 1993). A national longitudinal public health initiative funded by the National Institute of Mental Health (NIMH), the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD), showed high prevalence rates for comorbidity of lifetime (51.2%) and current (30.5%) anxiety disorders with bipolar disorder. Rates were higher in patients with bipolar I disorder than in patients with bipolar II disorder (Simon et al., 2004). It has been estimated that 50% of bipolar outpatients may have a comorbid axis I anxiety disorder (McElroy et al., 2001).

There is also evidence of comorbidities in non-clinical populations. Subclinical levels of anxiety have been associated with bipolar I patients who did not meet criteria for a categorical Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) anxiety disorder (Mantere et al., 2008). Additionally, there is some evidence that patients with major depressive disorder and mild subclinical hypomanic symptoms may be at increased risk of developing bipolar disorder (Fiedorowicz et al., 2011).

1.3. IDENTITY

Analysis of theory and research around depression, anxiety and bipolar disorder suggests that identity may play a significant role across all three types of psychopathology. Key features of the cognitive theory of depression (Beck et al., 1979), which has also been applied to anxiety (Beck et al., 2005) and bipolar disorder (Newman et al., 2002), are negative self-schemas or dysfunctional attitudes, and a self-aspect of the negative cognitive triad. This suggests that an individual's perception of the self may be a key factor in their mental health outcomes. Additionally, rumination has been suggested to be a potential vulnerability factor across all three psychopathologies (Feldman et al., 2008; Jones et al., 2006; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema, 2000; Nolen-Hoeksema et al., 2008; Thomas et al., 2007; Watkins & Roberts, 2020). Given that rumination focuses heavily on the self and self-referent material (Nolen-Hoeksema, 1991; Watkins, 2008; Watkins & Roberts, 2020), increased elucidation of the relationship between self, ruminative thought processes and psychopathologies may be helpful in reducing the impact of negative perseveration. Finally, it appears that discomfort with the self may play a contributory role in psychopathology. In depression and anxiety, self-discrepancies (differences between the self that one is, and the self that one aspires to be) appear to be a contributory factor to psychological distress (Mason et al., 2019), while in bipolar disorder the depression avoidance hypothesis, or manic defence, suggests that mania may be an adaptive attempt to mask low self-esteem and protect the individual from negative affect (Granger et al., 2021; Neale, 1988). These combined findings suggest that research into the role of the self in psychopathology may open new areas of study and potentially inform clinical interventions.

This thesis will investigate the role of self in non-clinical populations, for a number of reasons. 1) The subclinical forms of all three psychopathologies are considered to be risk factors for later escalation to clinical significance. Understanding impact at a subclinical level may provide early intervention which could prevent escalation, potentially saving both distress to the individual and cost to the state. 2) Many of the symptoms and difficulties experienced at a clinical level are also experienced in subclinical disorders, contributing to DALYs and to distress suffered by the individual. 3) Taking a dimensional view of psychopathology and expanding research on subclinical populations will inform a wider subject area. 4) The subclinical population is larger than the clinical population, allowing results to be generalised to a greater number of people. 5) A non-clinical population will not be subject to confounding variables such as medication and will be easier to access.

1.3.1 Definition

Before analysing the role it may play in psychological distress, it is necessary to consider what the term 'identity' represents, given the varying contexts in which it has been used, and the lack of consensus across different fields on what the term defines, its content, and the processes by which it is formed, maintained and changed. A consolidated understanding of how a person's sense of self impacts wellbeing has been clouded by differences in terminology across approaches, with terms such as "identity" and "self" or "self-concept" being used interchangeably or, conversely, to describe different concepts. According to the APA Dictionary of Psychology (VandenBos, 2007) identity is an individual's sense of self, defined by their unique physical and psychological characteristics and their social and interpersonal affiliations, roles and category memberships. Sense of self is defined as "an individual's feeling of identity, uniqueness and self-direction" (VandenBos, 2007). A review of theories of identity and self demonstrates that, in research, these concepts are often combined or overlapped. For the purposes of this thesis, Oyserman's definition of identity will be used, that is: "the traits and characteristics, social relations, roles and social group memberships that define who one is" (Oyserman, 2001).

The various identities we hold for past, present and future selves combine to form the self-concept, which has been described in different areas of research as what comes to mind when one thinks of oneself (Neisser, 1993; Stets & Burke, 2003; Stryker, 1980; Tajfel, 1981), the theory one holds about one's personality (Markus & Cross, 1990), the beliefs an individual holds about their abilities, behaviour and defining characteristics (Harter & Leahy, 2001), the mental concept of who one is, was, and will become (Oyserman et al., 2012) and what one believes is true about oneself (Baumeister, 2010; Forgas & Williams, 2002). For the purpose of this thesis, the definition of the self-concept that has been used is its theorisation as a cognitive schema organising self-relevant memories and processing self-relevant information (Kihlstrom & Cantor, 1984; Markus & Cross, 1990) and consisting of content components and structure components (Campbell et al., 1996). Content components comprise both knowledge and evaluative components (Campbell, 1990). Knowledge components are those upon which conceptualisation of the self (who and what am I?) is based, and include beliefs about attributes, abilities, goals, roles, and values. Evaluative components define how an individual feels about themselves, and include self-esteem, the degree to which one's attitude to oneself is favourable or unfavourable (Rosenberg, 1965), and the positive or negative evaluations of specific self-beliefs (Campbell et al., 1996). Structure components relate to the organisation of this self-referencing information (Campbell et al., 1996). Self-concept clarity is a

structural component of the self-concept, and is defined as 'the degree to which the self-concept is clearly and confidently defined, temporally stable and internally consistent' (Campbell, 1996, p.141).

When reviewing the body of identity research, and related interpretations of self-concept, theories and approaches can usually be loosely grouped as either personal/individual or relational/collective, both in terms of what is being studied as content of identity, and the processes involved in development and maintenance of identity. Sedikides & Brewer (2001) proposed that identity has three aspects: individual (defining self by unique traits that differentiate the individual from others), relational (defining self by role and position within dyadic relationships) and collective (defining self by membership of 'ingroups' to which one belongs, and comparison to 'outgroups'). Considering identity from these multiple aspects provides support for the conclusions of Schwartz, Luyckx, & Vignoles (2011), who compellingly argue that differences in definition underlie much of the identity debate. Aspects of identity may be viewed as simultaneously individual, relational and collective, at both a content and a process level. For example, a politician is a politician as an individual, relationally to others, and collectively as part of a group; likewise the process by which they made that choice could be a personal decision, a decision in response to inspiration from a parent or mentor, or a choice to make a difference at a collective level – or indeed, all of these things simultaneously.

The self-construals that make up identity are constructed via our capacity for reflective thought (Piaget, 2014) and are central, essential and important to who we are (Markus, 1977; Sedikides & Green, 2000). Identity is not something that is passively accepted, but actively engaged with, whether this is viewed as a process of development or construction; it involves a combination of cognition, motivation and action (Gregg et al., 2011). Identity is important to people because it carries affect (Leary, 2007). Self-reflection on aspects of the self, such as traits, roles or achievements in terms of group memberships, may bring negative emotional responses, which suggests there might be an important relationship between identity and psychological distress.

If identity answers the question "Who am I?" (Schwartz et al., 2011), then the traits, roles, beliefs and values that become integrated into self-concept must be those that have been interpreted as possessing both personal and social meaning for the individual, and applied to define them either as a person or as a member of a group (Schwartz et al., 2011). That being the case, it may logically be expected that beliefs about how those attributes are perceived – personally, relationally and socially – will have an impact on the individual, in multiple aspects of life including their likelihood of achieving their desired goals, and promoting their psychological wellbeing. Therefore, rather than semantics of identity definition, the most pertinent question may be how identity impacts people's

life outcomes, in terms of their ability to achieve their goals and to experience psychological wellbeing.

For the purpose of this thesis, the narrative identity approach will be used. This approach is a full theory of personality influenced by multiple psychological perspectives, including cognitive, social, developmental and personality psychology (Hooker & McAdams, 2003; McAdams, 2018; McAdams & Pals, 2006). It was selected because its approach acknowledges individual, relational and social influences on the self, and a personality which is simultaneously single and multiple, stable and fluid. In investigating how identity influences psychopathology, one of the key aspects will be understanding how the individual makes sense of their story, and the various influences which are integrated into their perception of self.

1.3.2 Narrative Identity

Narrative identity is an internalised and continuously evolving story of the self that provides an individual's life with a sense of unity, purpose and meaning, combining a reconstructed past with a constructed future to create a composite of one's developmental progress, emotional commitments, beliefs and values, and a justification of the self in past, present and future (McAdams, 2018). The development of narrative identity is proposed to begin in adolescence and to continue throughout life.

The idea that adolescence is a pivotal period in identity development was not new. Deriving from psychoanalytic theory, the theory of psychosocial development (Erikson, 1959) is based around the central concept of identity. Ego identity is that element of identity that enables people to have a sense of who they are, and provides a sense of continuity such that people are able to act upon that sense of self in habitual ways (Erikson, 1968). The theory suggests eight stages of ego growth (infancy, early childhood, play age, school age, adolescence, early adulthood, middle age, old age), each of which is defined by a particular psychosocial crisis. Adolescence is defined as 12 – 18 years, and the crisis at this stage is identity vs. confusion, where the young person must experiment with and develop identity and roles (Erikson, 1968). This is a time of profound change, where one is moving from childhood towards adulthood, and must start to actively project into the future to assess potential life choices, in preparation for becoming independent. The psychosocial ego identity development task here is integrational, as continuity must be maintained between childhood identity and projected future identity, while integrating the whole into society (Kroger &

Marcia, 2011). Narrative theory was therefore not instrumental in its proposal of identity development over time, with a pivotal point in adolescence. However, narrative theory extended the implicit suggestion of psychosocial theory that narrative is the instrument through which identity is developed and maintained (Cohler, 1982).

The original narrative identity theory (McAdams, 1985) amalgamated the personological approach, an idiographic approach focusing on interaction between psychological needs and environmental input (Murray, 1964) and the concept of ego identity, the sense of self that an individual develops through social interaction (Erikson, 1963). McAdams (1985) used Murray's personological framework to move the process based identity formation of Erikson into a product-based formula of identity that could be studied as an entity. This line of research complimented the work of Bruner (1987) which proposed life itself to be a narrative, and that of Cohler (1982) which suggested that narrative is the instrument by which identity is developed in adolescence, and actively integrated and maintained through the life course. The life story theory of identity suggests that during late adolescence and early adulthood, young people begin to construct their lives as a narrative, integrating past experience and future plans, to provide a unified and coherent sense of understanding and purpose (McAdams, 1985). In this theory, the important individual differences in psychological wellbeing are based around differences in the structure and content of the narrative identity (McAdams, 1985). Recent research suggests three factors of life narratives: motivational and affective themes, autobiographical reasoning, and structural aspects, with motivational and affective themes being the factor most closely related to wellbeing (McLean et al., 2020).

A review of literature highlights a disparity of the ways in which research has used narrative identity to examine wellbeing, but nevertheless findings support for narrative identity as a valid cross-sectional indicator and prospective predictor of wellbeing, with themes of motivation, affect, integrative meaning and structure being identified (Adler et al., 2016).

1.3.3 The Life Story and Autobiographical Reasoning

Narrative identity additionally allows individuals to make sense of themselves as changes occur in their lives, for example in their relationships or careers, by integrating the change into their narrative through the process of autobiographical reasoning, allowing motivated change (Habermas & Köber, 2015b). Maintaining a sense of self-continuity over time is considered to be vital to human functioning (Dweck, 2017).

The narrative identity is identity created through the life story (Adler et al., 2016; McAdams & McLean, 2013; McLean et al., 2007; Singer et al., 2013). The life story is the subjective versions of one's life as told, remembered or thought about by the individual (Bluck & Habermas, 2000). It allows different aspects of the self to be integrated and to function harmoniously together, and serves to define a person's individuality, express their subjective sense of identity (Habermas & Reese, 2015), and create self-understanding and a sense of self-continuity (Pillemer, 1998). Importantly for implications to psychopathology, the aspects of the self are not only who we believe we were and are, but also our possible selves, both who we hope and who we fear to be (Markus & Nurius, 1986). Essentially, the life story is a mental representation of a person's life, designed to provide a coherent and credible account of past, present, and future (Habermas & Bluck, 2000; McAdams, 2001). It provides purpose and meaning, and a map to understanding how one developed into the person they are currently (Adler et al., 2016; McAdams & McLean, 2013; McLean et al., 2007; Singer et al., 2013) and with traits, goals and roles makes up the conceptual self (McAdams, 2013).

Autobiographical reasoning is the process by which the life story is formed and used (Bluck & Habermas, 2000). According to Habermas and Bluck (2000), the four types of coherence required to accomplish this are temporal coherence (Friedman, 1993), which requires the timeline of the life story to make sense; biographical coherence (Conway & Bekerian, 1987), which refers to the normative cultural expectations of events that should be included in a life narrative; causal coherence (Bruner, 1994; Robinson, 1996), which links episodes and explains changes in personality or values; and thematic coherence (McAdams et al., 1997; Singer & Salovey, 1993), which establishes thematic similarity between life elements. The life story may contain elements which are implicit around basic life motives such as power and intimacy, or explicit around turning points at which significant changes for the better of worse have occurred (Bruner, 1994) or at the conclusion of an evaluative statement (Bluck & Habermas, 2000). Mixed findings on the contribution of autobiographical reasoning to wellbeing, which suggest that this can be either positive (Adler et al., 2016; Mitchell et al., 2020) or negative (McLean & Mansfield, 2011; Reese et al., 2017; Sales et al., 2013; Waters & Fivush, 2015), support a benefit to understanding how this process impacts psychopathology, potentially through the content of memory of personal events. Little research has been done in this area as yet, though recent findings have suggested that coherence is related to depression, but not to anxiety (Kapoor et al., 2023). It also raises the question of underlying differences that may cause variance in autobiographical reasoning.

A culturally and socially influenced (Fivush & Haden, 2003; Habermas & Bluck, 2000; McAdams, 1993) life narrative starts to develop around the age of three as a child begins to understand human

motivations and develop theory of mind, the ability to impute a mental state to self and others (Baron-Cohen, 1997). However, the ability to form a biographic narrative incorporating causal events does not develop until adolescence (Bluck & Habermas, 2000). Potentially, autobiographical reasoning skills become more helpful as they develop with age, which is supported by the number of studies showing negative consequences of autobiographical reasoning where participants are adolescent (McLean & Mansfield, 2011; Reese et al., 2017; Waters & Fivush, 2015). Causal coherence has been identified as specifically reducing depressive symptoms and rumination and improving wellbeing and life satisfaction in an adolescent sample (Mitchell et al., 2020). This may suggest a requirement for self-concept clarity (see section 1.3.6. page 27).

In summary, life stories function to let people know who and what they are (Habermas & Bluck, 2000); and moreover to allow them to continue to know who and what they are, in the face of change, which may comprise moving through very disparate spheres in life, and of potentially conflicting roles, beliefs and values, via the process of autobiographical reasoning. For example, a person who has been an environmental activist might some years later be working as an executive in a law firm representing large firms whose environmental credentials had been questioned; or someone who views themselves as assertive, in control and successful in their professional life may be submissive or shy in their personal life. It also allows for cognitive dissonance (Festinger, 1962), where beliefs do not align with actions, for example, a doctor who smokes, or a health coach who eats junk food and fails to exercise. The life story explains these varying aspects and changes, and the autobiographical reasoning process allows the individual to make sense of their life path and maintain an integrated sense of self. Positivity in both life story and reasoning processes is suggested to have a beneficial impact on wellbeing (Adler et al., 2016).

1.3.4 Central Objects

One point of focus for the life story and the autobiographical reasoning that forms it may be objects which are central to the sense of identity (see section 1.2.1, page 9). The loss of such objects has been discussed with regard to rumination, but from an identity standpoint, it may impact both the life story and autobiographical reasoning. Such central objects may be expected to form part of the narrative identity in which individuals make sense of their lives. They may be key turning points in the life story (McAdams & Bowman, 2001; McLean & Pratt, 2006) which may be especially significant for those who have limited alternative resources or who have experienced trauma, such as young people leaving the care system (Pinkerton & Rooney, 2014).

The Multiple Self-Aspects Framework (McConnell, 2011) proposes that self is represented in an associative network, with the self-concept comprising multiple self-aspects that are activated in different contexts. Self-aspects may be roles, social identities, relationships, affective states and behavioural situations; and therefore cover the roles, goals, private and public selves and relational and collective identities that have been categorised as "self" in other psychological theories. This is not inconsistent with narrative theories of identity (see section 1.3.2, page 21), as the theory also recognises a higher level unitary self-representation developed over time through self-awareness and reflection (Baumeister et al., 1998) which is consistent with a life story narrative. Personal attributes may be associated with one or multiple self-aspects, and it is proposed that feedback in one self-aspect may impact other self-aspects with which attributes are shared (McConnell, 2011), therefore loss of a self-aspect could impact other self-aspects with shared attributes, and impact wellbeing in other areas of a person's life. Some self-aspects are more important than others to an individual's sense of self (Sedikides & Skowronski, 1995), suggesting loss of some aspects would carry more affective weight than others. Affective appraisals are considered to arise from appraisals of self-aspects, with more weighting to the self-aspects that are more important or more accessible through frequent use (McConnell, 2011) so loss of a self-aspect which was central to identity could be expected to have a greater impact on wellbeing. It has been suggested (Linville, 1985; 1987) that multiple self-aspects reduce the risk of depression, as the diversity provides protection against loss of aspects; however, later research (Hards, 2020) found support for Beck's link between a negative view of the self and depression (Beck et al., 1979), but no support for the multiple aspects hypothesis (Linville, 1987). It is possible that the degree to which self-aspects can functionally coexist plays a role in psychopathology; for instance, the existence of multiple self-aspects which cannot be integrated into a coherent life story may reduce self-concept clarity (see section 1.3.6, page 27).

Although most research on event centrality has focused around trauma and the implications it has for beliefs about self, others and the world (Foa et al., 1999) due to the centrality of the event to the individual's identity (Berntsen & Rubin, 2006), event centrality has also been implicated in depression (Berntsen, 2007). The research on self-perseveration (Pyszczynski & Greenberg, 1987) and the social cognitive theory of reactive depression (Oatley & Bolton, 1985) (see section 1.2.1, page 9) are now old, but certain questions remain to be answered on whether object loss has an observable effect on depressive symptomology in a non-clinical population, and if so, what types of autobiographical reasoning may mitigate this effect? Additionally, the query could be extended to symptoms of anxiety, where self-perseveration has also been demonstrated (see section 1.2.2, page 12), and to hypomania, where loss of a central object could trigger either depressive symptomology, or manic symptoms in an attempt to mask implicit low self-esteem (see section 1.2.3, page 16).

1.3.5 Self-Esteem

Self-esteem refers to an individual's positive or negative attitude toward themselves (Rosenberg, 1965) and thoughts and feelings in relation to themselves (Alesi & Pepi, 2016). It is regarded as a personal psychological characteristic relating to self-judgment based on one's values as a person (MacDonald & Leary, 2012), however, the social aspect of self-esteem is also demonstrated by its importance as a proof of acceptance and belonging (Leary & Baumeister, 2000) and of living up to cultural values and social group expectations (Pyszczynski et al., 2004). A body of research supports self-esteem as a predictor of life success and wellbeing (Kuster et al., 2013; Marshall et al., 2015; Orth et al., 2009; Orth et al., 2012; Trzesniewski et al., 2006). Evidence suggests that self-esteem increases from adolescence to peak at between fifty to sixty years of age, and then declines (Orth et al., 2012).

The concept of self-esteem runs through the history of psychology and has existed since the very early days of research, from individual approaches (James, 1890) to symbolic interactionist approaches focusing on social influences (Cooley, 1902; Goffman, 1959; Mead, 1934). As the main theories (Abramson et al., 1978; Blatt et al., 1976; Brown & Harris, 1978) and research (Orth et al., 2008; Zeigler-Hill, 2013) relating self-esteem to psychological wellbeing have focused on global rather than domain-specific self-esteem, and as the psychopathologies being investigated are global constructs with symptoms across the affective, cognitive and somatic domains (Swann Jr et al., 2007), for the purpose of this thesis, self-esteem will be approached in a global context.

Some theoretical models have proposed that low self-esteem is a causal factor for depression (e.g. Beck, 1967), while others have proposed that depression is causal for low self-esteem (e.g. Coyne & Whiffen, 1995) due to scarring caused to the self-concept by depressive episodes. Experimental evidence supports self-esteem as a vulnerability factor for stress (Lee-Flynn et al., 2011; Treadgold, 1999) and a mediator between life stress and dysphoria (Chang, 2001).
A meta-analysis (Sowislo & Orth, 2013) found the impact of self-esteem on depression to be significantly stronger than the impact of depression on self-esteem, while the interaction between self-esteem and anxiety was comparatively balanced. It may be that another variable, such as self-concept clarity (see section 1.3.6, page 27), has a stronger influence in anxiety than in depression. There is, however, evidence of a relationship between anxiety and self-esteem, for example, a study has demonstrated a reduction in trait anxiety following an increase of self-esteem via induction of positive self-defining memories through the medium of hypnosis (Nourkova & Vasilenko, 2018) (see section 1.4.1, page 34).

Self-esteem has also been shown to be directly impacted by adverse childhood experiences (Solomon & Serres, 1999). Given evidence of relationships between childhood adversity, self-esteem, self-concept clarity and psychopathologies, studies investigating the role of self-esteem in psychological distress should also consider self-concept clarity.

1.3.6 Self-Concept Clarity

Self-concept clarity, which is 'the degree to which the self-concept is clearly and confidently defined, temporally stable and internally consistent' (Campbell, 1996, p.141), is an important structural component of the self-concept that is positively associated with self-esteem (Campbell et al., 1996). Self-concept refers to beliefs an individual holds about their abilities, behaviour and defining characteristics (Harter & Leahy, 2001). A consistency of attributes is required to form a unified self-concept (Higgins, 1987); it is possible that ongoing and consistent tension between self-concept and relevant self-guides, particularly the ideal self, may destabilise the unified sense of self. While the self-complexity buffering hypothesis (Linville, 1987) suggested that a complex cognitive representation of the self, cognitively organising knowledge in a greater number of self-aspects and maintaining a greater division among aspects, gives protection against vulnerability to stress, a review of literature (Rafaeli-Mor & Steinberg, 2002) found limited support for the original hypothesis that complexity is a buffer against stress. Complexity has not been viewed positively across all approaches, and indeed it has been suggested that what was being seen was not complexity, but rather fragmentation and lack of a core identity (Donahue et al., 1993). As it has been proposed that lack of structural integrity of the self may cause challenges in developing a sense of an enduring self (Crocetti et al., 2008; Crocetti et al., 2012) it may be that low self-concept clarity is a core issue.

Self-concept clarity is lower in participants who have experienced childhood adversity (Streamer & Seery, 2015). It has been proposed that an underdeveloped sense of self due to abuse and neglect in the early years leads to low self-concept clarity (Howe, 2017). One suggested mechanism is Identity Disruption theory (Vartanian et al., 2018), which posits that adverse childhood experiences (ACEs) interrupt the normal development process, leading to lower self-concept clarity, and a heightened need for external sources to define and support self-concept (Campbell, 1990).

Self-concept clarity is thought to be a pillar of stable self-esteem (Kernis et al., 2000). People with high self-esteem have a clear positive view of themselves, but people with low self-esteem do not have clear negative views of themselves (Campbell et al., 1996). This is important because

individuals with unstable self-esteem are more greatly affected by the events that happen in their lives and relationships and perceive themselves as having less control over change (Campbell, 1990). This is supported by evidence that individuals with low trait self-esteem and low self-concept clarity show lower implicit self-esteem on days where more negative events have been experienced (DeHart & Pelham, 2007).

A significant positive correlation has been demonstrated between self-esteem and self-concept clarity (Campbell et al., 1996) which is robust across different cultures (Cicei, 2012). Nevertheless, despite this close relationship, these concepts can be reliably differentiated from each other and can be treated as distinct variables (Campbell et al., 1996). However, interactions between self-esteem and self-concept clarity imply that, as has previously been suggested, (DeMarree & Bobrowski, 2017), there is a benefit to inclusion of self-esteem as a variable in studies examining self-concept clarity. For example, self-esteem mediates the relationship between insecure attachment and self-concept clarity (Wu, 2009). It is suggested that reduced self-concept clarity, especially around positive self-aspects, may exert a negative impact on behaviour, thoughts and emotions, given that responses to feedback, achievement and attribution are all explained at least as well by self-concept clarity as by self-esteem (Campbell, 1990). Biases in affect also appear to influence both self-concept clarity and self-esteem. For example, people with high self-esteem have been shown to accept only positive feedback, while people with low self-esteem are impacted by both positive and negative feedback (Campbell & Fairey, 1985). A potentially related effect has been demonstrated for self-concept clarity, with the relationship between negative events and self-concept clarity having been found to be much stronger than between positive events and self-concept clarity (Nezlek & Plesko, 2001). Relationships between trait self-concept clarity and both state negative affect and state self-concept clarity remained after controlling for differences in trait self-esteem, implying that unstable self-concepts may be easier to change, independent of self-esteem (Nezlek & Plesko, 2001).

Evidence also suggests that perception of early childhood experience may also mediate the relationship between self-concept clarity and self-esteem. For example, negative childhood experiences predicted high self-clarity when aligned with current self-esteem, and low self-clarity when not aligned (Streamer & Seery, 2015).

Although early research on psychopathology focused predominantly on content components, most commonly self-esteem, there is increasing focus on self-concept clarity and psychopathology (Cicero, 2017). There is good evidence that these elements of the self-concept play an important role in the development of psychopathology, notably depression and anxiety. The role of self-esteem in the

development of psychopathology has been well-researched. However, more recently there has been more interest in the organizational aspects of identity and how they may influence psychological wellbeing, and there is an increasing body of evidence suggesting its influence across various psychopathologies (Cicero, 2017).

Research linking self-concept-clarity and psychopathology is wide-reaching. Along with self-esteem, it is a vulnerability factor for stress (Lee-Flynn et al., 2011; Treadgold, 1999) and a parallel mediator between life stress and dysphoria (Chang, 2001). Self-concept clarity has also been shown to mediate the relationship between stress and subjective wellbeing (Ritchie et al., 2011) and between adverse childhood experiences (ACEs) and perceived stress, state depression and suicidal behaviour (Wong et al., 2019). It correlates negatively with depression (Treadgold, 1999) and higher levels of self-concept clarity have been associated with lower long term depressive symptoms (Lee-Flynn et al., 2011; Nezlek & Plesko, 2001) after controlling for self-esteem. ACEs predicted depression symptoms in a non-clinical sample via low self-concept clarity and intolerance of uncertainty as parallel mediators (Hayward et al., 2020). Self-concept clarity deficits have also been demonstrated in social anxiety (Orr & Moscovitch, 2015; Stopa et al., 2010), schizotypy (Polner et al., 2021), a set of temporally stable traits resembling symptoms of schizophrenia which are found in non-clinical populations (Ettinger et al, 2014), and in autism without intellectual deficiency (Coutelle et al., 2020). However, to the best of our knowledge, self-concept clarity has to date not been investigated as a mediator for trait depression or anxiety. Nor has self-concept clarity been investigated as a potential mediator for hypomania. An investigation in this field is important for three reasons. Firstly, the depressive element and underlying low self-esteem within bipolar disorder (see section 1.2.3, page 16) suggest self-concept clarity also may mediate this relationship. Secondly, there is a high incidence of childhood trauma reported in the population presenting with bipolar disorder, with a history of childhood abuse, predominantly emotional abuse, found to be the strongest predictor of predisposition to mania in a non-clinical sample (Reid, 2005). Thirdly and most importantly, there is various evidence that people with bipolar disorder have extreme conflicting positive and negative beliefs (Mansell & Scott, 2006) including positive and negative self-esteem (Scott & Pope, 2003) and independence and autonomy (Scott et al., 2000) which may relate to self-concept clarity and which may be detectable, and reactive to intervention, at subclinical levels.

It has long been accepted that that people seek out self-consistent feedback and avoid self-inconsistent feedback, even when it confirms a negative self-conception, in line with the “selective exposure” hypothesis of cognitive dissonance theory (Festinger, 1962). In considering any interventions which might reinforce a stable self-concept, it is clearly vital to reinforce a positive self-concept which is also believable to the individual. However, findings from existing research suggest

a benefit to understanding the impact of low self-concept clarity across common psychopathologies. Potentially, increasing understanding in a subclinical population could facilitate interventions supporting a more stable self-concept and increasing well-being. Understanding whether low self-concept clarity necessarily derives from childhood adversity, or whether interventions could also be helpful for those undergoing current trauma, could also be helpful.

1.4 AUTOBIOGRAPHICAL MEMORY

If the self-concept is a cognitive schema organising self-relevant memories and processing self-relevant information (Kihlstrom & Cantor, 1984; Markus & Cross, 1990), a database for storage of such memories, and a process for their retrieval, is required in order to provide a source and a mechanism for construction of identity and self-concept. As individuals have far more personal memories than can possibly be recalled or selected for self-definition, this thesis will also consider the relationship between identity and self-relevant memory, and how memory processes, content and function may impact identity and, consequently, psychopathology.

Autobiographical memories are memories of personally experienced past events. According to the self-memory system (SMS) model of memory (Conway et al., 2004), a memory store, the autobiographical knowledge base, categorises stored autobiographical memories at three levels of specificity: life story schema, lifetime periods and general events. At the highest level, the life story schema situates the individual's life story in a wider social cognitive context, providing the background that individuals need to construct identity (McAdams, 1993). Lifetime periods (e.g. *"when I lived in Wolverhampton"*, "*when I was at University*") may be linked to form higher order themes, and may also become associated with certain attitudes and preconceptions which are later available as self-evaluative knowledge in memory reconstruction (Conway et al., 2004). General events involve both repeated and extended events but appear to also contain memories relating to success or failure in goal achievement (Robinson, 1992). Specific episodic memories, the sensory-perceptual memories of individual single events, are considered to be held in a separate episodic memory system (Conway et al., 2004).

According to Conway & Pleydell-Pearce (2000), memories are not static, but dynamically constructed through activation across the cue-sensitive autobiographical knowledge base and the working self, a complex set of active goals and associated self-images which is conceived as both modulating access to the knowledge contained in the knowledge base, and being constrained by its content (Conway, 2005). It is proposed that memories can be retrieved either generatively or directly (Conway & Pleydell-Pearce, 2000). The key distinction between general and direct retrieval is that generative

retrieval is a resource intensive, conscious strategic search for memories in the context of a specific goal or task, while direct retrieval is an automatic and unconscious retrieval from the memory database in which memories appear to come to mind spontaneously. In generative retrieval, a cue activates knowledge in the autobiographical knowledge base, usually at general event level, which activates associative networks, making activated knowledge available to the retrieval model and control processes; the memory is formed when a stable pattern of activation is created across the relevant indices and linked to the retrieval model (Conway & Pleydell-Pearce, 2000). Direct retrieval occurs when an externally or internally generated cue directly activates a single episodic memory; this activates a single general event, which activates a single lifetime period, and the memory is formed; only then do the working self-goals become activated.

It has been claimed that we know ourselves through autobiographical memory (Fivush & Haden, 2003), and autobiographical memories (recollections of personally experienced past events) are considered vital to sense of self and emotions (Conway & Pleydell-Pearce, 2000). These memories act as a resource for amending or maintaining the self (Robinson, 1986) and support and validate an individual's self-schemas, the packages of knowledge developed during childhood which store information about self and the world (Habermas & Bluck, 2000). According to Fivush, Habermas, Waters and Zaman (2011) autobiographical memory is necessary to provide a continuous sense of self, provide information to guide future behaviour, create and maintain a network of social support, and provide a coping mechanism for negative experiences.

1.4.1 Autobiographical Memory and the Self

Conway et al. (2004) uses the construct of the long-term self to define the representation and database of identity within autobiographical memory. The long-term self has two components: the conceptual self, a set of socially constructed schemas that help to define the self, others and interactions, and the autobiographical knowledge base, which defines three levels of specificity of stored data; life story schema, lifetime periods and general events (Conway et al., 2004) (see section 1.4, page 30).

The self-memory system (SMS) (Conway & Pleydell-Pearce, 2000) embeds self-schemas into the concept of the working self, incorporating them into a model of autobiographical memory. Self-schemas are cognitive generalisations about the self, which have been derived from past experience, and serve to organise and guide the processing of the self-relevant information contained in an individual's social experience (Markus, 1977), so the role and function of autobiographical memory

in relation to identity and affective disorders is important. Individuals have multiple self-schemas which are active at different times and influence behaviour and cognition (Markus & Ruvolo, 1989).

Given that the working-self influences what is activated or inhibited at any given time, vitally ensuring that memory retrieval is not disruptive to ordinary functioning, a filtering process is applied to memories retrieved into consciousness (Conway & Pleydell-Pearce, 2000). According to Conway et al (2004), autobiographical memory must balance the requirements of providing an 'experience-near' record of ongoing goal activity ('adaptive correspondence') and a stable and coherent record of self in relation to the world ('self-coherence'). The control processes of working-self ensure that memories providing self-coherence are highly available (McAdams, 2001). Therefore, memory cannot be seen as an impartial record of past events; if memories need to conform to self-coherence, then what is encoded and what is retrieved will be controlled by the working-self and must align with self-concept. This mechanism may have long-term implications; if self-concept is negative, potentially the working self may filter out retrieved memories so that only negative information conforming to self-coherence requirements is processed. This would align with Beck's model (1979) of a negative self in the cognitive triad in depression (see section 1.2.1, page 8), and additionally a self that is focused on anxiety related concerns in anxiety related disorders (Beck et al., 2005) (see section 1.2.2, page 10), and conversely to filter for positive information and to be positive and euphoria related during the manic phase of bipolar disorder or where hypomanic symptoms are high (Newman et al., 2002) (see section 1.2.3, page 13).

An important distinction raised by Bluck and Habermas (2000) is that to be deemed truly autobiographical, memories need to be of sufficient significance to be included in an individual's life story. Such memories would be either highly self-relevant at the time of encoding, or retain significance at the time of retrieval (Conway & Holmes, 2004). The hypothetical construct of the life story schema (Bluck & Habermas, 2000) binds autobiographical memory and self over time. The life story schema contains the life narratives and autobiographical arguments that provide the basis for autobiographical reasoning (Habermas & Köber, 2015b), the process by which the life story is used and formed (Habermas & Bluck, 2000) (see section 1.3.3, page 23). Narrative approaches support the need to make sense of ourselves and the changes in who and what we are over time (McAdams, 1993), and autobiographical reasoning provides the ability to do so, linking disparate elements of the life story and changes and developments in identity (Habermas & Köber, 2015b).

A true autobiographical life story may become possible in adolescence because this is the stage at which the narrative becomes truly biographical, and autobiographical memory is integrated as an essential part of identity formation (Habermas & Paha, 2001). It is notable that this is the period at

which a number of great changes and important life events will frequently be occurring, and a reminiscence bump, the tendency for older people to recall more personal memories from between the ages of ten and thirty, often occurs in autobiographical memory (Munawar et al., 2018) which has been suggested to support the emergence of a stable and enduring self (Rathbone et al., 2008). Autobiographical memory has been demonstrated to support both a positive and a negative sense of self, with experimental evidence showing clusters of negatively or positively valenced memories clustered around time periods aligning with formation of positive and negative self-aspects (Rathbone & Steel, 2015).

Though autobiographical memories are widely agreed to comprise both episodic and semantic self-knowledge (Baddeley, 1992), research on autobiographical memory has focused primarily on episodic memory, to the exclusion of semantic self-knowledge (Klein, 2001). Semantic self-knowledge, comprising the facts and details about the self without memory of the event from which they were derived (Baddeley, 1992), underpins how we define ourselves internally and to others, and forms part of the content component of self-concept (Campbell, 1990). It has been proposed that the narrative self has a role in the selection of episodic autobiographical memories (Dings & Newen, 2021), and therefore influences the content of semantic self-knowledge. This complex bidirectional relationship between self and memory suggests that one way in which identity may influence psychological wellbeing is through preventing selection of memories which support positive semantic self-knowledge, thereby reinforcing negative self-schemas. One valid challenge to research on overgeneral memory (see section 1.4.2, page 38) is that a focus on specificity alone does not account for the depth of personally relevant information that is held in semantic memory. Semantic self-knowledge contains information about lived experiences, relationships, and the traits, roles and beliefs that form the semantic self-image (Rathbone et al., 2015), but retrieved memories that do not qualify as episodic (i.e. a personally experienced event lasting less than one day) are discounted in studies on overgenerality. Given that it has been demonstrated that identity can be maintained even after extensive loss of episodic memory, such as in amnesia, it has been proposed that semantic self-knowledge mediates the relationship between episodic self-knowledge and identity (Haslam et al., 2011). The SMS model (Conway et al., 2004) acknowledges a bidirectional flow of information between the working self and both episodic autobiographical memory and in-depth autobiographical knowledge, but does not analyse interactions between personal episodic and semantic memory. By collecting data referencing only episodic memories, information relevant to identity may be missed.

Within the narrative identity, certain autobiographical memories are so vivid and emotionally charged that they have an impact on an individual's perception of themselves, and become what has

been termed self-defining memories (Singer & Salovey, 1993). These are the memories that are very familiar, clear and important, that help a person to understand themselves, and that they might use to describe to a friend if they wanted to help the friend to understand them on a more fundamental level. For example, this might be a memory of a critical relationship or career choice, an emotionally important decision, or a vital success or failure. Compared to other autobiographical memories, self-defining memories are more intense, vivid, and are rehearsed more frequently. They are also have strong links to other memories with a common narrative theme, and reflect enduring concerns or unresolved conflicts (Singer & Salovey, 1993). Within the SMS model (Conway et al., 2004), self-defining memories are considered to be strong integrated personal scripts within the conceptual self, thematically linked to knowledge in the autobiographical knowledge base. In script theory (Tomkins, 1978) self-defining memories ground action/affect/outcome narrative sequences in specific autobiographical memories; for example, one knows how to behave in a restaurant or at a meeting because it has been experienced before, and therefore has an understanding of what will happen, how they should behave in their role, and what the expected outcomes might be. It might logically be presumed that previous exposure to experiences that have been unpleasant will create negative future expectations; and that if these outcomes are linked to what Tomkins calls 'personal scripts', which represent goals and plans, they may have a detrimental impact on both self-concept and motivation.

It has been suggested that self-defining memories may be specifically implicated in psychological distress (Singer et al., 2013; Singer & Conway, 2011). Sumner et al. (2013) found support for self-defining memory narratives as an alternative source for measuring autobiographical memory specificity in relation to depression, and additionally found evidence of a relationship between reduced specificity of self-defining memories and depression. It has been posited that if self-defining memories contain content that may threaten self-esteem, there may be a relationship with anxiety and depression (Berntsen & Rubin, 2007), and supporting a relationship between these factors, a study has demonstrated a reduction in trait anxiety following an increase of self-esteem via induction of positive self-defining memories through the medium of hypnosis (Nourkova & Vasilenko, 2018). SDMs in bipolar disorder have been found to be more negative, less integrated and to contain more tension that SDMs in a control group (Raucher-Chéné et al., 2021). Investigating the role of intrusive images in the onset and maintenance of psychological disorders, Cili and Stopa (2015a) propose that coping behaviours across psychopathologies may be a result of activation of a working self (see section 1.4, page 31) with the goal of distancing themselves from the intrusive image. It was also demonstrated that recalling positive self-defining memories induced higher state self-esteem (see section 1.3.5, page 26) than recall of negative self-defining memories, and that this

influenced additional aspects of self, such as self-concept clarity (see section 1.3.6, page 27) (Cili & Stopa, 2015b).

Affect arising from self-defining memories has been shown to be linked to goal attainment and avoidance of undesired outcomes (Moffitt & Singer, 1994) and to impact self-concept, attitudes and behaviour (Pillemer, 1998). One area in which this may potentially have an impact is in hypomania, where the manic defence hypothesis (Neale, 1988) suggests unrealistic goals and unstable self-esteem combine to contribute to development of bipolar disorder in vulnerable individuals (see section 1.2.3, page 16). If grandiose self-appraisals and goals are viewed as an attempt to protect self-esteem from negative events and cognitions, then grandiose goal appraisals in an attempt to avoid thoughts of underlying low self-esteem may increase positive affect in expectation of goal achievement. Additionally, the self-aspect of the cognitive schema may be focused on euphoria-related thoughts (Newman et al., 2002) (see section 1.2.3, page 15), inclining the working self to retrieve memories supporting a positive view of the self. Dysphoric (see section 1.2.1, page 8) or anxious (see section 1.2.2, page 11) mood which would suggest a negative cognitive triad linked to depressed or anxious views of the self (Beck et al., 2005; Beck et al., 1979) may lead to retrieval of negative self-defining memories and lowering of affect.

Memories may relate to narrative themes of either redemption or contamination (turning bad life scenes to a positive, or good life scenes to a negative), which provide positive or negative feedback to individuals about self, others or the world; there is evidence of a relationship between psychological wellbeing and the proportion of either redemption or contamination memories retrieved in life histories (McAdams et al., 2001), with positive affect arising from redemption memories and negative from contamination memories. Pillemer (2001) suggested integration of a contamination memory into an overarching positive theme may reverse its negative effect, which aligns with cognitive reappraisal theory of emotion regulation (Gross, 2002); changing the way in which one thinks about a memory changes its affect. However, it is also possible that how we think about ourselves will change affect, for example, positioning oneself as a victim or a survivor.

If traumatic events, or events causing depressive cognitions, become anchor events (Pillemer et al., 1999) or self-defining memories (Singer et al., 2013), they become central to the life story and sense of self (McAdams, 2006) and as such, highly available for retrieval (McAdams, 2001). This high availability of negative self-referent memories likely to cause low mood may support maintenance or recurrent of depressive symptoms, given phenomena observed in the functionality of memory in depression. Retrieval of a positive self-defining memory does not increase positive affect, independent of rumination (Werner-Seidler & Moulds, 2014). However, mood has been

demonstrated to play a role in memory retrieval, with recovered depressed patients showing no variance from controls in the quality of memories recalled while in neutral mood, whereas in low mood more vivid negative memories and less emotional positive memories were recalled (Werner-Seidler & Moulds, 2012). Taken together, these points support Teasdale's differential activation hypothesis, which states the likelihood of dysphoric mood activating negatively biased interpretations of experience, which in those with a history of depression exacerbates dysphoric mood state and leads to recurrence of clinical depression (Teasdale & Dent, 1987). This creates a cycle of depression in which people inclined to negative affect have negative cognitions, leading to depressed mood and depression, leading to more negative affect (Teasdale, 1988). If an individual has highly accessible negative self-defining memories, these may support this depressive cycle.

After a traumatic or depressive event sufficiently important to the individual to become self-defining, the self-memory system (SMS) model (Conway et al., 2004) suggests the focus of the autobiographical memory system would move from adaptive correspondence, the function of recording experience-near goal-related activity, to self-coherence, the function of maintaining a stable record of the self's interaction with the world, in an attempt to protect the self and prevent information highly discrepant to the self-concept coming into consciousness. It has been demonstrated that people seek out self-consistent feedback and avoid self-inconsistent feedback, even when it confirms a negative self-conception, in line with the "selective exposure" hypothesis of cognitive dissonance theory (Festinger, 1962), commonly referred to as 'confirmation bias'. An individual's identity may therefore be strongly influenced by a central, self-defining event, and maintained by selective processing of information due to filtering carried out by the working self, which will restrict accessible memories to those conforming to self-coherence.

There is evidence across disorders of individuals focusing on negative events, or reporting them as highly self-referent (Berntsen et al., 2011; Schuettler & Boals, 2011). A working self bias in bipolar disorder is supported by a relationship between a history of hypomanic symptoms and enhanced retrieval of memories describing more positive relationship events (Robyn et al., 2012), a finding which also supports the theory of a euphoria-based cognitive trial of self, others and the world (Newman et al., 2002). However, these participants also described less goal achievement events (Robyn et al., 2012), and in a separate study, participants with bipolar disorder reported self-defining memories which contained tension, life-threatening events, and negative emotion (Raucher-Chéné et al., 2021). Initially, these findings appear to be conflicting, however they support the model of bipolar disorder mood swings proposed by Mansell et al. (2007) (see section 1.2.3, page 16) which suggests that dysfunctional beliefs about internal states support mood swings and manic and depressive episodes. The underlying conflicting dysfunctional beliefs of individuals with bipolar

disorder may reflect an underlying low self-concept clarity (see section 1.3.6, page 27) . A significant observation is that hypomania-prone individuals reported more tension-related events which were integrated into their self-structure (i.e. events they believed had contributed to their understanding of self, others or the world (Robyn et al., 2012), while bipolar participants had less integrated self-defining events (Raucher-Chéné et al., 2021) supporting the idea that as individuals with bipolar disorder are more likely to have experienced stressful childhood events (Grandin et al., 2007; Reid, 2005) and that these may have been integrated into their cognitive schema, mania may provide some sort of adaptive function. In both hypomania prone individuals (Robyn et al., 2012) and individuals with bipolar disorder (Raucher-Chéné et al., 2021), deficits in future projection were observed, which supports earlier findings (Berntsen & Bohn, 2010). Potentially, lack of self-concept clarity (see section 1.3.6, page 27) may make future projection challenging, given that it is logically more difficult to imagine oneself in the future if one does not have a clear image of the self in the present to build upon.

A further point of consideration comes from a phenomenological study of affectivity and narrativity in depression (Bortolan, 2017). Findings suggest that the loss of feelings common to depression make the autobiographical narrative seem to no longer belong to the self, weakening the sense of identity. Autobiographical narratives in depression show repetitive, ruminative thought patterns and contain overgeneral descriptions. Other research has pointed out self-defining memories with themes around illness, trauma and loss, and pervasive disruption to their narrative content, hedonic tone and meaning-making, negatively impacting narrative identity (McKay, 2013). Potentially, this loss of the feeling of self may pertain across other disorders, specifically in hypomania where there is a dysfunction around self-aspects. Investigation on the self-coherence of patients' identity through their self-defining memories may provide additional insight in subclinical disorders and assist with interventions that may help with projecting oneself adaptively into the future.

1.4.2 Autobiographical Memory Specificity

Importantly, changes in autobiographical memory have been implicated in the onset and maintenance of a number of mental health conditions (Barry et al., 2021). This work is largely based on the findings of Williams and Broadbent (1986) who used the Autobiographical Memory Test (AMT) to examine autobiographical memory retrieval in suicide attempters. The AMT involves asking participants to retrieve specific autobiographical memories – that is, memories of a personally

experienced event lasting less than a day - in response to cues (usually words). Williams and Broadbent (1986) showed that suicide attempters had difficulty retrieving specific memories, particularly in response to positive cues, which the authors termed 'overgeneral memory'. Subsequent research has confirmed that overgeneral memory, in response to both positive and negative cues, occurs across a variety of mental health disorders including depression (Williams et al., 2007; Barry et al., 2021), bipolar disorder (Boulanger et al., 2013; Mansell & Lam, 2004), hypomania (Delduca et al., 2010), post-traumatic stress disorder (Brown et al., 2013) and eating disorders (Bomba et al., 2014; Kovacs et al., 2011). Importantly, overgeneral memory persists in participants who are in remission from depression (Halford et al., 2022), which suggests it is a trait phenomenon, which might be a risk factor for the development of psychopathology. In line with this notion, overgeneral memory has also been linked to symptoms of psychological distress in non-clinical samples including depression (Romero et al, 2014), trauma (Neufeind et al., 2009) and disordered eating (Ridout et al., 2015). OGM has been linked to impaired problem solving (Goddard et al, 1996; Noreen et al., 2014; Noreen & Dritschel, 2022), problems imagining future events (Williams et al., 2007) and slower recovery from affective disorders (Halford et al., 2021). Overgeneral memory has also been implicated in the onset of depressive symptoms in never depressed participants following negative life events (Anderson et al, 2010). Until recently, it was stated that no relationship existed between anxiety and specificity deficits (Williams et al., 2007). However, more recently, research has found that an anxiety induction decreased autobiographical memory specificity (Hallford et al., 2019), and it is now suggested (Barry et al., 2021) following a meta-analytic review that autobiographical memory impairment, where fewer specific and more general memories are recalled, is a transdiagnostic feature of a multiple psychopathologies, with little variance having been observed between individuals in different diagnostic categories.

Conway & Pleydell-Pearce (2000) suggested overgeneral memory in depression might be caused by failure to encode information incompatible with the working self, as well as failure to retrieve it. However, as specificity can be improved, the failure must be at retrieval (Williams et al., 2007). The CAR-FA-X model (Williams et al., 2007) was proposed in an attempt to explain the pattern of overgeneral retrieval seen in depressed and/ or traumatised patients and those with disordered eating. Evidence has shown capture and rumination (CaR) - a tendency to getting stuck at the level of negative self-representation, causing mnemonic interlock, an increasingly elaborated conceptual network of intermediate descriptions caused by strategic abortion of voluntary searches (Williams, 1999) - to occur in individuals with highly activated/elaborated repertoires of emotion-related self-representations (Williams et al., 2007). Overgeneral memory also appears in those prone to rumination (Watkins & Teasdale, 2001, 2004), which refers to repetitive, passive focusing on distress

symptoms and their causes and consequences (Nolen-Hoeksema, 1991). Functional avoidance (FA), in line with PTSD models and the affect regulation and early trauma hypothesis (Williams et al., 1997) suggests that potential negative affect that may be experienced from accessing ESKs can be avoided by not accessing specific memories below the general event level. The non-trauma affect regulation hypothesis (Hermans et al., 2005) proposed that overgeneral memory reduced negative affect and intrusions in both depression and trauma, and also demonstrated a negative correlation between specificity and avoidant coping style. Avoidant coping is adopted early as an adaptive strategy, is positively reinforced as it protects from the impact of negative memories, becomes inflexible and maladaptive through habitual use, and leads to mnemonic interlock and rumination (Williams et al., 2007). However, it is possible that this may be counterproductive; a causal relationship has been demonstrated between thought suppression and both faster recall of negative episodic memories and reduced recall of personal semantic memories in an undergraduate sample (Neufeind et al., 2009), suggesting that attempts to suppress unwanted thoughts may actually increase access to memories that reinforce negative mood, and reduce access to more positive information that might counteract that effect. According to Williams et al (2007), executive resources (X) are competed for by multiple cognitive functions, and the ability to retrieve a specific memory via the generative route will be impaired if cognitive resources are depleted. It is worthy of note that, although a review of existing literature has previously found broad support for the CaR-FA-X model (Sumner et al., 2014) , a recent meta-analysis (Barry et al., 2021) found little evidence of group differences in CaR-FA-X processes contributing to variability in group differences in memory retrieval.

Although interventions such as memory specificity training (Raes et al., 2009) have viewed OGM as causal in affective disorders and focused on increasing specificity, studies on PTSD imply that it may be more beneficial to focus on content and meaning. Bedard-Gilligan, Zoellner, and Feeny (2017) found that changes in meaning, rather than decreased fragmentation, of autobiographical memories of the trauma, improved PTSD symptoms; and preliminary studies (Jaeger et al., 2014) indicate that the content, rather than the structural organisation, of the narrative around the trauma, is the more important factor in symptom reduction. Additionally, a meta-analysis (Barry et al., 2019) implies that the beneficial results observed from memory specificity training may be transitory. Potentially, more long-term benefit may be observed from interventions focusing on content.

Rumination has been linked causally with OGM, and there is evidence that it is a transdiagnostic process implicated in a number of disorders (Ehring & Watkins, 2008) (see section 1.2.1, page 7; section 1.2.2,page 10; section 1.2.3, page 13). If control theory accounts of rumination are correct (Watkins, 2008), the basis of rumination is unresolved goal discrepancies, which suggests a benefit

to focusing on identity, to reduce the discrepancy, rather than on the mechanisms of rumination and memory. This is supported by findings that depressed and formerly depressed participants recall fewer specific positive memories after an actual/ideal self-discrepancy induction (Raes et al., 2012; Schoofs et al., 2012) and that OGM has also been found in responses to requests to generate specific self-defining memories (Moffitt et al., 1994). However, evidence on the relationship between rumination and specificity is not conclusive; a meta-analysis (Chiu et al., 2018) found a non-significant influence of rumination on autobiographical memory specificity. This analysis further supports challenges to the CaR-Fa-X model (Barry et al., 2021) and suggests other factors may be contributing to reduced specificity.

OGM was originally suggested to occur only in disorders where depression and/or trauma is present, not in anxiety-related disorders, and suggested an ongoing affective response to an experienced trauma, rather than simply experiencing a traumatic event, was required (Williams et al., 2007). As per theories on functional avoidance and affect regulation (Hermans et al., 2005; Williams et al., 2007), potentially this may be due to OGM being a coping strategy to avoid negative cognition and affect arising from unpleasant memories. Depression and trauma are both past-facing and might be anticipated to generate a requirement for suppression, as opposed to anxiety, which is future-facing. However, there is contradictory evidence. Ridout et al., (2015) and Mang et al., (2018) demonstrated disordered eating associated with autobiographical memory deficits independent of depression, and additionally OGM does not appear to relate directly to current mood, as Williams and Dritschel (1988) have demonstrated OGM in participants who had previously suffered with emotional disorders but were not affected at the time of the study. The finding of depression-independent OGM in disordered eating may be explained by an underlying lack of self-concept clarity (see section 1.3.6, page 27) via adverse childhood experiences which may promote avoidance behaviours (Vartanian et al., 2018). Finally, evidence of an anxiety induction decreasing autobiographical memory specificity (Hallford et al., 2019) challenges the concept that depression or trauma is required for overgenerality.

An additional area for consideration is memory type. Most research into OGM has focused on voluntary retrieval (i.e. generative retrieval in response to a cue or prompt). Involuntary memory research in affective disorders has mainly focused on the intrusions of post-traumatic stress disorder (Ehlers, 2015; Ehlers & Clark, 2000; Iyadurai et al., 2019). However, intrusions occur in other disorders, including depression and bipolar disorder, and also in non-clinical populations (Brewin, 2014; Brewin et al., 2010). Involuntary memory is a normal part of the larger field of spontaneous thought, which includes mind-wandering. It has been proposed (Marchetti et al., 2016) that spontaneous thought focuses mainly on unattained personal goals, and discrepancies between

current and desired states. It is not unreasonable to hypothesise that if this process repeatedly triggers negative emotions, whether through trait negative affectivity or state (stress), maladaptive consequences may occur. Problems in the cognitive triad of self, world and others have been identified as problematic in various disorders (see sections 1.2.1, page 7; 1.2.2, page 10; 1.2.3, page 13) and spontaneous thought repeatedly focusing on such topics could reasonably be expected to trigger biased cognitions about the self. Self-discrepancy theory (see sections 1.2.1, page 10; 1.2.2, page 12) has linked gaps between actual and ideal self to both anxiety and depression. The manic defence hypothesis (see section 1.2.3, page 16) proposes that mania is an attempt to avoid negative affect, which may be caused if a hypomania-prone individual is focusing on unattained goals and self-discrepancies, and it has also been proposed (Mansell et al., 2007, see section 1.2.3, page 16) that mood swings may be triggered by intrusions into awareness that are given extreme personal meaning.

In a non-clinical study of voluntary and involuntary memory (Schlagman & Kvavilashvili, 2008) there was no difference between voluntary and involuntary memories in vividness (precision and detail of visual information), unusualness, pleasantness or memory age. Major differences were seen for involuntary memories in faster retrieval, higher specificity, and higher likelihood to be triggered by negative cues. A later study found dysphoric participants reported involuntary memories as frequently and quickly as controls, did not recall more negative events, and showed no variance on vividness, specificity or rehearsal. However, there was a significant difference in congruency effects – although dysphoric participants did not recall more negative events, they rated more events as negative, and they recalled fewer positive events (Kvavilashvili & Schlagman, 2011). These findings did not align with the theory of unintentional memory biases in depression (Watkins, Grimm, Whitney & Brown, 2005), which suggested that depressed individuals recalled more negative memories than control participants, even when asked to recall positive memories, demonstrating an intrusive memory bias. Potentially, dysphoric participants were able to retrieve directly accessed memories in response to cue words without deficit in a test in which they were required to concentrate on rapidly appearing words of varying valence (positive, negative or neutral), but a request to produce positive memories allowed observation of a memory bias. Given that elevated levels of memory suppression, along with emotion suppression and brooding, have been demonstrated for both voluntary and involuntary memories in dysphoria (del Palacio-Gonzalez et al., 2017), it is possible that some memories are being suppressed. Intrusive autobiographical memories have been found to cause more intrusion-related distress and negative affect and to be more vivid for depressed than never-depressed participants, with depressed participants showing higher levels of avoidance (Newby & Moulds, 2011), providing both reason for and support of a functional

avoidance theory. An additional factor may be specificity biases, which have shown non-remitted depressed individuals to retrieve less specific memories during voluntary but not involuntary recall (Watson et al., 2013), which also supports the CaR-FA-X model (Williams et al., 2007).

1.4.3 Autobiographical Memory Function

It has been highlighted (Baddeley, 2009) that autobiographical memory research has focused predominantly on structural and process aspects, ignoring the functional purpose of *why* we remember. In additional to the structural and procedural aspects of autobiographical memory, it also has functional purpose, which may impact self-concept. Three functions have been proposed (Bluck & Alea, 2002; Bluck et al., 2005): *directive* to guide future thought and behaviour, *self-continuity* to create a sense of self over time while maintaining continuity of the self-concept, and *social* to provide material for dialogue, convey a sense of self to others, and increase empathy through shared discussion and understanding. Autobiographical memory may therefore contribute via these functions to maintenance and amendment of the sense of self, in past, present, and future.

The Thinking About Life Experiences Scale (Bluck & Alea, 2011) was developed for empirical measurement of AM functionality. One potential application for TALE is investigation of the role of AM functionality in psychopathology. A study investigating relationships between autobiographical memory function and symptoms of dysphoria (Grace et al., 2016) found that higher levels of depressive symptoms were associated with more frequent use of autobiographical memory for the purpose of self-continuity, though no relationship was found with the functions of social bonding and directing behaviour. This finding was counter to predictions based on theories of autobiographical memory functionality, which given the adaptive nature of autobiographical memory proposed in functional models of autobiographical memory (Alea & Bluck, 2013) suggest using autobiographical memory more frequently would relate to lower depressive symptoms. Findings suggested a greater underlying complexity, potentially due to rumination, the repetitive, passive focusing on distress symptoms and their causes and consequences which is frequent in depression (Nolen-Hoeksema, 1991; Nolenhoeksema et al., 1993), or to intrusive negative memories (Williams & Moulds, 2007). A further study to elucidate whether dysphoric participants were using autobiographical memory for adaptive purposes or were becoming trapped in ruminative thought (Grace et al., 2016) investigated the relationship between depressive symptoms and the perceived usefulness of recollections to serve AM functions. It was concluded that participants with higher

levels of depression use autobiographical memory for the purpose of self-continuity and identity more frequently, but find doing so less useful, and additionally that this may not be a deliberate strategy but may be caused by rumination (Grace et al., 2016). However, rumination may also be used as a coping strategy to deal with stress (Papageorgiou & Wells, 2001) so may also have an adaptive element. Additionally, as depression and negative affect have been linked with fragmented self-representations (Diehl & Hay, 2011; Diehl et al., 2006) and negative self-representations (Beck, 1976) potentially there is an adaptive purpose of attempting to form a clearer sense of self, and to increase self-esteem (Grace et al., 2016).

Self-continuity is approach-oriented (Vignoles et al., 2006). A review of self-continuity (Sedikides et al., 2023) suggests that both past-present and past-future self-continuity are associated with a number of psychological benefits, across a wide range of areas (attitudes, judgements, decisions, motivations, intentions, behaviour and psychological and physical health).

Bluck and Alea (2002) suggest that self-continuity is negatively related to self-concept clarity (Campbell, 1990; see section 1.3.6, page 27). Individuals with low self-concept clarity more frequently reported using autobiographical memory to serve a self-continuity function (Bluck & Alea, 2009, 2011). Self-concept clarity has been shown to be a mediator of depression following childhood adversity (Hayward et al., 2020; Wong et al., 2019) and may potentially mediate the relationship between the self-continuity function of AM and depressive symptomology.

Self-continuity has consistently been reported as stronger in older people (Rice & Pasupathi, 2010; Rutt & Löckenhoff, 2016). One potential reason is the finding (Liao & Bluck, 2023) that older people see events as a life story and weave them together to provide a coherent sense of biographical identity, particularly for identity-disrupting events (e.g. divorce, role exit). This is consistent with life story approaches (Bluck & Habermas, 2000) (see section 1.4.1, page 33). Additionally, given that people are motivated to resolve any disruption to sense of self (Dweck, 2017), where self-concept clarity is low, use of autobiographical memory for a self-continuity purpose may be an attempt to increase self-concept clarity. Evidence supports individuals with low self-concept clarity (see section 1.3.6, page 27) using autobiographical memory to attempt to restore a sense of self, and additionally that use of autobiographical reasoning (see section 1.3.3, page 23) does restore self-continuity (Jiang et al., 2020). Potentially this may be a two way relationship, with self-concept clarity also facilitating self-continuity. Additionally, given findings of a relationship between higher use of autobiographical memory for self-continuity and depression, self-concept clarity may be a mediator.

1.5 CONCLUSION, AIMS & RATIONALE

Based on the evidence presented, it is clear that there is potential benefit to increasing the understanding of the role of identity in subclinical psychopathology, specifically dysphoria, anxiety and hypomania. Psychological approaches have begun to acknowledge the justification of a dimensional approach to mental health disorders (Cuthbert & Insel, 2013; Kotov et al., 2021; Krueger et al., 2018). Individuals who fall below the threshold for clinical diagnosis nevertheless suffer from functional impairments (Kroenke, 2006; Lee et al., 2019; Mendlowicz & Stein, 2000) and make up a proportion of days lost to disability, with its associated distress and life outcome impact to the individual and cost to the tax payer (Biasi et al., 2021; Carrellas et al., 2017; Liu et al., 2020; McDaid et al., 2022; Mendlowicz & Stein, 2000; Zhang et al., 2023). Additionally, subclinical symptoms are a vulnerability factor for escalation to clinical diagnosis (Bodden et al., 2022; Cuijpers & Smit, 2004; Eckblad & Chapman, 1986; Kertz & Woodruff-Borden, 2011; Kwapil et al., 2000; Lee et al., 2019; Rucci et al., 2003; Tuithof et al., 2018).

There are several ways in which identity may impact psychological wellbeing. The self is an aspect of the negative cognitive triad, which alongside dysfunctional attitudes or negative self-beliefs forms part of the cognitive theory of depression which has since been applied to other disorders and may be transdiagnostic (Beck et al., 2005; Beck et al., 1979; Newman et al., 2002). Rumination has a strong focus on self-referent material (Nolen-Hoeksema, 1991; Watkins, 2008; Watkins & Roberts, 2020) and is a possible transdiagnostic vulnerability factor (Feldman et al., 2008; Jones et al., 2006; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema, 2000; Nolen-Hoeksema et al., 2008; Thomas et al., 2007; Watkins & Roberts, 2020). Focus on self-discrepancies, particularly gaps between the actual and the ideal self, have been implicated in depression and anxiety (Higgins et al., 1985; Mason et al., 2019). The depression avoidance or manic defence hypothesis suggests hypomania may be an affective response to avoid negative affect to low self-esteem (Granger et al., 2021; Neale, 1988).

Narrative identity (McAdams, 2018) combines a reconstructed past and a constructed future to allow individuals to make sense of themselves and their lives, and to form a life story through a process of autobiographical reasoning (Adler et al., 2016; Bluck & Habermas, 2000; Mitchell et al., 2020), with positivity in the life story and reasoning processes suggested to contribute to wellbeing (Adler et al., 2016). Additional factors which may play a role in the impact of identity on psychological distress are the loss of objects central to identity which are viewed as irreplaceable (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987), low self-esteem, for which there is evidence of a bidirectional relationship with depression and anxiety (Sowislo & Orth, 2013), and low

self-concept clarity, a structural element of self-concept (Campbell et al., 1996) which is closely correlated with self-esteem (Campbell, 1990) and which with self-esteem has been found to mediate the relationship between childhood adversity and state anxiety (Hayward et al., 2020) and depression (Wong et al., 2019).

Dysfunctional attitudes and negative self-schemas are assumed to form through aversive childhood experiences, and to be activated by later adverse life events, so increasing knowledge of the relationship between childhood adversity, identity and psychological distress is an additional aim of this thesis. Given that self is derived from autobiographical memory (Conway et al., 2004) this thesis will also examine autobiographical memory deficits linked to subclinical psychopathology, with a focus on the self, including self-defining memories (Blagov & Singer, 2004; Singer & Salovey, 1993). The two areas of enquiry will be specificity, where deficits in the ability to produce specific memories of specific events lasting less than a day appears to be transdiagnostic (Barry et al., 2021) and autobiographical memory function, where greater use of autobiographical memory for self-continuity (i.e. to create a stable sense of self over time) has been linked to higher levels of depression (Grace et al., 2016), contrary to theories of autobiographical memory function which suggest more frequent use should be linked to increased wellbeing (Alea & Bluck, 2013).

Rationale

The overarching aim of the thesis is to extend the current understanding of the role of identity in subclinical psychopathology, notably depression, anxiety, and hypomania. Identity is essentially the answer to the question “Who am I?” (Schwartz et al., 2011), comprising the traits, roles, beliefs and values that become integrated into the self-concept (Baumeister, 1999). They must therefore possess both personal and social meaning for the individual, and be applied to define them either as a person or as a member of a group (Schwartz et al., 2011), implying a deep sense of personal meaning and importance. The role of the self- concept in providing a sense of coherence and purpose (McAdams, 1985) and allowing motivated change (Habermas & Köber, 2015b), and its role in cognitive models of psychopathology (Beck et al., 1979) suggest challenges around the self-concept may be related to psychological distress. Given that the self-concept is intimately linked to autobiographical memory and given that deficits in this memory function have been linked to depression (Romero et al., 2014) and hypomania (Delduca et al., 2010) within non-clinical samples, initial work is aimed at further elucidating the relationships between autobiographical memory functions and psychological distress in the non-clinical population. Specifically, this thesis seeks to investigate which identity-related elements may impact subclinical psychopathology, with the

primary areas of focus being autobiographical memory function and content, self-defining memories, objects central to identity, self-concept clarity and self-esteem. The long term aim of this research is to develop an identity-based intervention that can be used to prevent escalation of subclinical psychopathologies.

1.5.1 Study 1 Aims

Study 1 aimed to extend the research on hypomania and memory specificity (Delduca et al., 2010), specifically by examining the influence of hypomanic traits on involuntary AMs, as well as attempting to replicate the findings concerning the influence of this factor on voluntary memories. To gather a wider view of memory specificity in subclinical participants across both voluntarily and involuntarily retrieved memories, we also examined the influence of dysphoria and rumination (reflection & brooding). Additionally, a qualitative approach was used to examine memory content, focusing on inductive themes relating to identity that emerged from participant memories, and deductive themes of individual agency and valence, with the aim of identifying specific themes associated with psychopathology.

1.5.2 Study 2 Aims

Study 2 aimed to expand previous research on the relationship between self-defining memories and goal achievement expectations across a general non-clinical population by investigating the impact of memory valence and goal confidence on psychopathology. Previous research has found affective responses to self-defining memories to be impacted by attainment or non-attainment of goals (Moffitt & Singer, 1994), more vivid and less emotional positive self-defining memories in formerly depressed participants (Werner-Seidler & Moulds, 2012), and greater recall of positive relationship memories, recent memories, and memories of tension tightly bound to self-structure in hypomania (Robyn et al., 2012). The study investigated correlations between self-defining memories, perceived likelihood of achieving goals, and the affect, valence and importance of memories recalled, on subclinical depression, anxiety and hypomania. Additionally, responses were analysed for recurring themes around self-discovery and contamination or redemption, and inductive themes relating to autobiographical reasoning around identity and underlying changes in valence. The aim of this study was to understand the relationship between self-defining memories and expectations of goal success, how these combined factors would influence psychology, and any role of autobiographical reasoning.

1.5.3 Study 3 Aims

Study 3 aimed to expand findings from previous research by investigating self-concept clarity as a mediator of the relationship between use of autobiographical memory for self-continuity and levels of depressive symptoms, and by considering trait as well as state depression. Additionally, it extended research to symptoms of anxiety (state and trait) and hypomania. Research on autobiographical memory has focused primarily on specificity deficits and autobiographical memory function has attracted little empirical research, though evidence does suggest the self-continuity function may impact dysphoria. Grace et al. (2016) found that higher levels of depressive symptoms were associated with more frequent use of autobiographical memory for the purpose of self-continuity, though no relationship was found with the functions of social bonding and directing behaviour. Theories of autobiographical memory function (Alea & Bluck, 2013) suggest depressive symptoms should be linked to less frequent use of autobiographical memory. Given the relationship between self-continuity and self-concept clarity (Bluck & Alea, 2002), the aim of this study was to discover whether self-concept clarity would mediate the relationship between the self-continuity function of autobiographical memory and subclinical psychopathology.

1.5.4 Study 4 Aims

Study 4 aimed to investigate whether loss of objects central to identity would impact scores on measures of dysphoria, anxiety and hypomania in a general non-clinical population, and whether number of central objects lost, perceived impact of loss on identity, perceived replaceability of the object and perceived availability of social support would affect mood. Additionally, recurring themes of self-representation and coping strategies in relation to central object loss, and deductive themes of continuity, differentiation of uniqueness and personal agency, were analysed. The aim of this study was to investigate whether loss of objects central to identity which were felt to be irreplaceable (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987) would show evidence of being the basis of self-discrepancies (Higgins, 1987; Mason et al,. 2019) and links to psychopathology symptoms.

1.5.5 Study 5 Aims

Study 5 aimed to investigate the role of self-concept clarity, self-esteem and intolerance of uncertainty as mediators between adverse childhood experience and symptoms of state and trait depression, state and trait anxiety and hypomania in a non-clinical population. Existing research has shown that self-concept clarity mediates the association between adverse childhood experiences (ACEs) and depression after controlling for self-esteem (Wong et al., 2019), and that childhood adversity predicts depression and anxiety symptoms via the parallel mediators of self-concept clarity and intolerance of uncertainty (Hayward et al., 2020). This study will expand existing research by additionally investigating the impact of all three mediators on trait depression and anxiety. Further, given that childhood adversity predicts hypomanic symptoms (Johnson et al., 2015), this study will investigate whether self-concept clarity, self-esteem and/ or intolerance of uncertainty also mediate this relationship. Given implicit deficits in self-esteem (Winters & Neale, 1985) and self-serving attributional bias (Lyon et al., 1999) alongside the mood and self-esteem swings (Grande et al., 2016) associated with bipolar disorder, the aim of the study is to investigate whether self-concept clarity mediates this relationship.

1.5.6 Study 6 Aims

Study 6 aimed to fill a gap in research by examining the mediating effects of self-concept clarity, self-esteem and intolerance of uncertainty on state and trait depression, state and trait anxiety and hypomania in a non-clinical population, following current stressful life events. Research has focused on the mediating role of these variables following childhood adversity, but has not investigated their potential impact for current life stressors. Findings in this area could inform interventions for a more general population, outside those who have experienced childhood trauma. This study was conducted as a longitudinal follow-up to study 5.

All studies received institutional ethical approval from the School of Life and Health Sciences Ethics Committee.

CHAPTER 2: THE INFLUENCE OF HYPOMANIC TRAITS ON VOLUNTARY AND INVOLUNTARY AUTOBIOGRAPHICAL MEMORY

2.1. INTRODUCTION

Autobiographical memories are recollections of personally experienced past events (Conway et al., 2004) which are vital to sense of self and emotions (Conway & Pleydell-Pearce, 2000). This form of memory plays a vital role in the creation and maintenance of identity (Robinson, 1976), guides future behaviour and provides support for coping with negative experiences (Fivush et al., 2011) (see section 1.4, page 31). A key finding, initially identified in suicide attempters (Williams & Broadbent, 1986), is that individuals with depression exhibit impaired retrieval of specific autobiographical memories, that is, memories of events they personally experienced which lasted for a day or less. This memory style, defined as 'overgeneral memory' (OGM) has been identified in a number of different psychopathologies (Barry et al., 2021; Williams et al., 2007) (see section 1.4.2, page 38).

The CaR-FA-X model of overgeneral memory (Williams et al., 2007) (see section 1.4.2, page 38) suggests two potential causes of overgeneral memory are rumination and functional avoidance. Rumination, the repetitive, passive focusing on distress symptoms and their causes and consequences (see section 1.2.1, page 9), has been linked causally with OGM (Watkins & Teasdale, 2001, 2004) and suggested to be a transdiagnostic process (Ehring & Watkins, 2008). Heightened rumination has been demonstrated in response to negative affect in major depressive disorder, and in response to positive affect in bipolar disorder (Johnson et al., 2008). Rumination inductions have been demonstrated to maintain OGM, and distraction manipulation to reduce rumination and increase specificity (Watkins et al., 2000). However, more recently a review of studies on rumination (Chiu et al., 2018) found the influence of rumination on specificity was negligible (see section 1.4.2, page 40), suggesting other factors may be impacting specificity. Given that rumination has been highlighted as a key cognitive vulnerability factor for development and maintenance of depression (Nolen-Hoeksema et al., 2008; Watkins & Roberts, 2020) (see section 1.2.1, page 9) and has been suggested to be a risk factor for hypomania (Feldman et al., 2008) (see section 1.2.3, page 15), rumination and specificity may jointly influence psychopathology.

Overgeneral memory presents somewhat differently across disorders. In depression and dysphoria (subclinical depression), it appears to be predominantly recall of positive memories that is affected, with participants showing difficulties in retrieving specific positive memories (Romero et al., 2014;

Williams & Broadbent, 1986). Initial work (e.g., Scott, Stanton, Garland, & Ferrier, 2000) demonstrated euthymic bipolar disorder participants exhibiting reduced specificity to both negative and positive cues. However, subsequently, findings suggested that patients in the euthymic phase of bipolar disorder recall fewer specific negative AMs but this effect is not present for positive memories (Boulanger et al., 2013; Kim et al., 2014). A recent study (Silva et al., 2021), looking at relationships between phases of bipolar disorders and autobiographical memory recall in response to phase-specific cue words, showed more episodic detail in mania than in depression, and fewer details of perception and time interaction in depression than in mania or euthymia. Cues were also demonstrated to have an effect, with bipolar and depression-related cues generating higher levels of re-experiencing than neutral cues, and bipolar-related cues generating more detail on thoughts and emotions. There is evidence of individuals with remitted bipolar disorder showing similarities in autobiographical memory specificity deficits similar to those seen in unipolar depression (Mansell & Lam, 2004). Taken together, these findings suggest autobiographical memory deficits in bipolar disorder that fluctuate dependant on phase. Specificity effects have also been demonstrated in a subclinical population, with Delduca et al. (2010) showing that non-clinical participants with high levels of hypomanic traits recalled more specific memories in response to negative cue words than did those with low levels of hypomania.

The manic defence hypothesis (Neale, 1988) and evidence of underlying low self-esteem similar to that found in unipolar depression beneath the grandiose self-appraisals of bipolar disorder (Lyon et al., 1999; Winters & Neale, 1985) (see section 1.2.3, page 16) may offer one possible explanation of why hypomanic participants recalled more specific negative memories (Delduca et al., 2010) while euthymic bipolar participants recalled more overgeneral and less specific negative memories (Boulanger et al., 2013; Kim et al., 2014). If individuals with hypomania, with heightened access to negative memories, experience reduced negative memory specificity, and therefore associated negative mood and cognitions, on escalation into bipolar disorder, mania may serve an adaptive function of suppressing negative affect experienced through recall of unpleasant memories. Silva et al. (2021) found higher specificity in mania than in depression, but it is difficult to generalise results from this study as bipolar phase specific cues, rather than standard autobiographical memory cues, were used. This increase of specificity from mania to depression may reflect the overgenerality associated with unipolar depression. No mood congruent or mood-dependent effects (i.e. links between phase of bipolar disorder and phase of cue word) suggest predictions for valence effects on a standard AMT.

Studies examining the influence of psychopathology on autobiographical memory retrieval have tended to focus on conscious rather than involuntary retrieval (Conway & Pleydell-Pearce, 2000) (see section 1.4.2, page 38). However, more recently, studies (e.g. Watson et al., 2013; Matsumoto et al., 2020) have begun to investigate the influence of psychopathology on overgenerality in involuntary memory (see section 1.4.2, page 41). Kvavilashvili and Schlagman (2011) found that dysphoric and non-dysphoric participants did not differ in specificity of involuntary memories, but although dysphoric participants did not recall more negative events, and showed no differences in recalling events that were objectively negative, they did rate their memories as more negative. Watson et al. (2013) also showed no group effects between depressed and never-depressed individuals for specificity bias on either indirect and indirect retrieval, with both groups being more specific in direct than in generative retrieval, however non-remitted depressed individuals were more specific than depressed individuals in voluntary but not involuntary recall. Negative correlations were also demonstrated between specificity, rumination and avoidance (Watson et al., 2013), supporting the CaR-FA-X model (Williams et al., 2007). However, Matsumoto et al. (2020) found increased categoric recall for positive cues in generative recall, and increased categoric recall for negative memories in direct recall, in dysphoric participants remitted from major depressive disorder, which challenges functional avoidance theories. Hallford and Matsumoto (2022) found a direct retrieval bias for negative memories compared to clinical controls in individuals with major depressive disorder. These findings suggest stages of depression may impact direct recall. Findings on intrusive involuntary memories in bipolar disorder (Gregory et al., 2010) showing that intrusions are frequent, vivid and distressing during depression, less frequent and less depressing during euthymia, and rare in hypomania where images tend to be future focused and positive, suggest aspects of direct memory recall may also vary by stage in bipolar disorder.

The body of evidence suggests the relationship between OGM and psychopathology is complex. It is therefore surprising that research has focused on the process rather than the content of autobiographical memory. The disparity in findings suggests there may be a content-based and qualitative basis to OGM (Williams et al., 2007) which is not addressed in the majority of current literature. The close relationship between autobiographical memory and identity (e.g. McAdams, 2003), the feelings of worthlessness that are a diagnostic criterion in multiple psychopathologies, and the evidence of links between self-concept, self-esteem, self-referent thinking and phenomena such as rumination and overgeneral memory, suggests an investigation of memory content in relation to the self. However, the main focus of research has been on the valence or specificity of memories, rather than their content, or specifically how this content might relate to the self.

Finally, there is a growing body of research into OGM in the subclinical population, but this has focused in the main on dysphoria. Preliminary investigation into relationships between autobiographical memory, intrusive mental imagery and hypomanic personality suggests that individuals with hypomanic tendencies experience greater emotional intensity for positive but not negative memories (McGill & Moulds, 2014). These findings support potential valence effects that may impact specificity. An exploratory study investigating the separate and combined relationships of dysphoria, hypomania and rumination with voluntary and involuntary memory retrieval could provide a baseline of information to inform further research.

2.1.1. The Current Study

The principal aim was to examine the influence of hypomanic symptoms on voluntary and involuntary autobiographical memories in a non-clinical sample. In addition, the influence of depression and rumination on voluntary and involuntary memories was also examined.

Participants completed the standard AMT (Williams & Broadbent, 1986) to measure their ability to voluntarily retrieve autobiographical memories and the line vigilance task (Schlagman & Kvavilashvili, 2008), which was used to generate involuntary memories. Time (in seconds) to retrieve memories and the number of specific memories were the main variables of interest. However, participants also provided ratings of memory age, concentration at the time of retrieval, importance of the memory, uniqueness of the memory, valence at time of event, and valence at recall. Finally, participants completed measures of depression, rumination and hypomania. A thematic analysis was performed on the text generated from the memory tests.

In line with Delduca et al. (2010), it was predicted that there would be a positive relationship between hypomania scores and the number of specific negative memories retrieved on the AMT. It was also expected that depression scores would be negatively related to the number of specific memories on the AMT, particularly in response to positive cues. In line with Romero et al. (2014), specificity of retrieval on the AMT was expected to be negatively related to brooding scores on the measure of rumination. Furthermore, the relationship between depression and memory specificity was expected to disappear once the influence of rumination was controlled (Romero et al., 2014). It was predicted that depression scores would not be significantly related to the specificity of involuntary memories but valence scores for the involuntary memories were expected to be negatively related to depression (Kvavilashvili & Schlagman, 2011). An important novel aspect of the study was to examine the link between hypomanic traits and the characteristics of involuntary memories. As this aspect of the study was exploratory, no formal hypotheses were generated.

The final aim was to assess the qualitative component of data to identify recurring themes in autobiographical memory and their relation to dysphoria, hypomania and rumination (particularly brooding). Thematic differences in valence of memory content were not anticipated in dysphoria (Kvavilashvili & Schlagman, 2011), but insights were sought into differences in how memory content might relate to identity across different subclinical psychopathologies. It was anticipated that potentially, aspects of the 'self' aspect of the cognitive triad as related to dysphoria or euphoria might be reflected in thematic content. The qualitative research question was: What relationships exist between aspects of identity and mood?

2.2. Method

2.2.1. Design

The current study used a cross-sectional correlational design, with the variables being scores for depression, hypomania and rumination, and retrieval times (in seconds) and number of specific memories retrieved to positive and negative cues (AMT) and positive, neutral, and negative cues (IVMT). Other variables of interest collected were age group at time of memory (1 = below 10, 2 = 10- 20, 3 = 21 – 30, 4 = 31-40, 5 = 41+) and participants' ratings of the memories (on a 5-point Likert scale) in terms of concentration required to retrieve the memory, rehearsal (how frequently the memory was recalled), novelty of the recalled event (how unusual the memory was), and valence both at the time of the event and at retrieval.

2.2.2.Participants

A power calculation using GPower revealed that to detect a medium effect size (0.3) on a Pearson correlation with power of .8 and an alpha level of .05 for a one-tailed test requires 64 participants. 68 participants (5 males, 63 females) from Aston University took part in the AMT study (Mean age = 19.78 years, S.D. = 3.33). Due to COVID-19 restrictions, only the first 41 participants also took part in the IVMT. Participants were psychology students and postgraduates and were recruited through internal systems and posters and completed the study for course credit. The study was approved by Aston University's Research Ethics Committee.

Materials and Measures

<u>Center for Epidemiological Depression Scale (Radloff, 1977).</u>

The CES-D is 20-item self-report depression scale, which has been shown to be reliable (Cronbach's alpha =.85) in the student population (Chabrol et al., 2002) and the general population (Cosco, Prina, Stubbs, & Wu, 2017). Participants are asked to state how regularly they have experienced certain

moods or behaviours in the course of the past week (e.g. “I felt lonely”). Scores are assigned on a Likert scale between 0 - 3 for each item, giving a range of possible scores of 0 to 60, with higher scores equating to more severe depression. Scores over 16 are considered indicative of mild depression (dysphoria). Cronbach’s alpha=.91, which suggests the responses were extremely reliable.

Ruminative Response Scale – Short-form (RRS-S; Treynor et al., 2003)

The short version of the RRS (Treynor et al., 2003) is a reliable(Cronbach’s alpha = .72) (Erdur-Baker & Bugay, 2010) 10-item self-report questionnaire. The 10 questions are split into two subscales: reflection (e.g. go someplace alone to think about your feelings”) and brooding (e.g. Thinking “What am I doing to deserve this?”) Participants rate (on a 4-point Likert scale) how frequently they carry out a list of behaviours when they are in a sad mood. The range of scores is 5-20 for both subscales, with higher scores equating to greater rumination. Cronbach’s alpha =.81, which suggests the responses were highly reliable.

Hypomanic Checklist (Angst et al., 2005)

The HCL-32 is a (2005) 32-item checklist in which participants report either “yes” or “no” to questions (e.g. “I think faster”) about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits. HCL-32 is 32-item checklist for behaviours experienced in elevated mood. Participants report either “yes” or “no” with a respective score of 1 or 0, giving a potential score of 0 – 32.

Autobiographical Memory Test (Williams & Broadbent, 1986) – voluntary memory task (VMT)

Participants were presented with five positive (*Happy, Interested, Surprised, Safe & Successful*) and five negative cues (*Clumsy, Angry, Hurt (emotionally), Lonely & Sorry*), which were drawn from the original AMT study (Williams & Broadbent, 1986), and asked to retrieve a specific memory from their past, relating to the cue word. A specific memory was defined as the memory of a specific event they had personally experienced, lasting less than a day. Cue words were presented via a computer screen in an alternating sequence of positive and negative cues. Each word was presented for two seconds, then replaced by a prompt for participants to press the ‘space’ key when they had retrieved a memory, which remained on the screen for 58 seconds or until the space key was pressed. Participants were asked to describe the details of their memory, which were audio-recorded for later analysis. They also rated each memory using a Likert scale (ranging from1 – 5) on dimensions of

'vividness of memory', the degree to which they were concentrating when the memory was retrieved, 'the pleasantness of the memory' (both at the time of the event and at the time of retrieval), and 'the frequency of retrieval of the memory'. They also recorded their age at the time of the event. If no memory had been retrieved within 60 seconds, the trial was scored as an omission and the next trial commenced. The mean retrieval time (in seconds) to retrieve specific memory and the number of specific memories (between 0 and 5) retrieved were calculated separately for positive and negative cues, using a traditional sum-score method.

Specificity was calculated based on the number of specific memories retrieved. In line with standard AMT procedure, categorical memories (memories of repeating events, such as "When I go shopping with my friends"), extended memories (memories of events lasting more than a day, such as "My holiday in Rome") and semantic associates (information about the self not referring to a specific event, such as "I am a good friend") were excluded. The specificity of memories was determined by the principal author (LS). A second rater (NR), blind to the participant's condition, scored a subset (10%) of the memories in order to allow the reliability of specificity scoring to be determined. The Kappa value was .79, which suggests strong interrater agreement.

Line Vigilance Task (Schlagman & Kvavilashvili, 2008) – involuntary memory task (IVMT)

Participants were presented with a series of 800 stimuli, drawn from Schlagman & Kvavilashvili (2008), each featuring a short phrase (e.g., "Christmas Tree") embedded within an array of vertical or horizontal lines. They were asked to identify, by saying "Yes", any trial where they detected a target stimulus (vertical lines). Each stimulus was shown for 1.5 seconds and there were 785 non-target stimuli and 15 target stimuli. Stimuli were shown in a fixed order, so that a target stimulus appeared every 60 – 90 seconds. Participants were told that the phrases, which varied in valence (positive, negative, and neutral), were distractors that should be ignored, as they were part of another experimental condition. However, participants were told that if a memory came to mind during the vigilance task, they should press the space bar to stop the task and report the memory, which was audio recorded for later analysis. For each memory recalled, the participant pressed "Y" or "N" to identify whether they were aware of what triggered the memory; if they were aware of the trigger, this was also audio recorded. Participants were asked to rate any memories retrieved as per the Autobiographical Memory task. The principal author (LS) scored the memories for the degree of specificity. A subset of memories was scored by NR, who was blind to participant's group, and interrater reliability calculated. The Kappa value was .68, which suggests moderate interrater agreement.

Qualitative Content Analysis (Mayring, 2000)

Qualitative Content Analysis (QCA) was used to examine the thematic content of the memories retrieved by the participants on the voluntary and involuntary memory tests.

Procedure

All participants were tested individually and told that they were taking part in a study on autobiographical memory and mental health. Participants were tested either in person in a laboratory session (41 participants), or over a live Skype session in which the researcher shared their screen and pressed keys according to participants' responses (27 participants)[1]. Participants provided informed consent and were provided with an information sheet on the study prior to taking part and were debriefed after their final session. All participants completed the CES-D, RRS and HCL-32 via an online questionnaire before completing their first session. For the 41 participants who took part in both the AMT and the IVMT, sessions were counterbalanced. Second sessions were scheduled two weeks after first sessions. Participants received course credits for taking part.

Scoring and data analysis

All 68 participants successfully completed the AMT. Of the 41 participants who also took part in the vigilance task, 12 did not retrieve any specific memories in response to cues. Of these, 6 recalled uncued specific and/or cued general memories, and 6 recalled no memories at all. As the memory data were not normally distributed, non-parametric Spearman tests were used for correlations.

Quantitative Analysis

The main factors for both the AMT and the vigilance task were retrieval times (in seconds) and number of specific memories retrieved by cue valence (positive and negative for AMT; positive, neutral and negative for the vigilance task). Prior to analysis, transcripts were reviewed, and responses were disallowed where they did not relate to a specific memory; for example, categorical memories, semantic self-knowledge and current concerns. A specific memory was classed as a memory of a single event lasting less than a day.

[1] This was necessitated by the lockdown in response to the covid 19 pandemic.

On the AMT, responses were automatically recorded from the time of cue display. On the vigilance task, retrieval times were calculated by assessing the participant's response and working back through presented cues to identify the cue that triggered the memory. 1.5 seconds was added for each cue that had subsequently been presented, to calculate the actual response time (Schlagman & Kvavilashvili, 2008). For example, if a participant response time was 0.96 seconds, but the cue word that triggered the memory had actually been presented two cues prior to the cue against which the response was recorded, the response was recorded as 3.96 seconds.

Aggregated data were used for analysis of the additional variables; means were calculated for age group at time of memory, concentration, frequency, novelty, valence at time of event and valence at recall.

Spearman's Rho was used for the calculation as data were not normally distributed and did not meet the assumptions for parametric tests.

Qualitative Analysis

The unit of analysis for this study was the responses for both the AMT and the IVMT. Analysis was carried out according to the guidelines set out for Qualitative Content Analysis (QCA) (Graneheim & Lundman, 2004; Mayring, 2000). As we were seeking to discover information around participants' self-perceptions, which might be implicitly rather than explicitly stated, focus was more heavily on latent rather than manifest content i.e. what the text *deals with* rather than what the text *says*: (Graneheim & Lundman, 2004).

2.3. Results

Participant Characteristics

Means and range of participant scores on the mood measure scales are presented in Table 1. The mean CES-D score is close to the cut off for mild depression, which is 16. The mean score on the HCL-32 is above the suggested cut off of 14 for bipolar disorder.

Table 2.1: Mean and range of scores on the Center for Epidemiological Depression Scale, Hypomanic Check List and Ruminative Responses Scale (standard deviations are presented in parentheses)

n=68	**Mean (SD)**	**Range**
Dysphoria (CES-D)	16.7 (9.88)	0 - 48

Hypomania (HCL-32)	17.2 (5.21)	3 - 26
Reflection (RRS-R)	10.7 (3.28)	5 - 19
Brooding (RRS-B)	11.5 (2.96)	5 - 19

Relationships between mood and personality factors

Brooding was positively related with dysphoria ($r_s(68)=.487$, $p<.001$) and hypomania ($r_s=.274$, $p=.024$). No significant relationship was found between reflection and either dysphoria ($r_s=.178$,$p>.05$) or hypomania ($r_s=.182$, $p>.05$). A significant correlation was shown between brooding and reflection ($r_s=.371$, $p=.002$). No significant relationship was shown between dysphoria and hypomania ($r_s=-.024$, $p>.05$).

Relationships between Mood Measures and Autobiographical Memory Test Responses

Table 2.2 displays the mean response times and number of specific autobiographical memories recalled by participants according to cue word valences, also age at time of event and participants' ratings on concentration required to recall the event, frequency of the memory, novelty of the memory, valence at recall and valence at time of event. Notably, there was a high proportion of specific memories, both positive (proportion = .77) and negative (proportion = .74).

Table 2.2: Mean memory scores (standard deviation are presented in parentheses) – Autobiographical Memory Test

n=68	Positive Memories	Negative Memories
Retrieval Time (s)	8.28 (5.49)	9.22 (6.07)
Number of Specific Memories	3.85 (1.14)	3.68 (1.31)
Age at Event	2.08 (0.38)	2.02 (0.41)
Concentration	3.03 (1.21)	3.15(1.13)
Frequency	2.80 (0.94)	2.65 (0.85)
Novelty	2.92 (0.95)	3.06 (0.92)
Valence at Recall	4.41 (0.51)	2.45 (0.86)
Valence at Event	4.37 (0.58)	1.99 (0.67)

Hypomania scores were not significantly related to recall time for specific positive memories ($r_s(68)=.07$, p=.57) or specific negative memories ($r_s(68)=-.12$, p=.33), or to number of specific memories recalled for positive memories ($r_s(68)=.02$, p=.87) or negative memories ($r_s(68)=-.04$, p=.77).

Correlations between scores on the hypomania measure (HCL-32) and the additional memory indices (age at time of event, concentration required to recall memory, frequency of recall of the memory, novelty of the recalled event, valence at the time of recall and valence at the time of the event) are shown in Table 2.3. No significant correlations were found between scores on the hypomania measure (HCL-32) and additional memory indices, all tests p>.05.

Table 2.3: Correlation between hypomania scores and memory indices

n=68 HCL-32	Age at Event	Concentration	Frequency	Novelty	Valence at Recall	Valence at Event
Positive Memories	-.006	.178	-.146	.183	-.113	-.115
Negative Memories	-.046	-.030	.026	.078	.070	-.111

Depression scores were not significantly related to recall time for specific positive memories ($r_s(68)=-.08$, p=.54) or specific negative memories ($r_s(68)=-.13$, p=.29), or to number of specific memories recalled for positive memories ($r_s(68)=-.01$, p=.97) or negative memories ($r_s(68)=-.13$, p=.28).

Correlations between scores on the depression measure (CES-D) and the memory indices (age at time of event, concentration required to recall memory, frequency of recall of the memory, novelty of the recalled event, valence at the time of recall and valence at the time of the event) are shown in Table 2.4. Results showed a significant negative correlation between scores on the CES-D and valence of negative memories at recall (p=.037), though this relationship was no longer significant once alpha was adjusted for multiple tests (adjusted alpha=.025). No other significant correlations were found between scores on the dysphoria measure (CES-D) and the memory indices, all tests p>.05.

Table 2.4: Correlations (Spearman's Rank) between dysphoria scores and memory indices

n=68 CES-D	Age at Event	Concentration	Frequency	Novelty	Valence at Recall	Valence at Event
Positive Memories	.115	-.024	-.058	-.161	-.062	-.001
Negative Memories	.020	-.019	.074	-.172	**-.253***	-.143

*p<.05

Relationships between brooding and response time for positive memories ($r_s(68)=.24$, p=.053) and negative memories ($r_s(68)=.21$, p=.08) did not reach significance. No relationship was found between brooding and number of specific positive memories ($r_s(68)=.15$, p=.24) or number of specific negative memories ($r_s(68)=-.03$, p=.82). No significance was shown between reflection and response times or number of specific memories for either positive or negative memories.

Significant negative correlations were found between brooding and valence of memory at time of recall for both positive memories ($r_s(68)=-.252$, p=.04) and negative memories ($r_s(68)=-.296$, p=.01), though only the relationship with negative memories remained significant after alpha was adjusted for multiple tests (adjusted alpha=.025). No relationship was found between brooding or negative memories at time of event ($r_s(68)=-.111$, p=.37). No relationship was found between reflection and valence of memory either at the time of the event or at recall (all p>.05).

A multiple regression was carried out to predict the valence of negative memories at the time of retrieval, assessing the impact of depression and brooding (Table 2.5). Brooding (RRS-B) was added at step 1, and depression (CES-D) at step 2.

Table 2.5: Hierarchical Regression to predict valence of negative memories at time of recall with scores on mood measures (RRS-B and CES-D) as predictor variables

DV=Valence at Recall - Negative Memories		Model Summary				Contribution of each Factor in Model 2				
		R^2	$R^2\Delta$	F	*p*	B	SE	b	t	*p*
Model 1		.088	-	6.33	.014					
	RRS-B					-.298	.118	-.296	-2.52	.014
Model 2		.103	.016	3.74	.029					

RRS-B	-.228	.135	-.23	-1.68	.097
CES-D	-.143	.134	-.14	-1.06	.292

Model 1 was significant; F(1, 66)=6.33, p=.014 and explains around 9% of the variance in memory valence (R^2=.09). Brooding entered as a significant predictor β=-.298, p=.014. Model 2 was also significant; F(2, 65) = 3.74, p=.029, which explains around 10% of the variance in memory valence (R^2=.10), but the addition of depression (CESD) did not explain significantly more variance in memory valence than did brooding alone, (R^2Δ=.02; F(1, 65)=1.13, p=.29). Brooding did not significantly relate to valence at recall when controlling for depression, β=-.23, p=.097.

Autobiographical Memory Specificity – Involuntary Memory

Overall, there were 401 involuntary memories retrieved, with 239 (60%) referring to specific events. Of the 41 participants in this stage of the study, 19 recalled one or more cued specific positive memories, 19 recalled one or more cued specific neutral memories, and 26 recalled one or more cued specific negative memories. Throughout, the term "specific memories" refers to both memories cued by a word on screen, and completely spontaneous memories. When spontaneous (uncued) memories are included, 25 participants recalled positive memories, 27 recalled neutral memories and 32 recalled negative memories.

Table 2.6 displays the mean response times and number of specific autobiographical memories recalled by participants according to cue word valences, also age at time of event and participants' ratings on concentration required to recall the event, frequency of the memory, novelty of the memory, valence at recall and valence at time of event.

Table 2.6: Mean memory scores (standard deviation are presented in parentheses) – Line Vigilance Task

n=68	**Positive Memories**	**Neutral Memories**	**Negative Memories**
Response Time (s)	2.93 (2.02)	2.36 (1.31)	2.79 (1.76)
# Cued Specific Memories	2.05 (1.47)	2.41 (1.72)	3.22 (2.89)
Age at Event	1.84 (0.33)	1.84 (1.30)	2.77 (2.76)

Concentration	3.35 (1.24)	2.72 (1.33)	2.80 (1.26)
Frequency	2.70 (1.26)	1.99 (1.19)	2.43 (1.00)
Novelty	2.57 (1.13)	3.07 (1.44)	3.36 (0.99)
Valence at Recall	3.94 (1.11)	3.22 (1.14)	2.39 (0.85)
Valence at Event	4.03 (1.13)	3.12 (1.30)	2.14 (0.81)

Hypomania and Involuntary Memory

No significant correlations (p=<.05) were found between scores on the hypomania measure and specificity or response time for positive, neutral or negatively cued involuntary memories.

Correlations between scores on the hypomania measure (HCL-32) and the additional factors scored (age at time of event, concentration required to recall memory, frequency of recall of the memory, novelty of the recalled event, valence at the time of recall and valence at the time of the event) are presented in Table 2.7.

Table 2.7: Correlation between hypomania scores and memory indices (correlation coefficients and p-values)

	Positive Memories	**Neutral Memories**	**Negative Memories**
Age At Event	-.329	-.010	-.037
	.169	.969	.858
Concentration	.092	.107	-.193
	.708	.663	.345
Frequency	-.127	.015	-.254
	.604	.953	.210
Novelty	.075	-.084	-.280
	.761	.733	.166
Valence at Recall	-.391	.122	**.415***
	.098	.619	**.035**
Valence at Event	-.405	.325	**.390***
	.086	.175	**.049**

***p<.05**

No significant correlations were found between scores on the hypomania measure (HCL-32) and additional factors for positive or neutral cued memories. There were significant positive correlations between scores on the HCL-32 and valence of memory at recall ($r_s(26)=-.415$, $p=.035$) and valence of the memory at time of event ($r_s(26)=-.390$, $p=.049$) for negatively cued memories, though neither relationship was significant once alpha was adjusted for multiple tests (adjusted alpha=.017).

Dysphoria and Involuntary Memory

The number of specific positive memories was negatively related to depression (CES-D) scores, ($r_s(25)=-.48$, p=.01) which was still significant after controlling for multiple comparisons (adjusted alpha =.017). However, depression was not significantly related to the number of specific negative or neutral memories, both tests p>.05. Similarly, depression was not related to retrieval times for involuntary memories, all tests p>.05 Correlations between scores on the dysphoria measure (CES-D) and the additional memory indices (age at time of event, concentration required to recall memory, frequency of recall of the memory, novelty of the recalled event, valence at the time of recall and valence at the time of the event) are presented in Table 2.8.

Table 2.8: Correlation between dysphoria scores and memory indices

n=26 CES-D	Age at Event	Concentration	Frequency	Novelty	Valence at Recall	Valence at Event
Positive Memories	-.448	-.453	-.133	-.181	-.001	-.194
Neutral Memories	.011	-.318	-.003	-.019	-.294	-.420
Negative Memories	-.167	-.248	.193	-.116	**-.456***	-.356

*p<.05

There was a significant negative correlation between dysphoria and valence of negative memory at recall ($r_s(26)=-.456$, $p=.019$), though this failed to reach significance after controlling for multiple comparisons (adjusted alpha =.017).. No other correlations were significant (p=<.05).

Rumination and Involuntary Memory

There was a highly significant negative correlation ($r_s(25)=-.535$, $p=.006$) between brooding and number of specific positive memories recalled, and a significant positive correlation ($r_s(26)=-.402$, $p=.042$) between reflection and response time for recalling negative memories, though only the relationship between brooding and number of positive memories remained significant after alpha was adjusted for multiple tests (adjusted alpha=.017). All other relationships were non-significant (p=>.05).

There was a significant negative correlation ($r_s(19)=-.469$, $p=.043$) between brooding and concentration for positive memories and between brooding and novelty of negative memories ($r_s(26)=-.434$, $p=.029$). Significant positive correlations were shown between reflection and frequency ($r_s(19)=.458$, $p=.049$) and novelty ($r_s(19)=.474$, $p=.040$) of neutral memories. None of these relationships remained significant after alpha was adjusted for multiple tests (adjusted alpha=.017). All other relationships were non-significant (p=>.05).

A multiple regression was carried out to predict the number of positive memories recalled, assessing the impact of depression and brooding on positive memories (Table 2.9). Brooding (RRS-B) was added at step 1, and depression (CES-D) at step 2.

Table 2.9: Hierarchical Regression to predict number of positive memories recalled, with scores on mood measures (RRS-B and CES-D) as predictor variables

DV=Total Specific Positive Memories		Model Summary				Contribution of each Factor in Model 2				
		R^2	**$R^2\Delta$**	**F**	***p***	**B**	**SE**	**b**	**t**	***p***
Model 1		.268	-	8.43	.008					
	RRS-B					-.307	0.106	-.518	-2.90	.008
Model 2		.308	.040	4.90	.017					
	RRS-B					-.219	.131	-.369	-1.67	.109
	CES-D					-.137	.122	-.249	-1.12	.273

Model 1 was significant; F(1, 23)=8.43, p=.008 and explained around 27% of the variance in total positive memories recalled (R^2=.268). RRS-B entered as a significant predictor β=-.307, p=.008. Model 2 was also significant; F(2, 22) = 4.90, p=.017, which explained around 31% of the variance in total number of positive memories recalled (R^2=.308), but the addition of depression (CES-D) did not

explain significantly more variance number of recalled positive memories than did brooding alone, ($R^2\Delta$=.04; F(1, 22)=1.26, p=.27). Brooding did not enter as a significant predictor, once depression had been controlled for, β=-.22, p=.109.

A further multiple regression was carried out to predict the valence of negative memories at recall, assessing the impact of depression and hypomania (Table 2.10). Depression (CES-D) was added at step 1, and hypomania (HCL-32) at step 2.

Table 2.10: Hierarchical Regression to predict valence at recall for negative involuntary memories with scores on mood measures (CES-D and HCL-32) as predictor variables

DV=Valence at Recall (Negative Memories)		Model Summary				Contribution of each Factor in Model 2				
		R^2	$R^2\Delta$	F	*p*	B	SE	b	t	*p*
Model 1		.229	-	7.14	**.013**					
	CES-D					-.308	.115	-.479	-.267	**.013**
Model 2		.308	.079	5.12	**.014**					
	CES-D					-.251	.117	-.391	-2.15	**.042**
	HCL-32					.184	.114	.294	1.62	.119

Model 1 was significant; F(1, 24)=7.14, p=.013 and explained around 23% of the variance in valence of negative memories at recall (R^2=.229). CES-D entered as a significant predictor β=-.308, p=.013. Model 2 was also significant; F(2, 23) = 5.12, p=.014, which explained around 31% of the variance in valence of negative memories at recall (R^2=.308), but the addition of hypomania (HCL-32) did not explain significantly more variance in valence of negative memories at recall than depression alone, ($R^2\Delta$=.079; F(1, 23)=2.62, p=.119). Hypomania did not enter as a significant predictor (β=-.184, p=.119). Depression remained a significant predictor of the valance of negative memories at recall, with valence being decreased; β=-.25, p=.042.

Identity Aspects in Autobiographical Memory Data

The unit of analysis was responses to generative and direct memories. Data were transcribed and categorised according to Qualitative Content Analysis guidelines (Mayring, 2000) into the two deductive categories of individual agency and affective valence, and seven inductive categories arising from the data (perception of relationships with parents, perception of self in romantic

relationships, perception of self in relationships with friends, perception of status with peers, perception of successfulness, perception of competence, and fairness). The context was a study aiming to understand how the content of retrieved autobiographical memories in a student sample might relate to their mental health outcomes, in line with the research question "What relationships exist between aspects of identity and mood?"

Category analysis is shown in appendix 1, and instances of category in appendix 2. The first point noted was that from a total of 1061 memories (660 generatively retrieved and 401 directly retrieved), only 138 (13%) were relevant for categorisation into either deductive or inductive categories. The remaining 87% of memories were general (e.g. "Whenever I'm ..with my boyfriend") extended (e.g. last summer..I went on holiday") or semantic self-knowledge (e,g, "I'm always clumsy"), and furthermore were did not contain a great deal of emotive detail. Due to the low number of categorised responses, and a lack of corresponding detail relating to affect, it was challenging to draw any conclusions for scores on mental health measures. The most commonly appearing categories were affective valence (31 instances) and relationship with parents (29 instances). Inductive categories reflect the expected topics of importance given the age demographic of the student sample, with much focus being on parents, romantic relationships, friends, peers, success and (in)justice. This suggested a focus more on the relational than the individual or collective aspects of identity (Sedikides & Brewer, 2001).

2.4 Discussion

The aim of this study was to gather a broad baseline of data across dysphoria, hypomania and rumination and their relationships with both voluntary and involuntary autobiographical memory retrieval. We were looking for similarities and differences across memory types and mood measures, based on findings and gaps from previous research. Anxiety was not investigated in this research, which predated findings of a relationship between anxiety and specificity deficits (Hallford et al., 2019) and the proposal of CaR-FA-X as a transdiagnostic indicator (Barry et al., 2021).

Hypomania

It was expected that the number of specific voluntary negative memories would be positively related to hypomania. However, no relationship was shown for either positive or negative memories. These findings are inconsistent with previous evidence showing a relationship between hypomania and faster recall and higher specificity for negatively cued memories (Delduca et al., 2010). Research

with euthymic participants (Boulanger et al., 2013; Kim et al., 2014) has found that euthymic participants conversely retrieve fewer specific negative memories. An investigation of recall across bipolar mood states (Silva et al., 2021) suggests that manic participants recall more episodic detail than those in a depressed state, suggesting a potential continuum for specificity. This study had a mean hypomania score over the cutoff for bipolar disorder; it is possible that retrieval of more specific memories in response to negative cue words (Delduca et al., 2010) may have been offset by the retrieval of less specific negative memories that has been found in euthymia (Boulanger et al., 2013; Kim et al., 2014). Alternatively, it is possible that the AMT was not sensitive enough to pick up individual differences in a subclinical population (Farina et al., 2019).

An important novel aspect of this study was to examine hypomania in involuntary memory. No relationship was found between hypomania and either specificity or response time. There was also no relationship between hypomania and valence of memory at recall for either positive or neutral memories. However, there was a significant positive relationship between hypomania and valence of negative memories at recall. Though these did not remain significant after a Bonferroni correction, it suggests that people scoring high on the hypomania measure may tend to rate negative events more positively when memories are spontaneous.

The finding of a positive correlation between hypomania scores and valence of memory, both at recall and at time of event, is interesting. The manic defence hypothesis (Neale, 1988) proposes that mania is a defensive response, in which grandiose self-appraisals serve to protect self-esteem from negative events and cognitions. Underlying this is low self-esteem similar to that found in unipolar depression (Winters & Neale, 1985). Depressive attributional style (Seligman et al., 1979), which causes people with depression to attribute significantly more negative events to internal rather than external causes, has also been demonstrated in remitted bipolar patients, who nevertheless self-reported self-esteem measures similarly to a control group (Winters & Neale, 1985). Given that, in involuntary memory recall, the current study found depression to relate to rating negative memories more negatively at recall, and conversely hypomania to relate to rating negative memories more positively both at recall and time of event, there is support for a defence hypothesis (Neale, 1988). A mood congruency effect that improved valence could act to protect self-esteem from potentially damaging affect.

Dysphoria

It was expected that the number of specific positive memories in generative recall would be negatively related to dysphoria. In fact, no relationship was found for either positive or negative

memories. This differs from findings in previous research using the AMT with dysphoric participants (Popovski & Bates, 2005). This may be a consequence of methodology, as results using cue words with subclinical depression are inconsistent, and other studies have also failed to replicate this effect (Debeer et al., 2009; Raes et al., 2007). Indeed, Raes et al. (2007) suggest AMT may be insufficiently sensitive for a nonclinical population. Retrospectively, the study might potentially have yielded more significant results with a non-clinical population and a student sample had the SCEPT (Raes et al., 2007) or minimal instruction AMT (Debeer et al., 2009) been used in place of the AMT.

It was expected that there would be no relationship between dysphoria and specificity in involuntary memory recall. In fact, a negative relationship was found between dysphoria and the number of specific positive memories recalled, which remained significant after correcting for multiple tests. This aligns with the main body of research on voluntary autobiographical memory retrieval and dysphoria (Williams et al., 2007), but not with the original involuntary memory study (Kvavilashvili & Schlagman, 2011) on which the current study was based. As this study was correlational, there are limits to the inferences that can be drawn. However, findings do partially align with existing theories. The negative relationship demonstrated between depression and retrieval of specific positive memories in involuntary memory retrieval aligns with theories of functional avoidance and the CaR-Fa-X model (Williams et al., 2007), though this does not explain why it was found in involuntary but not voluntary memory in this study. The Self-Memory System (Conway & Pleydell-Pearce, 2000) suggests that functional avoidance is less likely in direct memory recall, where there is no top-down search process or elaboration of mnemonic cues. However, this may be a methodological limitation; participants rated the memory a number of seconds after recall, which would allow engagement of executive processes prior to rating valence.

As predicted, higher dysphoria scores were associated with rating the valence of recalled negative memories lower at the time of recall in direct memory retrieval, though this was no longer significant after a Bonferroni correction. This finding aligns with previous research (Kvavilashvili & Schlagman, 2011) in which participants scoring high for dysphoria showed no difference in specificity for involuntary memories but rated their memories more negatively. Interestingly, a significant negative correlation was found between dysphoria and valence of negative memories at recall in generative recall, though this was no longer significant after correcting for multiple tests. This evidences a mood congruency effect in voluntary recall similar to that found in the earlier study on direct memory retrieval (Kvavilashvili & Schlagman, 2011). These findings suggest a negative relationship may exist between depression and valence of recalled memories regardless of whether memories are prompted by a cue or recalled spontaneously. Alternatively, it may be that some of the memories were directly rather than generatively recalled, which is supported by the relatively

short mean response times. Even though participants were asked to recall a specific memory relating to a cue word, some of the memories may have been spontaneously triggered by the cue word, rather than effortfully recalled through a generative process.

A linear regression was conducted to assess impact of hypomania and dysphoria on valence of involuntary negative memories at recall. Hypomania did not enter as a significant predictor once depression was controlled for, but still predicted an increase in the valence of negative memories at recall. However, depression remained a significant predictor of a decrease in valence of negative memories at recall.

Brooding

It was anticipated that high scores on rumination measures would be negatively related to retrieval of specific memories in generative recall, and that this would relate to the brooding rather than the reflection component of rumination (Romero et al., 2014). This prediction was not supported. No relation was found between brooding and specificity. This differs from some previous findings (Romero et al., 2014; Watkins et al., 2000). The variation in findings may be due to methodological differences. Romero et al. (2014) points out the standard AMT has not been successful in demonstrating a link between rumination and memory specificity deficits, including the distinction between brooding and reflection, and used a free recall task. The sample size was also much larger, being 139 students as opposed to 68. Watkins et al. (2000) used AMT with dysphoric participants, but in that study active interventions were used to instigate reflection or brooding. However, these findings also align with later research (Chiu et al., 2018) which found little influence of rumination on specificity. Recent evidence has challenged CaR-FA-X; although an earlier review (Sumner et al., 2014) found broad support, a recent meta-analysis (Barry et al., 2021) found little evidence of group differences in CaR-FA-X processes contributing to variability in group differences in memory retrieval. Other factors may be contributing to overgeneral memory.

However, a highly significant negative relationship was found between brooding and number of specific positive memories in direct recall, which remained significant after a Bonferroni correction. Participants who scored high on the measure for brooding recalled fewer specific positive memories. Additionally, a significant positive relationship was found between reflection and response time for negative memories, though this was no longer significant after correcting for multiple tests. Participants who scored high on reflection took longer to recall memories in response to negative cues. Potentially, brooding reduced access to positive memories where these were not prompted by a specific cue word, and reflection reduced the accessibility of negative memories. Existing evidence

on the role of brooding in psychopathology via autobiographical memory is mixed; while research implies it is a transdiagnostic vulnerability factor (Feldman et al., 2008; McLaughlin & Nolen-Hoeksema, 2011), a meta-analysis (Chiu et al., 2018) suggested that its role in autobiographical memory specificity is non-significant. Given the very small sample size for involuntary memories in this study, further research would be needed to make any assumptions.

Interestingly, a significant negative relationship was found between brooding and valence of memory at recall for both positive and negative memories in generative memory, though this remained significant only for negative memories after correcting for multiple tests. Previous research (Thomsen et al., 2011) supports a relationship between rumination and phenomenal aspects of autobiographical memory, and suggests that rumination is linked to more reliving when recalling past events. Brooding may contribute to lower valance though repetitively dwelling on events in a negative, passive way.

Dysphoria and Brooding

It was predicted that the relationship between depression and memory specificity would disappear once the influence of rumination was controlled (Romero et al., 2014). This prediction was supported. A regression was used to assess the relative relationships of depression and brooding on the number of specific positive direct memories recalled. Findings showed that brooding to be a significant predictor for reduced specificity around autobiographical memories, though the relationship was no longer significant after controlling for depression. This finding loosely supports proposals that rumination may be causal in overgeneral memory (Watkins & Teasdale, 2004), and aligns with research into voluntary autobiographical memory (Romero et al., 2014) which suggests that brooding may be the underlying factor in reduced specificity for positive memories in dysphoria.

The synchronicities between voluntary and involuntary memory in brooding and dysphoria are interesting, and suggest further research may be needed. Potentially, an empirical study investigating brooding across voluntary and involuntary memory retrieval could expand knowledge in this area, though other research has found a limited effect of rumination on specificity (Chiu et al., 2018).

Specificity

The lack of findings for specificity deficits in voluntary memory, across all mood measures, may be due to the high proportion of specific memories retrieved in the sample group for both positive and negative memories. It is notable that the effect that had been anticipated in voluntary memory retrieval in relation to brooding and depression, that is, a deficit in the number of positive memories recalled, was demonstrated in involuntary memory recall. Though caution must be exhibited in drawing any conclusions from this study, given its correlational nature, findings suggest merit in further exploration of similarities between memory specificity deficits in voluntary and involuntary memory retrieval.

Mood Congruency Effects

The main findings of the current study related to mood congruency effects, specifically around the relationship between scores on mood measures and how participants rated the valence of their memories. Participants scoring high on the dysphoria measure rated their negative memories more negatively at the time of recall, whether retrieved generatively or directly. Participants scoring high on the brooding measure also rated both negative memories and positive memories more negatively at time of recall, but only for cued memories, with no significant effect seen for spontaneous memories. Brooding, rather than depression, was found to be the predictor of lower valence in cued negative memories. Conversely, participants scoring high on the hypomania measure rated their negative memories more positively both at time of recall and at the time of the event, for spontaneous memories only.

The finding of a mood congruency effect in cued autobiographical memory, with higher dysphoria scores correlating to a lower valence of negative memories at recall, as found in spontaneous autobiographical memory in previous research (Kvavilashvili & Schlagman, 2011) also supports further research to investigate synchronicities between generative and direct autobiographical memory in dysphoria. The finding of an opposite effect in hypomania, with negative cued memories being rated more positively at recall, suggests that extending research across other psychopathologies may also be beneficial.

Themes

The final aim was to assess the qualitative component of data to identify recurring themes in autobiographical memory and potential relations to dysphoria, hypomania and brooding.

Qualitative Content Analysis (Mayring, 2000) demonstrated that a large proportion of retrieved memories did not relate to either deductive or inductive themes. Although the content of recalled memories showed high specificity, many of the responses lacked qualitative detail and a significant proportion of retrieved memories could not be categorised. A challenge to standard autobiographical memory studies has been that memory specificity does not mean that the memory has any personal significance, and that therefore the word "autobiographical" is being misused (Bluck & Habermas, 2000). Though the sample is too small to draw any solid conclusions, qualitative findings do suggest that, at least in this study, this may be the case.

Methodological Considerations

There are a number of limitations to this study that need to be considered. Primarily, questions have been raised around the sensitivity of the Autobiographical Memory Test and its consequent ability to achieve significant results in a subclinical population. In retrospect, it would have been better to use a minimal AMT instruction or Sentence Completion Task (SCEPT) for the voluntary memory section of this study. Another limitation is that the number of participants was less than originally anticipated for the involuntary memory section of the study, due to restrictions imposed by COVID-19, increasing risk of Type I or Type II errors in the data. Furthermore, there was a high proportion of specific positive memories (.77) and negative memories (.74) which may suggest a non-representative sample, potentially due to a reasonably high level of executive function in an undergraduate group. A wider sample might also have generated different inductive categories, and potentially more responses that could have been categorised. Finally, a number of results were no longer significant after applying a Bonferroni correcting for multiple tests. Though this is considered conservative, and though some results thus corrected are grounded in previous research and theory, this should be noted.

Conclusion

In summary, although the study was limited by methodological constraints and partially by sample size, and did not find all of the predicted results, there were interesting findings around similarities between voluntary and involuntary memory which suggested further research into the impact of brooding and dysphoria across memory types. An experimental study into memory retrieval across the phases of hypomania, and an empirical investigation of differences in mood congruency effects in generative and direct memory across dysphoria and hypomania, may be informative.

As autobiographical memory is understood to be the database of the self (Conway & Pleydell-Pearce, 2000), and given the links between specificity and psychopathology, a study on autobiographical memory was a logical entry point to this thesis. Given that many of the memories recalled were not of great importance to the participants' identity or emotion, lacking either specificity or affective content as shown by qualitative analysis, the next study will investigate self-defining-memories (Moffitt & Singer, 1994). There is an increased likelihood that such memories will relate more directly to self and identity.

CHAPTER 3: AN INVESTIGATION OF SELF-DEFINING MEMORIES, LIFE GOALS, AND PSYCHOLOGICAL DISTRESS

3.1 INTRODUCTION

There is consistent evidence supporting an important role of identity in mental health outcomes. For example, self-discrepancy theory (Higgins, 1987; Schlechter et al., 2022) has linked anxiety and depression to gaps between the actual self (who we actually are) and ideal (who we want to be) or ought self (who we think we ought to be) (see section 1.2.1, page 10). However, as noted by McAdams (2003) "The *self* is many things, but *identity* is a life story" (p187). The life story theory of identity, as proposed by McAdams (1993, 1996a) is that narrative identity is created through the life story (McAdams, 2018); see section 1.3.2, page 21). Autobiographical reasoning, making connections between different aspects of one's past, present and future, is the process by which the life story is used and formed (Habermas & Bluck, 2000) (see section 1.3.3, page 22). In the context of mental health, McAdams et al. (2001) described how recollections of contamination (where positive events were turned into negative) or redemption (where negative events were turned into positive experiences) were associated with measures of psychological wellbeing, with positive affect arising from redemption memories and negative from contamination memories (see section 1.4.1, page 35). For example, a redemption story might contain recollections of childhood adversity which led to a career helping other children through trauma, while a contamination story might describe a hard-won career or professional achievement which subsequently led to loss of a family relationship or an unhappy career. Redemption sequences have been negatively associated and contamination sequences positively associated with depression (McAdams et al., 2001).

The source of autobiographical knowledge is memories of personally experienced events (Conway & Pleydell-Pearce, 2000) (see section 1.4, page 30). Bluck and Habermas (2000) suggested that selective recall and sequential ordering of memories demonstrated the existence of a higher order process, defined in a revised version of the self-memory system (SMS; Conway et al., 2004) as the life story schema. This revised SMS considered the dual functions of the autobiographical memory system to be adaptive correspondence, the requirement for an accurate recording of ongoing goal activity, and self-coherence, the requirement for a stable and coherent image of the self in its interaction with the world (see section 1.4.1, page 32). Life story narrative also stresses a requirement for global coherence (Habermas & Bluck, 2000) (see section 1.3.3, page 23) and adaptive correspondence can also be linked to narrative, as life story memories are linked to long-term goal pursuits (Thomsen, 2009). As research expands, the parallels between cognitive memory

research and narrative theory become increasingly apparent; and specifically the life story schema, as the link between memory and self (Bluck & Habermas, 2000), implies a value in investigating the content of memory as it relates to identity.

Autobiographical Memory and Mental Health

Research examining the link between autobiographical memory and psychological wellbeing has tended to focus on the phenomenon of overgeneral memory (see section 1.4.2, page 38). This body of work has confirmed that a tendency to retrieve general memories, particularly categorical memories (summaries of repeated events), instead of specific (recollections of unique episodic events) is a transdiagnostic feature of many forms of psychopathology, including depression, post-traumatic stress, and schizophrenia (Barry et al., 2021). However, as highlighted by Raes et al. (2007), this tendency has not always been observed in subclinical samples. The findings of study 1 (Chapter 2, page 49) of the current thesis also showed no significant link between subclinical psychological distress and overgeneral memory.

Self-Defining Memories

One challenge is that not all memories are equal. Although there is general agreement that autobiographical memory is strongly linked to the self (Brewer, 1986; Conway & Pleydell-Pearce, 2000; Conway et al., 2004; McAdams, 1982; Robinson, 1986; Woike, 1995), many memories cued by the standard Autobiographical Memory Test (Williams & Broadbent, 1986) may not be of any meaningful personal significance. Consequently, Bluck and Habermas (2000) proposed that "current work on autobiographical memory does not take the term *autobiographical* seriously enough." (p121). According to the authors, only memories linked to the self through emotion and motivation are truly autobiographical, given that it is the memories that are highly significant at encoding and personally relevant at retrieval that are likely to have been included in the life story (Conway & Holmes, 2004).

Self-defining memories (SDMs) (Blagov & Singer, 2004; Singer & Salovey, 1993) (see section 1.4.1, page 34) are memories that are very familiar, clear and important, that help a person to understand themselves, and that they might use to describe to a friend if they wanted to help the friend to understand them on a more fundamental level. SDMs have been linked by a growing body of evidence to identity and psychological distress. For example, formerly depressed patients recalled less vivid positive memories and more vivid negative memories in a sad mood than never-depressed

participants, though mood did not impact the number of positive or negative memories recalled (Werner-Seidler & Moulds, 2012)(see section 1.4.1, page 36). Sumner et al. (2013) examined SDM in dysphoric and non-dysphoric participants, and although specificity of SDM was not associated with depression scores cross-sectionally it did predict depression longitudinally (Sumner et al., 2013) (see section 1.4.1, page 34). Expanding findings on mood congruency effect in autobiographical memory research, it was found that retrieval of positive self-defining memories improved mood in never-depressed and remitted depressed, but not currently depressed participants, independent of processing mode (Werner-Seidler & Moulds, 2014). These findings support Teasdale's differential activation hypothesis (Teasdale & Dent, 1987), theories of a relationship between threats to self-esteem and psychopathology (Berntsen & Rubin, 2007) (see section 1.4.1, page 36), and evidence of links between self-defining memories, self-esteem and anxiety (Nourkova & Vasilenko, 2018) (see section 1.3.5, page 27). It has been suggested that coping behaviours in psychopathology may be an attempt to distance the self from intrusive images (Cili & Stopa, 2015a) and demonstrated that recalling positive self-defining memories induced higher state self-esteem than recall of negative self-defining memories, and that this influenced additional aspects of self, such as self-concept clarity (Cili & Stopa, 2015b) (see section 1.4.1, page 35). A subclinical population with bipolar disorder has been demonstrated to show differences in affect and stability of current negative self-image, and affect and certainty for positive future self-image, suggesting a potential impact both on memories selected to define the self, and goal confidence (Di Simplicio et al., 2015). Additionally, evidence supports SDMs in participants with bipolar disorder being more negative, less integrated and containing more tension that SDMs in a control group (Raucher-Chéné et al., 2021). These findings suggest that recall of highly relevant self-defining memories has an influence both on affect and self-concept, at least in the short term. However, it does not directly investigate whether there is a direct relationship between negatively valenced self-defining memories and psychopathology.

Goals and Motivation

It has been suggested in the SMS model (Conway et al., 2004) that failure to achieve important goals may create an inability to code information related to the failure, and additionally may threaten stability of self. Researching affective responses to self-defining memories and their relationship to related goals, Moffitt and Singer (1994) asked participants to generate self-defining memories and rate their current affective response to these memories using a list of major emotions. Participants also listed important goals, rated the affective value of achieving or not achieving these aspirations, and rated each memory for relevance to attainment or failure to attain each goal. Findings

supported the hypothesis that affective responses to memories, both positive and negative, would be linked to attainment or non-attainment of goals. However, this study does not address any direct relationship between confidence in goal attainment and psychopathology. If stability of sense of self is threatened, and ability to code information reduced by goal failure (Conway et al., 2004), then expectations of goal success and valence of self-defining memory may jointly impact psychopathology. The growing body of evidence of a relationship between self-defining memory and psychopathologies (Berntsen & Rubin, 2007; Cili & Stopa, 2015a, 2015b; Nourkova & Vasilenko, 2018; Sumner et al., 2013; Werner-Seidler & Moulds, 2012) suggests there is value in investigating self-defining memories and goals in relation to mental health measures.

The Current Study

The aim of the current study was to examine the relationships between characteristics of self-defining memories, goal achievement expectations and measures of psychopathology in a non-clinical community sample. This study extends existing research by looking at the combined impact of characteristics of self-defining autobiographical memories (importance, vividness, and valence at retrieval) and confidence in being able to attain goals on mental health measures. Participants were asked to recall five self-defining memories, confirm the emotions experienced at time of event and time of recall from a list of presented emotions, and rate memories for affect at recall, vividness, and importance. Additionally, participants were asked to report fifteen of their important life goals and predict their likelihood of success in achieving these goals. Finally, participants completed measures of state and trait depression (MSTD), state and trait anxiety (STAI), and hypomania (HCL-32).

It was predicted that higher scores on depression (Berntsen & Rubin, 2007), anxiety (Nourkova & Vasilenko, 2018) and hypomania (Raucher-Chéné et al., 2021) would be negatively correlated with valence of SDMs. Secondly, it was predicted that expectations of goal achievement would negatively correlate with scores on measures of depression (Conway et al., 2004). Given that anxiety is predominantly future oriented (Eysenck & Fajkowska, 2018), it was expected that there would also be a negative relationship between anxiety and expectation of goal achievement. As bipolar disorder is association with elevated expectation of goal achievement (Murray & Johnson, 2010), it was predicted that there would be a positive relationship between hypomania and expectation of goal achievement. Thirdly, given that SDMs are the memories used to define the self (Singer & Salovey, 1993) and may be expected to be detailed and vivid, vividness will be used as a proxy for specificity in this study and therefore it was predicted that higher scores on psychopathology measures would correlate with lower scores for vividness (Williams et al., 2007). Finally, given the centrality of self-

defining memories to sense of self (Bluck & Habermas, 2000; Conway & Pleydell-Pearce, 2000), it was predicted that higher scores on importance would correlate positively with vividness.

An additional aim was to assess the qualitative aspects of the data, investigating recurring themes within self-representation that might show relationships with psychological distress. We were particularly looking for achievement, due to its relationship with goal attainment (Moffitt & Singer, 1994), self-discovery (Singer & Moffitt, 1992), and redemption and contamination narratives (McAdams et al., 2001). It was anticipated that self-defining memories closely related to beliefs in achievement ability, or to turning points in the life narrative, might impact mood. Analysis was initially conducted on the entire sample, prior to assessing responses with the highest psychopathology scores, looking for qualitative differences. The qualitative research question was: What relationships may exist between factors in self-defining memory and psychological distress?

3.2 Method

Design

The current study used a cross-sectional correlational design to investigate relationships between the characteristics of self-defining memories, expected goal achievement, and mental health measures. The variables were scores for anxiety, depression and hypomania, valence of memories at recall, vividness, importance, and goal confidence. Mood before and after measures was also recorded.

Participants were asked to detail five self-defining memories with as much detail as possible, describe their main feeling about the memory in one word, and detail the reason that their feelings about the event had changed, if applicable. Qualitative Content Analysis (QCA) was used to analyse responses, looking for themes relating to self-representation and meaning-making.

Participants

A power calculation using GPower revealed that to detect a medium effect size (0.3) on a Pearson correlation with power of .8 and an alpha level of .05 for a one-tailed test requires 64 participants. 90 participants were recruited from the general public and from Aston University took part in the study, however 22 participants had to be discarded from the analysis due to incomplete data[2],

[2] The study was planned for face-to-face data collection, but due to Covid-19 lockdown data collection was moved online, which resulted in a number of participants missing out the self-defining memories or the questionnaires.

leaving 68 participants (10 males, 57 females, 1 preferred not to say; mean age = 25.3 years, S.D. = 12.9). Aston University participants were psychology students recruited through internal systems for course credit. External participants were recruited through social media. The study was approved by Aston University's Research Ethics Committee.

Materials and Measures

Maryland Trait and State Depression Scale (MTSD) (Chiappelli et *al,* 2014)

The MTSD is a reliable 36-item scale, split into two equal sections, the "state" section capturing current depressive symptoms and the "trait" section capturing habitual symptoms of depression across the lifespan. Participants are asked to state how regularly they have experienced certain moods or behaviours in the course of the past week (e.g. "I cry because my mood is low") or at times excluding the past week (e.g. "I cried often because my mood was low.") Scores are assigned on a Likert scales between 0 - 4 for each item, giving a highest possible score of 72 for each section, with higher scores equating to more severe depression. The results of the current study confirm that both subscales showed excellent reliability; state depression (Cronbach's alpha = .93) and trait depression (.96). The measure for depression was changed from CES-D to MSTD in order to be able to differentiate between state and trait depression.

State-Trait Anxiety Inventory (STAI) (Spielberger et *al,* 1983)

The STAI is a clinically reliable 40 item self-report scale, split into two equal sections, the "state" section capturing current anxiety symptoms and the "trait" section capturing habitual anxiety trait behaviours. Participants are asked to state how they feel right now (state) and how they generally feel (trait) (e.g. "I am calm.") Scores are assigned on a Likert scales between 1 - 4 for each item, with scoring reversed for anxiety-absent items. Scores range from 20 - 80 for each section, with a cue point over 40 suggested as a cut-off for clinically significant symptoms on the STAI-S scale. The results of the current study confirm that both subscales showed excellent reliability; state anxiety (Cronbach's alpha = .94) and trait anxiety (.94).

Hypomanic Checklist (Angst et al., 2005)

The HCL-32 is a 32-item checklist in which participants report either "yes" or "no" to questions (e.g. "I think faster") about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating

to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits.

Self-Defining Memory Recall (Moffitt & Singer; 1994)

Participants recorded five self-defining memories. For each memory, the participant used check boxes to indicate the presence, at time of experience and time of recall, of the 10 primary emotions (happiness, sadness, anger, fear, surprise, shame, disgust, guilt, interest, contempt; Izard, 1977) plus pride and embarrassment, which were also included in the initial study (Moffitt & Singer, 1994). Participants rated each memory for vividness and importance on a Likert scale from 0 – 5. Valence of affect for each memory was rated on a VAS scale (smiling/frowning face) with a range of 1 – 5, where 1 = very negative. Additional information captured for qualitative analysis was a one-word description best describing the memory, and a free text comment on any reasons for changes to affect between time of event and time of recall.

Personal Strivings (Emmons, 1986)

Participants recorded 15 personal goals that had been described as 'the things that are most important for you to accomplish in your life' then gave a Likert rating of 1-5 on the likelihood of their success in attaining the goal.

Procedure

The study was carried out via an online questionnaire on Qualtrics. After reading an information sheet, participants provided informed consent and scored their current mood from 1 – 5 on a Likert scale, where 1 was very negative and 5 very positive. They were then instructed to record five self-defining memories, in as much detail as possible. A description of self-defining memories was given to encourage recall of memories rich with self-description, understanding and emotion (Singer & Moffitt, 1992). Self-defining memories were therefore defined as *memories that are very familiar, clear and important to you, that help to understand yourself, and that you might use to describe to a friend if you wanted to help them understand you on a more fundamental level. They are the memories of the events that you feel contributed to making you, you*. After entering details of the memory, participants were shown the list of emotion words and asked to check the box beside any emotion experienced when thinking about the memory in the current moment. Next, participants rated the memory on a Likert scale ranging from 0 – 5, with 5 being highest, for vividness and importance. Participants were then asked to show how negative or positive, from 1 – 5 where 1 = most negative, they felt about the memory using a VAS. A free text section asked for one word that

best described their main feeling about the memory. Participants were then presented with the emotion word boxes and asked to tick boxes for any emotions they remembered experiencing at the time of the event. A free text section allowed participants to record why they felt differently about a memory now than at the time of the event, if this was the case.

Participants were then asked to list their fifteen most important goals, which were defined as *the things that are most important for you to accomplish in your life.* After each goal, the participant recorded their perceived likelihood of achieving the goal on a Likert scale of 0 – 5, with 5 bring most likely. Finally, all participants completed the HCL-32, MSTD-S, MSTD-T, STAI-S and STAI-T and being provided with a debrief. Participants who were Aston University students received course credits for taking part.

Scoring and data analysis

Of the 90 participants who took part on the study and completed the section on self-defining memory, 22 failed to complete the section on goals, mood measures or both. These responses were rejected. Therefore, only 68 responses were used. Of these, 67 participants recalled five self-defining memories, and one participant retrieved four. Participants additionally recorded between four and fifteen goals (mean = 13.5, SD = 3.14) which they felt to be important .

Quantitative Analysis

A score for vividness, importance and valence of self-defining memories was calculated for each participant by calculating the sum of the ratings and dividing by the number of responses. A mean score for likelihood of achieving goals was similarly calculated by calculating the sum score for goal achievement likelihood and dividing by the number of goals provided.

Qualitative Analysis

The unit of analysis for this study is participant's narratives of self-defining memories and their explanations for any change in affect between time of event and time of recall. This selection method provided a total of 340 responses for analysis. Analysis was carried out according to the guidelines set out of Qualitative Content Analysis (QCA) (Graneheim & Lundman, 2004; Mayring, 2000). As we were seeking to discover information around participants' self-representations, which might be implicitly rather than explicitly stated, focus was more heavily on latent rather than manifest content i.e. what the text *deals with* rather than what the text *says*: (Graneheim & Lundman, 2004).

The first step of QCA is to define the criteria for forming *categories* and the coding rules for theory-driven categories. Categories are defined as 'a group of content that shares a commonality'

(Krippendorff, 2018). QCA categories are both inductive (data-driven from recurring themes within the data, bottom-up) and deductive (theory-driven, top-down). Based on the research question, the theoretical criterion for category formation was stated as "Factors considered central to identity". The context was a study aiming to understand how the content of autobiographical memories considered to be self-defining, and beliefs around why emotion around the event might have changed over time, might relate to their mental health outcomes, in line with the research question "What factors in self-defining memory impact psychological distress?"

Two deductive categories were defined based on existing theoretical work on identity. These were self-discovery (Singer & Moffitt, 1992) and contamination/redemption (McAdams et al., 2001). Coding rules were set to categorise *meaning units* to a specific category when they clearly referenced the phenomenon (meaning units are pieces of text, from single words to paragraphs, relating through context or content, and they are assigned a label which is referred to as a *code* (Graneheim & Lundman, 2004)) and defined in a *coding agenda* (Mayring, 2000)). Next, the participant explanations were iteratively read, categorised and reviewed, identifying inductive categories. As part of this process, final clarification of inductive and deductive categories and their coding rules was achieved, a taxonomy of hierarchically organised categories was created, and the coding rules updated. Finally, meaning units were categorised according to the coding rules. Categorised meaning units were reviewed to increase understanding of themes that might underlie changes in affective responses to a memory, from time of event to time of recall.

After analysis was conducted on the full sample, an additional sample was carried out on a subset with the highest psychopathology scores, to identify differences in construction and construal of the self-representation which might undermine psychological well-being.

3.3 Results

Means and range for all measures are presented in Table 3.1. The mean MSTD scores are both below the central score point of 36 for depression. The mean scores on both STAI tests are above the suggested cut-off for clinical significance for anxiety, which is 40. The mean score on the HCL-32 is below the suggested cut off of 14 for bipolar disorder.

Table 3.1: Mean age and scores on memory, goal and mood measures (standard deviation are presented in parentheses)

n=68	Mean (SD)	Range
Age	25.3 (12.9)	18 - 70[3]
Valence At Recall	3.65 (.68)	2 - 5
Importance	4.00 (.62)	2.4 – 5
Vividness	4.13 (.74)	1.2 – 5
Goal Confidence %	3.70 (.57)	2.21 – 4.93
State Depression (MSTD-S)	23.0 (15.9)	0 - 54
Trait Depression (MSTD-T)	24.4 (16.5)	0 - 56
State Anxiety (STAI-S)	40.5 (11.6)	21 - 68
Trait Anxiety (STAI-T)	45.2 (13.0)	21 - 72
Hypomania (HCL-32)	10.4 (5.7)	1 - 25

Correlations between psychopathology variables

Significant correlations were found between state depression and trait depression (r=.803, p=<.001), state depression and state anxiety (r=.719, p=<.001), state depression and trait anxiety (r=.830, p=<.001), trait depression and state anxiety (r=.641, p=<.001), trait depression and trait anxiety (r=.802, p=<.001), trait depression and hypomania (r=.278, p=.022), and state and trait anxiety (r=.793, p=<.001). No significant relationship was shown between hypomania and state depression or state and trait anxiety.

Correlations between memory, goal and psychopathology variables

Table 3.2 shows correlations between variables. Significant relationships were found between importance and both vividness (r=.309, p=.010), which remained significant after a Bonferroni

[3] Recruitment was run for participants aged 18-65. However, the study was carried out remotely and one participant over the requested recruitment age took part

adjustment, and goal confidence (r=.243, p=.046), which was no longer significant after a Bonferroni adjustment (adjusted alpha = .013). Significant relationships were also demonstrated between goal confidence and state depression (r=-.326, p=.007), trait depression (r=-.291, p=.016), state anxiety (r=-.273, p=.024) and trait anxiety (r=-.320, p=.008), though only the relationships with state depression and trait anxiety remained significant after correcting for multiple tests (adjusted alpha = .013).

Table 3.2: Correlations between characteristics of self-defining memories, confidence in goal attainment and mood

n=68	Imp	Viv	Goal Conf	MSTD-S	MSTD-T	STAI-S	STAI-T	HCL-32
Valence	.201	-.119	.203	-.100	-.223	-.027	.001	-.175
	.10	.33	.09	.42	.07	.83	.99	.15
Importance	1	**.309***	**.243***	-.096	-.015	-.073	-.031	-.019
		.010	**.046**	.44	.90	.55	.80	.88
Vividness		1	.010	-.028	-.001	-.132	-.089	.046
			.93	.82	.99	.28	.47	.71
Goal Conf.			1	**-.326****	**-.291***	**-.273***	**-.320****	-.063
				.007	**.016**	**.024**	**.008**	.61

Identity Aspects in Self-Defining Memory Data

In addition to the deductive categories of self-discovery, redemption and contamination, nine inductive categories were identified as arising from the data. These were achievement, family, friendships/peer relationships, intimacy, loss/bereavement/injury/illness, childhood trauma, vocation/hobbies/interests, religious beliefs, and values/ethics/morals (see Appendix 1 for category analysis).

The first thing which became apparent on analysis of the data was that some, but not all, of the memories were incredibly detailed and recounted affect and life impact. It was also noted that some memories, although meeting the requirement for being vivid and affectively charged, were not necessarily related to important or unresolved themes or enduring concerns (Singer & Salovey, 1993), even when taking into account the underlying meaning i.e. what the text *deals with* rather than what the text *says*: (Graneheim & Lundman, 2004).

Categorisation of the memories was complex, as many of the recalled self-defining memories fell into multiple categories. For instance, an achievement might raise positive affect both because of one's own sense of achievement, but also due to affect created for meaningful people (e.g. #1: "The relief, pride and happiness I felt … phoning my parents to tell them my results and hearing their pride."). Some memories contained both negative and positive aspects, and clearly demonstrated redemption (e.g. #2: "We had to watch him die slowly…My husband and I are even closer…as we went through this trauma together…I feel a bit of a super strength that I can get through anything.")

Of 415 categorisations, far more were positive (266) than negative (149). The most commonly occurring categories were family (115 instances) and achievement (76 instances). There was a significant gap between these categories and the next most commonly occurring, which were friendships/peer relationships (47 instances) and vocations/hobbies/interests (39 instances). All aspects of identity (Sedikides & Brewer, 2001) are therefore referenced in the memories which were shared, with the main emphasis falling on relational aspects. The high incidence of the family category may be high in this sample due to the relatively low mean age of 25.3 years.

A small number of memories (27 positive, 2 negative) were classed as "self-discovery", that is, self-expansion events that were viewed as transformative and having an impact on self-perception. However, even when implying that the event(s) impacted the self, participants often did not elaborate on detail of *how* or *why* this was the case (e.g. #21: *GCSE results day I achieved higher grades than I expected and it made me realise what I could achieve and … believe in myself more).* In some instances, this was explicitly stated (e.g. *#63: leaving secondary school. It was very strict … when I left I felt extremely relieved because I was able to express myself how I wanted so I dyed my hair and got all the piercings I wanted. It was great".*

Both redemption and contamination sequences were displayed. Redemption (29 instances) was far more frequent than contamination (3 instances). Where redemption is displayed, frequently the negative affect from the time of the event still remains, but is now mixed with positive affect. This is reflected both in the text (*e.g. #48: I've developed very, very deep trust issues … I still feel very negatively about what I was put through, but I agree that I would have had no future in Poland. I feel proud of myself for what I've achieved and that I was able to get through it all without much help and come out on top)* and in changes in emotion between time of event and time of memory recall. In two instances of contamination, this was generated by later loss; *(#6: We broke up after two years and I eventually moved back home so all these memories are sad; #65: Moving from home to university accommodation this September… When i first moved out i was proud of my independence*

and happy to start a new chapter but now i am disappointed because it's quite lonely and you miss being at home).

Interestingly, one memory which clearly indicated impact to self-concept showed both redemption and contamination sequences *(#17: Whilst talking to my partner I told him I would like to be a coach. And he said a coach like my coach? Yes! I said you will never be like her because she has many years of experience and you have nothing…it wasn't until I left him 3 years after that…when I landed my first coaching client, an executive in a much MUCH higher position than him, that I understood I WANTED TO SHOVE IT UP HIS ARSE take that! You pretentious prick I am now working and living my dream, coaching and working to prove him wrong. But it has a down side, when I get negative feedback I feel incredibly insecure because of his own words. It has been difficult to untangle him from my identity).* This memory and the related affective responses demonstrate the incongruence that can exist within identity when evidence of competence and other positive qualities conflicts with negative social feedback internalised during a traumatic experience, and which can be retriggered by associated future events.

A initial comparison of responses against scores on mental health measures did not suggest any direct relationship between psychopathologies and the content or valence of the memories described as self-defining. This assessment considered a number of positive and negative memories, whether memories demonstrated self-discovery, and redemption and contamination sequences.

Seven participants were identified as scoring high across psychopathologies, and their responses were analysed to look for material differences. None of the participants had notable differences in scores on valence, vividness, importance or goal confidence. In two cases, it was observed that though the majority of memories were negative, there were multiple instances of redemption sequences. However, this was not observed in the other five cases so cannot be generalised. The remaining five participants recalled memories that were fairly well balanced between positive and negative.

Two of the participants evidenced childhood trauma in their narratives, one of whom included two redemption sequences. The third participant evidenced three redemption sequences, however responses were fairly superficial. The fourth and sixth participants' memories contained no obvious relating to psychopathology and were fairly positive, which may be linked to these participants scoring high (25 and 22) on the hypomania measure. The fifth participant also recalled fairly flat memories but these included a traumatic bereavement with ongoing affect. The seventh participant

scored high on both trait and state anxiety (60,72) and memories referenced anxiety frequently, supporting a link to current concerns.

3.4 Discussion

The aim of the study was to investigate the relationship of self-defining memories with measures of dysphoria, anxiety and hypomania in a subclinical population, looking at the impact of valence, vividness, importance and goal confidence.

The prediction of a negative correlation between scores on psychopathology measures and valence was partially supported. Although no significant correlation was demonstrated, relationships were observed with trait depression and hypomania where higher scores on the mood measure related to lower valence of self-defining memories. Though these failed to reach significance, they require further consideration as they support Berntsen and Rubin's (2007) proposal of a relationship between negative self-defining memories that threaten a positive view of the self and support depression, and additionally support existing evidence of SDMs in bipolar disorder being more negative (Raucher-Chéné et al., 2021). This study's findings suggests these effects may be observable in a subclinical population, and given that the study was not powered for this effect, failure to reach significance may be due to Type II error. A further study investigating this factor specifically in a larger subclinical sample may prove useful. The effect was not observed in anxiety, contrary to the findings of Nourkova and Vasilenko (2018). However, there were significant methodological difference, as the original study used hypnosis to implant positive memories to reduce anxiety longitudinally. Nevertheless, it is possible that differences in SDM valence relating to anxiety may not be observable in a subclinical population.

The prediction that lower expectations of goal achievement would correlate with scores on measures of depression (Conway et al., 2004) was supported. Significant negative relationships were shown between confidence in goal attainment and state depression, trait depression, state anxiety and trait anxiety, with the relationships with state depression and trait anxiety remaining significant after correcting for multiple tests. Finding no relationship between confidence of goal achievement and hypomania is surprising given the elevated expectation of goal achievement in bipolar disorder (Murray & Johnson, 2010), however there is also evidence of hypomanic participants describing less goal achievement events (Robyn et al., 2012), which suggests variances between bipolar disorder and hypomania.

Additionally, a moderate correlation was found between higher goal confidence and importance, with increased goal confidence being linked to a higher rating of the importance of memories, though this was no longer significant after a Bonferroni adjustment. This supports theories that memory is the basis for expectations of success or failure in goal attainment (Conway, 2001).

A review of existing literature (Jacob et al., 2022) suggested that goal setting can be helpful for young people who are experiencing anxiety or depression. These findings support this with the caveat that the goals must be expected to be achievable. As the population for this study was also fairly young, and as the study was correlational, it is not possible to extrapolate findings to state whether goal setting may also be helpful to older adults. However, there may be merit in an experimental study assessing the impact of manipulating goal achievement expectations in a wider age demographic.

The prediction that higher scores on psychopathology measures would correlate with lower scores on vividness, which was used as a proxy for specificity (Williams et al., 2007), was not supported. Given that reduced specificity is not always detected in subclinical samples (Raes et al., 2007), this may suggest only that significant differences in vividness relating to psychopathology were not present in this subclinical population. Valence-related vividness effects have been identified previously in depression (Werner-Seidler & Moulds, 2012). Further research would be required to draw any conclusions on potential vividness deficits.

The prediction that there would be a positive correlation between importance and vividness due to the centrality of autobiographical memory to the sense of self (Bluck & Habermas, 2000; Conway & Pleydell-Pearce, 2000) was supported, and remained significant after correcting for multiple tests. If we know ourselves through autobiographical memory and use it to construct the narrative self (Fivush & Haden, 2003) then it is logical that those memories deemed most important would be specific and detailed.

One additional observation on valence was that positive self-defining memories were more frequently recalled than negative self-defining memories. This may be due to selection, consciously or unconsciously, of memories that portray a positive self-image. An evaluation of existing literature on intrusive images in psychopathologies (Cili & Stopa, 2015a) proposed that coping behaviours may be a result of activation of specific working selves with a goal of distancing oneself from the intrusive image. It may be that in a similar manner, when asked to provide information on memories that portray one's identity to self and others, memories are selected that distance the self from negative associations and feedback.

A large number of memories contained redemption sequences (McAdams et al., 2001) compared to only three contamination sequences. A memory generating both contamination and redemption sequences around a set of events (in this case, negative feedback on the self, from a person of emotional importance) demonstrates vividly the complexity of identity, and the lability which can be found in self-concept. The predominance of redemption over contamination may relate to the young age of the sample set, as younger people may not consider contamination experiences as valuable.

A content analysis of self-defining memories failed to find any specific phenomenon relating to psychopathology, but reflected the complexity of such memories. This study was not able to derive any definitive conclusions in this subclinical population.

Methodological Considerations

The study was cross-sectional and correlational and unable to draw any conclusions on direction of causality.

Conclusion

This study's findings support low expectation of goal achievement being linked to depression (Conway et al., 2004) and also to anxiety. Additionally, increased goal confidence was connected with importance. Given existing evidence that goal setting may be helpful for young people with anxiety and depression (Jacob et al., 2022), it may be key to approach goal setting with a specific focus on supporting individuals to feel their goals are achievable. Further research is needed to assess whether achievable goal-setting may also be helpful for an older population.

The current study failed to find an effect of vividness in this subclinical sample. In the previous study, we looked at the comparative measure of overgenerality in autobiographical memory in a subclinical sample, and also failed to find an effect. These findings suggest that facets such as specificity, vividness and valance may be insufficient to account for the impact of identity on psychological wellbeing. An additional aspect of autobiographical memory is how it is used to support the sense of self, and this will be investigated in study 3 (Chapter 4, page 91).

Several other avenues of research are suggested by findings. It has been proposed (Berntsen & Rubin, 2007) that traumatic events creating memories which contain content that threaten self-esteem may be related to anxiety and depression. A review of content suggests that most of the recalled memories do not meet this criteria. Although no specific findings have emerged from the earlier studies around specificity or vividness in a non-clinical population, the memories obtained to date do not appear to be sufficient to support a clear sense of self. A further study (study 4, Chapter

5, page 107) will look at ‘transference objects’ (Pyszczynski & Greenberg, 1987), which are the roles, relationships, possessions that are felt to be central to identity. In particular, we will examine the impact of losing these (or the potential loss of these objects) on psychological wellbeing. Secondly, references to impact on self-concept caused by the events related in the memories suggest there is merit in investigating the impact of changes in self-concept on psychological outcomes. Self-concept clarity (Campbell, 1996) may also play a pivotal role and will be investigated in a further study (study 5, Chapter 6, page 127).

CHAPTER 4: DOES SELF-CONCEPT CLARITY MEDIATE THE RELATIONSHIP BETWEEN THE SELF-CONTINUITY FUNCTION OF AUTOBIOGRAPHICAL MEMORY AND PSYCHOPATHOLOGY?

4.1 INTRODUCTION

Previous chapters examined the relationships between measures of psychopathology and autobiographical memory specificity (Chapter 2, page 49) and characteristics of self-defining memories (Chapter 3, page 74). Autobiographical memories are recollections of events that have been personally experienced and stored in the autobiographical knowledge base of memory (Conway & Pleydell-Pearce, 2000) (see section 1.4, page 30).

Baddeley (2009) highlighted that memory research tends to focus on structure and process of memory retrieval and often ignores the functional purpose of *why* people remember. Indeed, the previous studies in this thesis have focused on how measures of psychopathology are linked to differences in the structure and process of retrieval of personal memories. It is also important to look at how individuals use autobiographical memories and how that might relate to differences in psychopathology.

It has been proposed (Bluck & Alea, 2002; Bluck et al., 2005) that autobiographical memory has three functions: *directing behaviour* to inform current behaviour through past experience, *self-continuity* to maintain a coherent sense of self across time and change and to support integration of changes into the self-concept, and *social bonding* to assist with the development, enhancement and maintenance of bonds with others (see section 1.4.3, page 42). These authors developed a measure, thinking about life experiences scale (Bluck & Alea, 2011) as an empirical measure of autobiographical memory functionality. This would seem to be an ideal method of examining if variations in psychopathology are linked to changes in AM functionality. In line with this proposal, Grace et al. (2016) used the TALE to examine the link between AM function and depression in a non-clinical sample of undergraduate students. Their results confirmed a positive relationship between depressive symptoms and the frequency of autobiographical memory use for self-continuity. This finding was unexpected, as according to theories of autobiographical memory (Alea & Bluck, 2013), more frequent use of autobiographical memory should increase wellbeing (see section 1.4.3, page 43). It is also unexpected because self-continuity is approach-oriented (Vignoles et al., 2006) and is associated with a number of psychological benefits (Sedikides et al., 2023), across a wide range of areas (attitudes, judgements, decisions, motivations, intentions, behaviour and psychological and

physical health). Grace et al (2016) suggested that the finding of a relationship between self-continuity and depressive symptomology might reflect rumination in those with higher depression scores (see section 1.4.2, page 40), or, alternatively, intrusive negative memories (Williams & Moulds, 2007). Extending this study, the authors examined the usefulness of self-continuity and concluded that, although participants with higher levels of depression use autobiographical memory for self-continuity more frequently than low scorers, they find doing so less useful. Furthermore, the greater use of AM for self-continuity may not be a deliberate strategy but may be caused by rumination (Grace et al., 2016). However, as rumination may also be used as a coping strategy to deal with stress (Papageorgiou & Wells, 2001) this may also have an adaptive element. Additionally, as depression and negative affect have been linked with fragmented self-representations (Diehl & Hay, 2011; Diehl et al., 2006) and negative self-representations (Beck, 1976) (see section 1.2.1, page 8) potentially there is an adaptive purpose of attempting to form a clearer sense of self, and to increase self-esteem (Grace et al., 2016).

An important factor that might provide further clarity regarding the relationship between depression and the use of AM for self-continuity is self-concept clarity (Campbell, 1996) (see section 1.3.6, page 27). Bluck and Alea (2002) demonstrated that self-continuity, as measured by the TALE, is negatively related to self-concept clarity. Individuals with low self-concept clarity more frequently reported using autobiographical memory to serve a self-continuity function (Bluck & Alea, 2009, 2011). Furthermore, individuals with low self-concept clarity have been found to use autobiographical memory in an attempt to restore disruption to the sense of self (Jiang et al., 2020). Importantly, depression and anxiety have been negatively related to self-concept clarity (Hayward et al., 2020; Wong et al., 2019).

The Current Study

The current study aimed to expand findings of Grace et al. (2016) by investigating whether self-concept clarity mediated the relationship between depression and the use of autobiographical memory for self-continuity. In addition, the current work examined if anxiety and hypomania were also linked to changes in use of AM functions and if self-concept clarity played a role in these relationships. We examined the direct and indirect effects (via the mediator of self-concept clarity) of TALE self-continuity on levels of depression, anxiety, and hypomania. A community sample of participants completed online measures of autobiographical memory function, self-concept clarity, state and trait depression and anxiety, and hypomania. Based on Grace et al. (2016), it was expected that there would be a significant direct effect of self-continuity on state depression. Given the

evidence of relationships between self-continuity and self-concept clarity (Bluck & Alea, 2002) and between self-concept clarity and depression (Hayward et al., 2020; Wong et al., 2019), an indirect effect of self-continuity on depression via self-concept clarity was expected. Additional exploratory analyses examined if these relationships would be replicated in trait depression, state anxiety, trait anxiety, and hypomania.

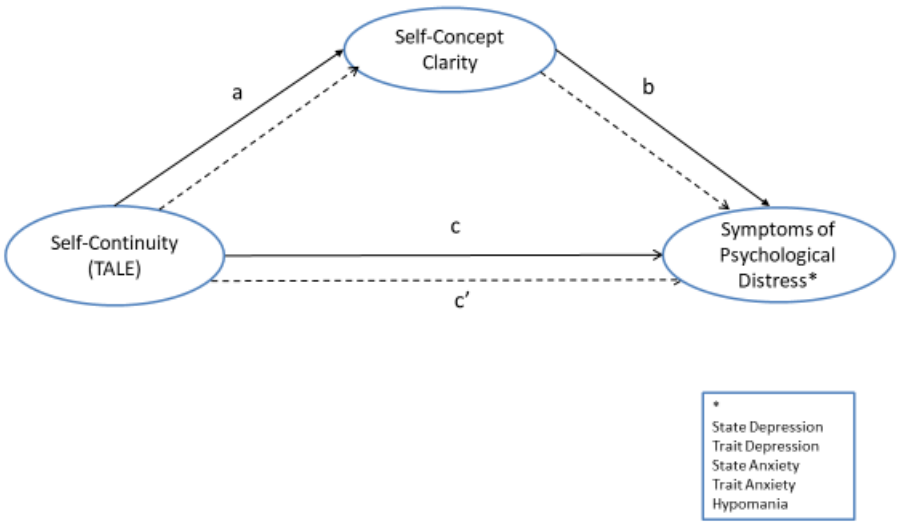


Figure 4.1: Proposed mediation model for direct (c') and indirect effects (a+b) of self-continuity (autobiographical memory) on subclinical psychopathology, via the mediator of self-concept clarity

4.2 Method

Design

The current study used a cross-sectional correlational design with bias-corrected bootstrapping to investigate the direct and indirect relationships (via the mediator of self-concept clarity) between self-continuity and measures of state and trait depression and anxiety and hypomania.

Participants

186 participants[4] were recruited through Prolific and social media. Participant eligibility stated participants must be aged between 18 – 65 and have a good understanding of written English. Of these, 27 (15%) produced an incomplete set of data and these results were removed from the

[4] The current study was part of a longitudinal investigation, and the sample size was based on power calculation conducted for that study (reported in Chapter 7)

analysis. This left a sample of 159 participants (30 males, 127 females, 2 preferred not to say; mean age = 41.8 years, S.D. = 12.0) with complete data sets. Previous papers using self-concept clarity as a mediator of psychopathology (Grace et al., 2016; Hayward et al., 2020; Wong et al., 2019) suggest that a small to medium effect size (F^2=.09) could be predicted. Based on the effect sizes observed, a power calculation was conducted using the tables reported in Fritz and MacKinnon (2007). Based on Bluck and Alea (2011) self-continuity is correlated with SCC (-.24). The average relationship between SCC and depression = -.30, based on -.25 from Wong et al. (2019) and -.34 from Hayward et al. (2020). The relationship between SCC and anxiety from Hayward et al. (2020) was -.24. The power calculation for mediation of self-continuity on depression via self-concept clarity was therefore .24, -.30, which according to Table 3 from Fritz & McKinnon (2007) is closest to HH and would require 148 participants for bias-corrected bootstrap. The power calculation for anxiety was -.24, -.24, which again is closest to HH and suggests a sample of 148 participants would be required. Therefore, the proposed mediation analyses were judged to be adequately powered. However, it should be noted that the actual cutoff for a medium effect is .26, and that therefore a more cautious approach would use the small effect size (.14) and the categories SH for depression (377 participants) and SS for anxiety (462 participants). Therefore there is some risk that these mediations may be underpowered.

All participants provided informed consent and the study was approved by Aston University's Research Ethics Committee.

Materials and Measures

Thinking About Life Experiences (TALE) (Bluck & Alea, 2011)

TALE is a 15-item scale measuring participants' use of autobiographical memory for different functions: self-continuity (e.g., "When I want to feel that I am the same person that I was before"), social bonding (e.g., "When I hope to also find out what another person is like"), and directing behaviour (e.g., "When I believe that thinking about the past can help to guide my future."). There are 5 questions relating to each function. Each item is rated using a 5-point Likert scale, with scores ranging from 1 ("almost never") to 5 ("very frequently"). The range of scores on each subscale is 5-25, with higher scores denoting more frequent use of autobiographical memory for the relevant function. This measure was used in order to capture the ways in which participants used autobiographical memory. Previous research has demonstrated that this measure is reliable; Cronbach's alpha = .83 for self-continuity, .74 for social bonding and .78 for directing behaviour

(Bluck & Alea, 2009). The TALE scores in the current study showed similar levels of reliability; for self-continuity (Cronbach's alpha = .79), social bonding (.77) and directing behaviour (.76).

Self-Concept Clarity Scale (SCC) (Campbell et al., 1996)

The SCC is a 12-item scale, which assesses coherence, stability, and definition of the sense of self (e.g., "In general, I have a clear sense of who I am and what I am"). Participants rate each item using a 5-point Likert scale with scores ranging from 1 (strongly disagree) to 5 (strongly agree). The range of scores on this measure is 12 – 60, with higher scores indicating greater clarity of self-concept. This scale has been a measure in previous studies examining the link between self-concept clarity and psychopathology (Wong et al., 2019) and was used in the current study to provide an index of self-concept clarity. This measure has been shown to have good validity and reliability (Smith et al., 1996). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .92.

Maryland Trait and State Depression Scale (MTSD) (Chiappelli et al., 2014)

The MTSD is a reliable 36-item scale, split into two equal sections, the "state" section capturing current depressive symptoms and the "trait" section capturing habitual symptoms of depression across the lifespan. Participants are asked to state how regularly they have experienced certain moods or behaviours in the course of the past week (e.g. "I cry because my mood is low") or at times excluding the past week (e.g. "I cried often because my mood was low.") Scores are assigned on a Likert scales between 0 - 4 for each item, giving a highest possible score of 72 for each section, with higher scores equating to more severe depression. The results of the current study confirm that both subscales showed excellent reliability; state depression (Cronbach's alpha = .95) and trait depression (.96).

State-Trait Anxiety Inventory (STAI) (Spielberger et *al,* 1983)

The STAI is a clinically reliable 40 item self-report scale, split into two equal sections, the "state" section capturing current anxiety symptoms and the "trait" section capturing habitual anxiety trait behaviours. Participants are asked to state how they feel right now (trait) and how they generally feel (state) (e.g. "I am calm.") Scores are assigned on a Likert scales between 1 - 4 for each item, with scoring reversed for anxiety-absent items. Scores range from 20 - 80 for each section, with a cue point over 40 suggested as a cut-off for clinically significant symptoms on the STAI-S scale. Scores on both subscales in the current study demonstrated excellent reliability in the current study, with a Cronbach's alpha of .95 for both (state and trait) scales.

Hypomanic Checklist (HCL-32) (Angst et al., 2005)

The HCL-32 is a 32-item checklist in which participants report either "yes" or "no" to questions (e.g. "I think faster") about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits.

Procedure

The study was carried out via an online questionnaire on Qualtrics. Participants provided informed consent and were provided with an information sheet on the study before completing all measures in a fixed order. Following completion, participants were provided with a debrief.

Scoring and data analysis

Data from the 159 participants were analysed using Jamovi (version 2.3.21). Relationships between variables were analysed using Pearson correlations, followed by bias corrected mediation analyses (5000 iterations) to examine the direct and indirect effects of self-continuity on state and trait depression via the mediator of self-concept clarity. Separate analyses were conducted for measures of psychological distress (depression and anxiety (state & trait) and hypomanic symptoms.

4.3 Results

Means, standard deviations, and range of scores on the mood measure scales are presented in Table 4.1. The mean MSTD scores are both below the central score point of 36 for depression. The mean scores on both STAI tests are above the suggested cut-off for clinical significance, which is 40. The mean score on the HCL-32 is below the suggested cut off of 14 for bipolar disorder.

Table 4.1: Mean scores on measures of psychopathology (standard deviations are presented in parentheses)

n=159	Mean (SD)	Range
State Depression (MSTD-S)	22.3 (17.3)	0 – 72
Trait Depression (MSTD-T)	27.0 (16.8)	0 – 72
State Anxiety (STAI-S)	41.3 (13.4)	20 – 80
Trait Anxiety (STAI-T)	44.6 (13.2)	20 – 80
Hypomania (HCL-32)	12.7 (5.88)	1 - 32

MSTD-S = Maryland State and Trait Depression Scale (State), MSTD-T = Maryland State and Trait Depression Scale (Trait), STAI-S = State-Trait Anxiety Inventory (State), STAI-T = State-Trait Anxiety Inventory (Trait), HCL-32 = Hypomanic Check List

Table 4.2 shows participant responses to the measures on autobiographical memory function and self-concept clarity.

Table 4.2: Mean scores on other individual differences factors (standard deviations are presented in parentheses)

n=159	Mean (SD)	Range
TALE (Thinking)	3.6 (0.96)	1 - 5
TALE (Talking)	2.79 (1.02)	1-5
Self-Continuity (TALE-SC)	13.7 (4.09)	5 – 25
Social Bonding (TALE-SB)	14.4 (4.22)	5 – 25
Directing Behaviour (TALE-DB)	14.2 (4.06)	5 - 25
Self-Concept Clarity (SCCS)	37.1 (10.4)	12 - 59

Correlations between autobiographical memory function, self-concept clarity and psychopathology

There were no significant correlations between frequency of thinking about memories (TALE) and measures of psychopathology, all tests p>.05. Similarly, frequency of talking about memories (TALE) was not related to any of the measures of psychopathology, all tests p>.05. Correlations between participant responses on TALE subscales, self-concept clarity and measures of psychopathology are shown in Table 4.3. Results showed all relationships to be significant.

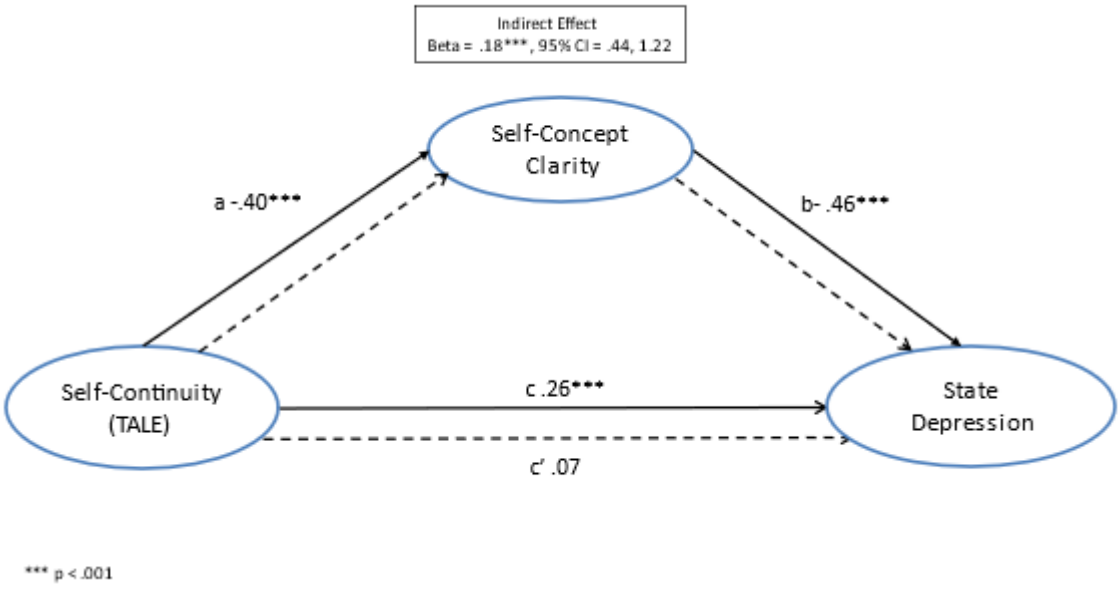
Table 4.3: Correlations (Pearson's Rank) between predictor, mediator and outcome variables

n=159	MSTD-S	MSTD-T	STAI-S	STAI-T	HCL-32
Self-Continuity	.26**	.24**	.30***	.29***	.24**
Social Bonding	.26**	.25**	.26***	.24**	.27***
Directing Behaviour	.24**	.25**	.25**	.26**	.29***
Self-Concept Clarity	-.49***	-.48***	-.49***	-.59***	-.25**

****P<.01, *** p<.001**

A series of mediation analyses were conducted to investigate whether the impact of self-continuity on psychopathology observed in previous studies was mediated by self-concept clarity. Mediations were conducted with self-continuity as the predictor variable, psychopathology measures as the outcome variables, and self-concept clarity as the mediator. The paths of this model are illustrated in Figures 4.2 – 4.6, and the coefficients and confidence intervals from these analysis are presented in Tables 4.4 – 4.8. Post-hoc tests showed the mediations for depression and anxiety, but not hypomania, to be adequately powered.

Figure 4.2: Mediation model illustrating the direct pathway (c') and indirect pathways between self-continuity and state depression via the mediator of self-concept clarity (a+b).



The path from self-continuity to self-concept clarity (a) and from self-concept clarity to state depression (b) were highly significant. The total effect of self-continuity on state depression (c) was highly significant, however the direct effect of self-continuity on state depression (c') was not significant. There was a significant indirect effect of self-continuity on state depression. These findings suggest that self-concept clarity fully mediated the relationship between self-continuity and state depression.

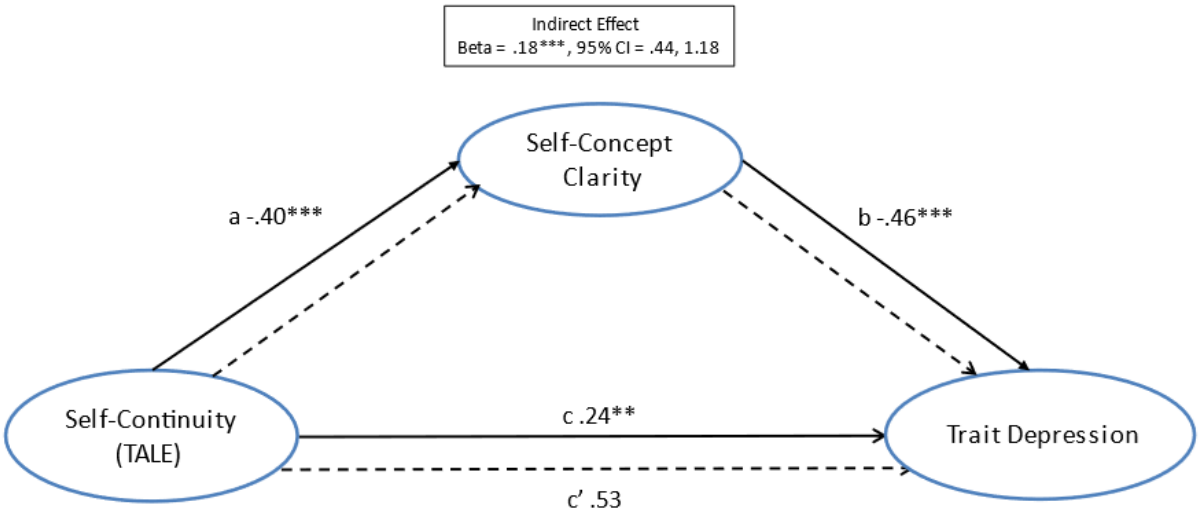
Table 4.4: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of self-continuity on state depression via the mediator of self-concept clarity.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Depression	a	-.40 (.19)***	-1.40	-.63
	b	-.46 (.13)***	-1.0	-.49
	c	.26 (.33)***	.44	1.71
	c'	.07 (.36)	-.40	1.01
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Self-Continuity	Self-Concept Clarity	.18 (.20)***	.44	1.22

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

*** p < .001

Figure 4.3: Mediation model illustrating the direct pathway (c') and indirect pathways between self-continuity and trait depression via the mediator of self-concept clarity (a+b).



** p < .01, *** p < .001

The path from self-continuity to self-concept clarity (a) and from self-concept clarity to trait depression (b) were highly significant. The total effect of self-continuity on trait depression (c) was significant, however the direct effect of self-continuity on trait depression (c') was not significant. There was a significant indirect effect of self-continuity on trait depression. These findings suggest that self-concept clarity fully mediated the relationship between self-continuity and trait depression.

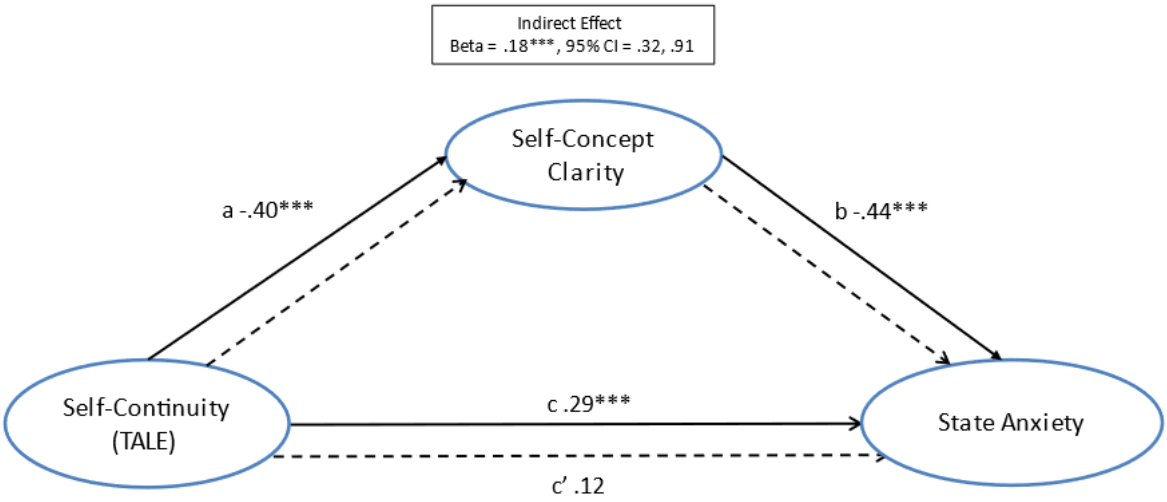
Table 4.5: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of self-continuity on trait depression via the mediator of self-concept clarity.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Trait Depression	a	-.40 (.19)***	-1.38	-.63
	b	-.46 (.12)***	-.97	-.50
	c	.24 (.32)**	.36	1.60
	c'	.53 (.35)	-.48	.87
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Self-Continuity	Self-Concept Clarity	.18 (.19)***	.44	1.18

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

** p< .01 *** p < .001

Figure 4.4: Mediation model illustrating the direct pathway (c') and indirect pathways between self-continuity and state anxiety via the mediator of self-concept clarity (a+b).



*** p < .001

The path from self-continuity to self-concept clarity (a) and from self-concept clarity to state anxiety (b) were highly significant. The total effect of self-continuity on state anxiety (c) was highly significant, however the direct effect of self-continuity on state anxiety (c') was not significant. There was a significant indirect effect of self-continuity on state anxiety. These findings suggest that self-concept clarity fully mediated the relationship between self-continuity and state anxiety.

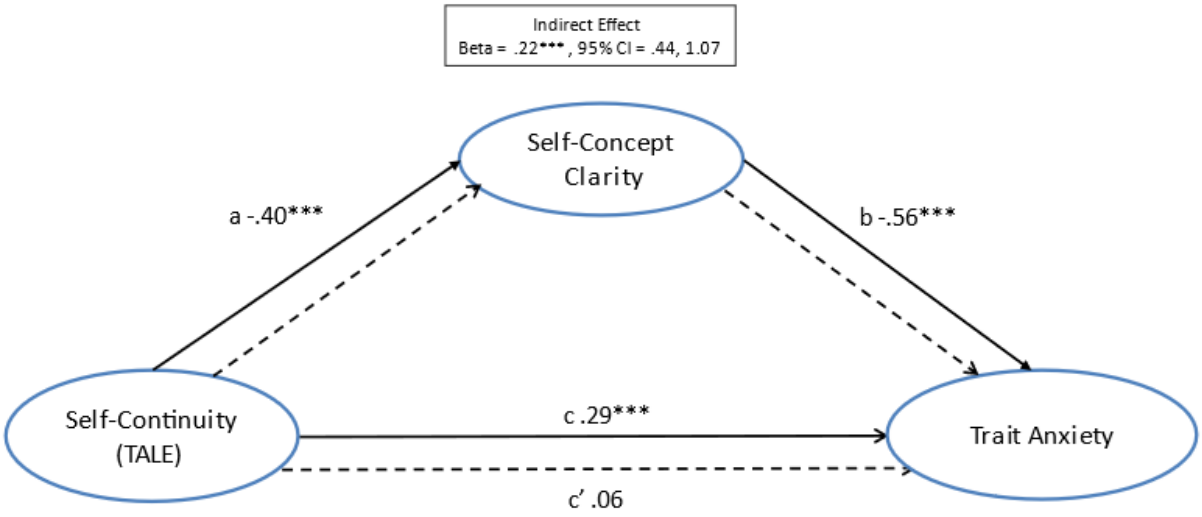
Table 4.6: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of self-continuity on state anxiety via the mediator of self-concept clarity.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Anxiety	a	-.40 (.19)***	-1.38	-.61
	b	-.44 (.09)***	-.76	-.38
	c	.29 (.25)***	.48	1.45
	c'	.12 (.24)	-.09	.84
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Self-Continuity	Self-Concept Clarity	.18 (.15)***	.32	.91

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

*** p < .001

Figure 4.5: Mediation model illustrating the direct pathway (c') and indirect pathways between self-continuity and trait anxiety via the mediator of self-concept clarity (a+b).



*** p < .001

The path from self-continuity to self-concept clarity (a) and from self-concept clarity to trait anxiety (b) were highly significant. The total effect of self-continuity on trait anxiety (c) was highly significant, however the direct effect of self-continuity on trait anxiety (c') was not significant. There was a significant indirect effect of self-continuity on trait anxiety. These findings suggest that self-concept clarity fully mediated the relationship between self-continuity and trait anxiety.

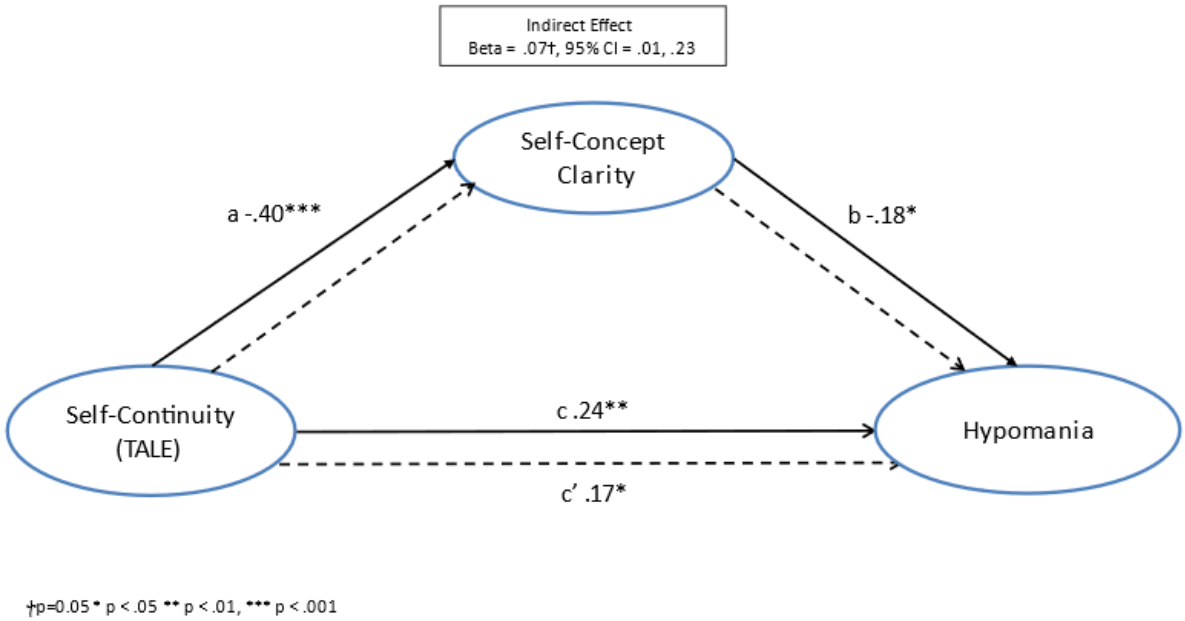
Table 4.7: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of self-continuity on trait anxiety via the mediator of self-concept clarity.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Trait Anxiety	a	-.40 (.19)***	-1.38	-.64
	b	-.56 (.08)***	-.88	-.55
	c	.29 (.24)***	.46	1.42
	c'	.06 (.23)	-.24	.65
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Self-Continuity	Self-Concept Clarity	.22 (.16)***	.44	1.07

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

** p< .01 *** p < .001

Figure 4.6: Mediation model illustrating the direct pathway (c') and indirect pathways between self-continuity and hypomania via the mediator of self-concept clarity (a+b).



†p=0.05 * p < .05 ** p < .01, *** p < .001

The path from self-continuity to self-concept clarity (a) was highly significant, with a moderately significant path (b) from self-concept clarity to hypomania. The total effect of self-continuity on hypomania (c) was significant, and there was also a significant direct effect of self-continuity on hypomania (c'). The indirect effect via self-concept clarity (a+b) did not quite reach significance (p=.05), but findings suggest further research is warranted. A post hoc calculation using the tables in Fritz and MacKinnon (2007) implies that the study was underpowered for this effect, aligning with the MS category and therefore requiring 391 participants. There is potential for either a type I error suggesting an effect that does not exist, or a type II error due to the study being underpowered to demonstrate the effect. Therefore this study cannot support whether self-concept clarity partially mediated the relationship between self-continuity and hypomania, but supports repeating research with a larger sample.

Table 4.8: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of self-continuity on hypomania via the mediator of self-concept clarity.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Hypomania	a	-.40 (.19)***	-1.40	-.65
	b	-.18 (.05)*	-.20	-.01
	c	.24 (.11)**	.13	.57
	c'	.17 (.12)*	.02	.48

Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Self-Continuity	Self-Concept Clarity	.07 (.05)†	.01	.23

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

† p=.05, * p<.05, ** p< .01 *** p < .001

4.4 Discussion

The aim of this study was to expand earlier research into self-continuity and psychopathology (Grace et al., 2016) and to investigate whether self-concept clarity mediated the relationship between self-continuity and depression. A further aim was to examine if there were significant relationships between the functions of autobiographical memory and symptoms of anxiety and hypomania, and whether these relationships were mediated by self-concept clarity.

The prediction that there would be a significant direct effect of self-continuity on state depression (Grace et al., 2016) was not supported by the current findings. Self-continuity was only found to influence state depression indirectly via self-concept clarity. The prediction that there would be a significant negative relationship between self-continuity and self-concept clarity (Bluck & Alea, 2002) was supported by the current findings.

The prediction that there would be an indirect path between self-continuity and state depression via self-concept clarity was also supported. This is an important novel finding. Low self-concept clarity has been shown to be related to depression (Wong et al., 2019). Given that autobiographical memory can be used to restore the sense of self (Jiang et al., 2020), the negative relationship between self-continuity and self-concept clarity suggests an increased use of autobiographical memory for self-continuity purposes where self-concept clarity is low. The negative relationship between self-concept clarity and state depression suggests that as self-concept clarity improves, psychopathology will decrease. These findings have implications for the potential use of self-continuity interventions for depression.

Interestingly, there was also a significant indirect effect via self-concept clarity of self-continuity on trait depression and state and trait anxiety. This relationship was potentially also present in hypomania, but could not be proven as the study was underpowered. In all cases except hypomania, there was no significant direct effect of self-continuity on the measures of psychopathology. Self-

concept clarity fully mediated the relationships between self-continuity and depression (state & trait) and anxiety (state & trait).

These findings may explain the divergence between the expected improvement in wellbeing from use of autobiographical memory for self-continuity, and the positive correlation between self-continuity and depressive symptomology reported in Grace et al. (2016). The study did not measure self-concept clarity, but there is a growing body of evidence (Cicero, 2017) linking self-concept clarity and psychopathology. It is possible that low self-concept clarity caused the increase in use of autobiographical memory for self-continuity, and that this was a confounding variable in the study.

Findings from this study suggest that for hypomania, there is a direct path from self-continuity. Potentially, individuals with hypomanic tendencies use self-continuity as a deliberate strategy. There is evidence to support hypomania being a 'manic defence' against underlying feelings of low self-esteem (Winters & Neale, 1985). Strategic use of autobiographical memory may be one way in which this defence is implemented. Memories supporting a life narrative around grandiosity and goal accomplishment may be selected to drive positive affect.

The life story schema (Bluck & Habermas, 2000) is the hypothetical construct binding autobiographical memory and self over time and containing the life narratives and autobiographical arguments that provide the basis for autobiographical reasoning (Habermas & Köber, 2015b), the process by which the life story is used and formed (Habermas & Bluck, 2000). Depression and negative affect have been linked with fragmented self-representations (Diehl & Hay, 2011; Diehl et al., 2006) and negative self-representations (Beck, 1976). Cognitive theory suggests that anxiety involves negative self-schemas and cognitive triad (Beck et al., 2005) while the cognitive triad and self-schemas in bipolar disorder tend towards euphoria (Newman et al., 2002). Individuals are motivated to resolve any disruption to sense of self (Dweck, 2017), and it was suggested in the original study that there was potentially an adaptive purpose of attempting to form a clearer sense of self, and to increase self-esteem (Grace et al., 2016). Autobiographical reasoning in life narratives has been shown to compensate for a sense of self-discontinuity (Habermas & Köber, 2015a). A potential theory is that low self-concept clarity in individuals scoring high on measures of anxiety and depression relates to increased usage of autobiographical memory in an attempt to increase self-concept clarity. Individuals with higher scores on hypomania may utilise self-continuity to drive euphoria-supporting narratives. Further research is needed to clarify whether there is also an indirect path via self-concept clarity.

Limitations and Future Directions

Although bootstrapping has been used to estimate robust confidence intervals , data is nevertheless still cross-sectional and correlational, and therefore limited in the extent to which it can show causal pathways. It would be beneficial to carry out experimental studies to obtain more empirical evidence on the relationships in this study. Post-hoc tests imply that the study should be re-run with a larger sample to investigate the indirect path from self-continuity to hypomania via self-concept clarity.

Clinical Implications

This study was conducted with a community sample and did not use diagnostic measures, therefore, caution must be used in drawing conclusions. Nevertheless, highlighting the role of self-concept clarity may potentially provide insight to interventions supporting memory retrieval.

Conclusion

Results implicating self-concept clarity in findings on depression and anxiety suggest including this factor as a variable in future studies examining the role of self-continuity in psychopathology could clarify questions about the efficacy of autobiographical memory function in wellbeing. Additionally, extending this research to hypomania and bipolar disorder, particularly with a qualitative element, could highlight potential differences across phases of bipolar disorder and could provide more insight into the degree to which the self-continuity function may be used purposefully.

CHAPTER 5: RELATIONSHIPS BETWEEN OBJECTS CENTRAL TO IDENTITY AND DEPRESSION, ANXIETY AND HYPOMANIA

5.1 INTRODUCTION

Narrative identity is an internalised and continuously evolving story of the self that provides an individual's life with a sense of unity, purpose and meaning (McAdams, 2018) (see section 1.3.2, page 21). Items of personal and social meaning, such as important relationships and achievements, are woven into the life story and used to define identity and the self (see section 1.3.1, page 20). This raises the question of how loss of significant statuses, roles or relationships that are central to an individual's life story might impact upon self-perception and psychological wellbeing.

The *multiple self-aspects framework* (McConnell, 2011) (see section 1.3.4, page 25) suggests that different aspects of self with related attributes are interconnected. Therefore, the loss of one or more of these important aspects could have a significant impact on psychological wellbeing. Additionally, some self-aspects are considered to be particularly important to identity, and the aspects that are important will vary according to the individual (Sedikides & Skowronski, 1995) (see section 1.3.4, page 25). One potential way in which disruption to self-aspects could detrimentally impact wellbeing is reduction of self-concept clarity (Campbell, 1996) (see section 1.3.6, page 27). However, another potential cause of identity disruption in relation to depression is the inability to disengage focus from a source of self-esteem or motivation (Carver & Scheier, 1981). The self-regulatory perseveration theory of depression (Pyszczynski & Greenberg, 1987) and the social cognitive theory of depression in reaction to life events (Oatley & Bolton, 1985) were based around control theories dealing with inability to disengage from focus on a source of self-esteem or motivation where nothing existed to replace it (Carver & Scheier, 1981) (see section 1.2.1, page 9). In the current thesis, these critical self-aspects (which may be a role, a relationship, a status, or another object that is central to a person's sense of self) are referred to as "central objects" for the purposes of this research. The term "central" conveys the importance of the item, and the word "object" was chosen specifically to allow the participants the widest possible scope to include items they believed to be foundational to their identity, without the leading connotations of words such as "role" or "relationship".

Individuals who do not have well-formed personal identities are more reliant on external sources to help define their sense of self than are those with a clear internalised self-concept (Campbell, 1990; see section 1.3.6, page 28). If this is the case, then loss of a central object might be expected to have

a greater impact on individuals with a disordered sense of self. Potentially, it might in itself disrupt identity, if the loss was severe enough to adversely impact an individual's self-representation, and this could result in psychological distress. Contemporary research has centred on negative early-life experiences and identity disruption (Vartanian et al., 2018), but the earlier research suggests that identity might be disrupted by events later in life, if they lead to the loss of an object central to identity (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987). It has not, to the best of our knowledge, been assessed whether this effect is replicable in a non-clinical population. Additionally, the severity of the loss, and its impact, may be made less severe by additional factors.

Whether the object is viewed as replaceable may play a role, as it has been argued that depression only occurs when the lost object cannot be replaced (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987). It has been suggested that having multiple self-aspects reduces the risk of depression (Linville, 1985; Linville, 1987) but more recent research (Hards et al., 2020) found no support for Linville's multiple aspects hypothesis. The key factor might be the loss of a self-aspect that is a central to an individual's self-representation, regardless of the quantity of remaining self-aspects. These findings suggest that there is still a potential benefit to be gained from research clarifying the impact on psychological wellbeing of the loss of aspects, and the impact of other contributing factors.

Lack of social support was also found to be a factor in depression after the loss of a central object (Oatley & Bolton, 1985) and a plethora of later research across mental health fields (Dour et al., 2014; Rueger et al., 2016) has suggested social support is a factor in mental health outcomes. This raises the question of how far the availability of social support may reduce the detrimental impact to wellbeing potentially caused by the loss of a central object.

The Current Study

The aim of the current study was to extend previous research by investigating the impact of object loss in a subclinical population and assessing whether the specific factors of self-representation resilience, perceived ability to replace objects, and availability of social support contributed to the impact of object loss in depression. Additionally, the area of study was extended to distinguish between state and trait depression and to also look at effects on state and trait anxiety and hypomania. An additional aspect of the study was a qualitative element which analysed participant responses to identify recurring themes of self-representation and coping strategies in relation to central object loss, along with the deductive themes of continuity, differentiation of uniqueness and

personal agency. These additional elements are important for understanding the role of identity in the development of mental health issues.

Participants were given a precise description of what constituted a central object and asked to recall five central objects in their lives, stating whether or not these objects were still current. They then rated each object on impact to identity, replaceability, and availability of social support around its loss or potential loss. Participants were asked to provide as much information as possible and to share additional information on why they had responded to each question as they did, in order to provide enough data for Qualitative Content Analysis (Mayring, 2000) to be used to derive inductive categories from the data based on themes relating to identity protection and coping strategies. These were combined with the deductive themes of continuity, differentiation, and agency, and investigated in relation to responses on mood measures. Additionally, mood was measured before and after recall. Measures of state and trait depression (MTSD), state and trait anxiety (STAI) and hypomania (HCL-32) were used to assess participants' psychological wellbeing.

It was predicted that the number of lost central objects would be a significant predictor of scores on measures of depression (Pyszczynski & Greenburg, 1987). As mania has been linked to dysfunctional attitudes suggesting underlying low self-esteem (Granger et al., 2021; Lyon et al., 1999; Winters & Neale, 1985), it was anticipated that the number of lost objects would also be a predictor for hypomania. Given that anxiety is concerned with current and future threat (Beck et al., 2005), it was hypothesised that loss of objects would not be linked to anxiety, but concerns about potential loss of objects would be linked to anxiety. Second, it was predicted that the rated impact of the loss of the object central to identity would predict depression and anxiety scores due to interconnectedness of self-aspects with related attributes (McConnell, 2011) and given that, since multiple self-aspects have been shown not to reduce risk of depression (Hards et al., 2020), loss of key self-aspects may be a critical factor. Given the implicit self-esteem deficits in bipolar disorder (Winters & Neale, 1985), it was anticipated that loss of central objects would also predict hypomania. Third, it was predicted that rated confidence in the ability to replace a lost object would predict lower depression scores (Pyszczynski & Greenburg, 1987) and also lower hypomania scores as there would be reduced threat to self-esteem (Winters & Neale, 1985). As a key factor of anxiety is concern with future threat (Beck et al., 2005) it was anticipated that confidence in ability to replace a lost object would predict lower anxiety scores, but only in relation to future loss. Fourth, it was predicted that the perceived availability of social support during loss of a central object would predict lower depression scores (Oatley & Bolton, 1985), and also lower anxiety scores as social support availability might be expected to impact outcomes of both current and future loss. It was predicted that there would be no impact of social support on hypomania given elevated self-focus (Bobrowicz-Campos et al., 2016)

and evidence that identity diffusion is internally rather than interpersonally triggered in bipolar disorder. The qualitative research question was: What factors do people consider central to their identity, and what elements may affect the ability to cope with their loss?

5.2 Method

Design

The current study used a cross-sectional correlational design regression analysis to investigate the relationships between lost central objects and scores on mental health measures. The variables were scores for depression (state & trait), anxiety (state & trait), hypomania, number of lost objects, and participants' ratings of object importance (for self), object replaceability, social support availability and mood post-recall.

Participants

According to Cohen's (1988) guidelines, $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$ represent small, medium, and large effect sizes, respectively. A power calculation using GPower revealed that to detect a medium effect size ($f^2 \geq 0.15$) on a multiple linear regression with four predictors with power of .8 required 85 participants for a one-tailed hypothesis. A mixed student and community sample of 98 participants (6 males, 92 females; mean age = 21.5 years, S.D. = 8.24, range 18 – 58 years) took part in the study. The additional participants were included as a contingency in case there were missing data. Aston University psychology students in the sample were recruited through internal systems for course credit. The remaining participants were recruited through social media. The study was approved by Aston University's Research Ethics Committee.

Materials and Measures

Maryland Trait and State Depression Scale (MTSD) (Chiappelli et *al,* 2014)

The MTSD is a reliable 36-item scale, split into two equal sections, the "state" section capturing current depressive symptoms and the "trait" section capturing habitual symptoms of depression across the lifespan. Participants are asked to state how regularly they have experienced certain moods or behaviours in the course of the past week (e.g. "I cry because my mood is low") or at times excluding the past week (e.g. "I cried often because my mood was low.") Scores are assigned on a Likert scales between 0 - 4 for each item, giving a highest possible score of 72 for each section, with

higher scores equating to more severe depression. The results of the current study confirm that both subscales showed excellent reliability; state depression (Cronbach's alpha = .92) and trait depression (.94).

State-Trait Anxiety Inventory (STAI) (Spielberger et *al,* 1983)

The STAI is a clinically reliable 40 item self-report scale, split into two equal sections, the "state" section capturing current anxiety symptoms and the "trait" section capturing habitual anxiety trait behaviours. Participants are asked to state how they feel right now (trait) and how they generally feel (state) (e.g. "I am calm.") Scores are assigned on a Likert scales between 1 - 4 for each item, with scoring reversed for anxiety-absent items. Scores range from 20 - 80 for each section, with a cue point over 40 suggested as a cut-off for clinically significant symptoms on the STAI-S scale. The results of the current study confirm that both subscales showed excellent reliability; state anxiety (Cronbach's alpha = .93) and trait anxiety (.92).

Hypomanic Checklist (Angst et al., 2005)

The HCL-32 is a 32-item checklist in which participants report either "yes" or "no" to questions (e.g. "I think faster") about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits.

Central Object Recall (Pyszczynski & Greenburg, 1987)

Participants provided details of the five central objects they felt had been most important in their lives. Central objects were defined as "factors in your life that underpin your sense of identity and that you feel contribute to who you are as a person. They may be, for example, social roles, relationships, accomplishments, material possessions, and/or career/business/academic success". For each object, the participant was asked to provide as much detail as possible about the object, including why it was important to their sense of self. They also confirmed if the object was still current in their life. . Participants rated each object on a series of 5-point Likert scales to indicate the importance of the object to self-representation, their belief in their ability to replace the object, and their perceived social support they felt they had or would have in the event of object loss.

Qualitative Content Analysis (Mayring, 2000)

Participant's responses to questions relating to loss of objects seen as central to identity, where the response showed a clear statement of specific impact to identity, were subjected to a quantitative content analysis. This approach was used to discover information around participants' self-representations, which might be implicitly rather than explicitly stated, focus was more heavily on latent rather than manifest content i.e. what the text *deals with* rather than what the text *says* (Graneheim & Lundman, 2004).

Procedure

The study was carried out via an online survey. After providing informed consent, participants rated their current mood using a 5-point Visual Analogue Scale (VAS)and then provided details of five central objects. For each object, participants indicated if the object was still current in their life. Based on this response, participants answered three questions on either loss or potential loss. Questions were asked about loss of sense of self: (To what extent [do you feel you would still be yourself/did lose some sense of self] without the object still being central in your life?), perceived ability to replace the object ("Do you feel that you [could replace the object/were able to replace the object?]") and perceived social support ("[Would you have/did you feel that you had] social support from family/friends through the loss of the object?) For each question, participants scored 1 – 5 on a Likert scale, and also provided further narrative detail supporting the score given.

Finally, all participants completed the HCL-32, MSTD-S, MSTD-T, STAI-S and STAI-T before again rating their state mood on a 5-point VAS scale and being provided with a debrief. Participants who were Aston University students received course credits for taking part.

Scoring and data analysis

All 98 participants successfully completed the study. Of these, three participants could provide only four central objects. All other participants provided the full quota of five central objects.

Quantitative Analysis

The main factors for the central object recall task were number of central objects lost, resilience of sense of self to object loss, object replaceability, and availability of social support. All responses were scored on a VAS scale (0-5). Scores on the question for resilient sense of self were reversed where the object was not current to accommodate the reversed wording of the question for non-

current objects ("To what extent did you feel you would still be yourself without the object being central in your life" / "To what extent did you lose some sense of self without the object being central in your life.") Aggregated data were used for all variables and means were calculated for each variable. A series of hierarchical multiple regressions, with number of lost objects entered at step 1 and ratings of importance, replaceability and social support entered at step 2, were conducted for depression (state and trait), anxiety (state & trait), hypomania, and state mood (post object recall).

Qualitative Analysis

The unit of analysis for this study is participant's responses to questions relating to loss of objects central to identity, where the response showed a clear statement of specific impact to identity from the factor defined as a central object. This selection method provided a total of 206 responses for analysis. Analysis was carried out according to the guidelines set out of Qualitative Content Analysis (QCA) (Graneheim & Lundman, 2004; Mayring, 2000).

The first step of QCA is to define the criteria for forming *categories* and the coding rules for theory-driven categories. Categories are defined as 'a group of content that shares a commonality' (Krippendorff, 2018). QCA categories are both inductive (data-driven from recurring themes within the data, bottom-up) and deductive (theory-driven, top-down). Based on the research question, the theoretical criterion for category formation was stated as "Factors considered central to identity".

Three deductive categories were defined based on existing theoretical work on identity: continuity, differentiation of uniqueness and personal agency (Bamberg, 2011). Coding rules were set to categorise *meaning units* to a specific category when they clearly referenced the phenomenon (meaning units are pieces of text, from single words to paragraphs, relating through context or content, and they are assigned a label which is referred to as a *code* (Graneheim & Lundman, 2004) and defined in a *coding agenda* (Mayring, 2000). Next, the participant explanations were iteratively read, categorised and reviewed, identifying inductive categories. As part of this process, final clarification of inductive and deductive categories and their coding rules was achieved, a taxonomy of hierarchically organised categories was created, and the coding rules updated. Categories were subsequently divided into subcategories. Finally, meaning units were categorised according to the coding rules. The coding agenda stated that where a response referenced multiple categories, latent meaning would be assessed and the meaning unit would be allocated to the most appropriate subcategory. One answer was divided into two parts, each of which related to a different subcategory, and this answer was split and allocated accordingly.

Categorised meaning units were reviewed to increase understanding of impact to identity, and how different attitudes and responses might mitigate or increase loss of the object.

5.3 Results

Means and range of participant scores on the mood measure scales are presented in Table 5.1. The mean MSTD scores are both below the central score point of 36 for depression. The mean scores on both STAI tests are above the suggested cutoff for clinical significance, which is 40. The mean score on the HCL-32 is below the suggested cut off of 14 for bipolar disorder.

Table 5.1: Mean age and scores on trait measures (standard deviation are presented in parentheses)

n=98	Mean (SD)	Range
Age	21.5 (8.24)	18 - 58
Hypomania (HCL-32)	10.5 (5.56)	1 - 26
State Depression (MSTD-S)	23.4 (14.2)	0 - 57
Trait Depression (MSTD-T)	23.3 (13.7)	0 - 63
State Anxiety (STAI-S)	41.6 (12.1)	22 - 76
Trait Anxiety (STAI-T)	46.3 (12.1)	22 – 78

Table 5.2 shows participant responses to questions on central objects. The range of possible scores was 0 – 5 for all questions. The mean number of lost objects (.57) shows suggests that few participants has experienced the loss of a central object. Indeed, scores show that only 11.4% of responses were based on an actual loss, with the remainder based on predicted response to loss. Mean scores for reported ability to retain sense of self through loss or prospective loss of the objects of 2.07, and for ability to replace lost objects of 1.70, suggests items reports as central objects were of reasonable importance to participants. A mean score of 3.30 for perceived social support availability suggests social support availability was considered to be high.

Table 5.2: Mean scores on central object measures (standard deviation are presented in parentheses)

n=98	Mean (SD)	Range
Number of Lost Central Objects	.57 (0.76)	0 - 3
Resilience of Self through Object Loss	2.07 (0.74)	0.2 – 4.6
Ability to Replace Central Objects	1.70 (0.79)	0.2 – 3.8
Availability of Social Support	3.30 (1.08)	0.6 - 5

Correlations between psychopathology and mood variables

Significant correlations were found between state depression and trait depression (r=.804, p=<.001), state depression and state anxiety (r=.747, p=<.001), state depression and trait anxiety (r=.806, p=<.001), trait depression and state anxiety (r=.663, p=<.001), trait depression and trait anxiety (r=.805, p=<.001), trait depression and hypomania (r=.250, p=.013), and state and trait anxiety (r=.798, p=<.001). No significant relationship was shown between hypomania and state depression or state or trait anxiety. A significant relationship was found between mood after the session and state anxiety only (r=-.257, p=.011).

Correlations between central object indices

Appendix 17 (p.222) shows the correlations between the various central object measures. A significant positive relationship was found between the number of central objects which were still current and social support (r=-.21, p=.04), though this was no longer significant after adjusting for multiple tests (adjusted alpha = .17). A highly significant relationship was found between ability to replace central objects and self-representation resilience (r=.519, p=<.001), which remained significant after a Bonferroni correction (adjusted alpha = .17).

Relationships between central object indices and mood measures

A series of regressions was conducted to explore the relationships between central object indices and mood measures, with number of central objects lost being added at step 1, and the additional central object indices being added at step 2. Results are reported in tables 5.3 – 5.8.

Table 5.3: Hierarchical Regression to predict state depression with central object indices as predictor variables

DV = MSTD-S		Model Summary				Contribution of each Factor in Model 2				
		R^2	**$R^2\Delta$**	**F**	***p***	**B**	**SE**	**b**	**t**	***p***
Model 1		.005	-	0.45	.51					
	# Lost Obj					-1.27	1.90	-.068	-.668	.505
Model 2		.082	.077	2.06	.09					
	# Lost Obj					-2.55	1.92	-.136	-1.32	.189
	Self-Resil.					-2.51	2.29	-.130	-1.10	.276
	Replaceab.					2.70	2.17	.151	1.24	.217
	Social Supp.					-3.40	1.35	-.259	-2.52	**.013**

Model 1 was not significant and number of lost objects did not enter as a significant predictor. Model 2 predicted around 8% of the variance in state depression, but this was not significant; F(3, 93)=2.06, p=.09). Resilience of self despite object loss, and replaceability of objects, did not enter as significant predictors. However, social support did enter as a significant predictor β=-3.40, p=.013.

Table 5.4: Hierarchical Regression to predict trait depression with central object indices as predictor variables

DV = MSTD-T		Model Summary				Contribution of each Factor in Model 2				
		R^2	**$R^2\Delta$**	**F**	***p***	**B**	**SE**	**b**	**t**	***p***
Model 1		.005	-	0.47	.49					
	# Lost Obj					1.26	1.83	.07	.68	.494
Model 2		.109	.104	2.82	**.03**					

# Lost Obj	-.123	1.83	-.01	-.06	.947
Self-Resil.	-5.25	2.17	-.28	-2.42	**.018**
Replaceab.	3.98	2.06	.23	1.93	.057
Social Supp.	-2.74	1.28	-.217	-2.15	**.034**

Model 1 was not significant and number of lost objects did not enter as a significant predictor. Model 2 was significant and predicted around 10% of the variance in trait depression; F(3, 93)=2.82, p=.03). Resilience of self (β=--.525, p=.018) and social support (β=-2.74, p=.034) were significant predictors, though replaceability of objects failed to reach significance (β=-3.98, p=.057).

Table 5.5: Hierarchical Regression to predict state anxiety with central object indices as predictor variables

DV = STAI-S	Model Summary				Contribution of each Factor in Model 2				
	R^2	**$R^2\Delta$**	**F**	***p***	**B**	**SE**	**b**	**t**	***p***
Model 1	.000	-	0.08	.77					
# Lost Obj					-.469	1.62	-.029	-.289	.773
Model 2	.106	.105	2.73	**.03**					
# Lost Obj					-1.69	1.62	-.106	-1.04	.300
Self-Resil.					-2.51	1.93	-.153	-1.30	.195
Replaceab.					2.33	1.83	.152	1.27	.206
Social Supp.					-3.40	1.13	-.304	-3.00	**.004**

Model 1 was not significant and number of lost objects did not enter as a significant predictor. Model 2 was significant and predicted around 10% of the variance in state anxiety; F(3, 93)=2.73, p=.03). Resilience of self despite object loss, and replaceability of objects, did not enter as significant predictors. However, social support did enter as a significant predictor β=-3.40, p=.004.

Table 5.6: Hierarchical Regression to predict trait anxiety with central object indices as predictor variables

DV = STAI-T		Model Summary				Contribution of each Factor in Model 2				
		R^2	$R^2\Delta$	F	*p*	B	SE	b	t	*p*
Model 1		.000	-	.033	.857					
	# Lost Obj					-.293	1.62	-.018	-.181	.857
Model 2		.082	.082	2.08	.090					
	# Lost Obj					-1.39	1.64	-.087	-.846	.400
	Self-Resil.					-3.46	1.95	-.210	-1.77	.079
	Replaceab.					2.69	1.85	.176	1.45	.149
	Social Supp.					-2.54	1.15	-.227	--2.21	**.029**

Model 1 was not significant and number of lost objects did not enter as a significant predictor. Model 2 predicted around 8% of the variance in trait anxiety; F(3, 93)=2.08, p=.047) though this was not significant. Resilience of self despite object loss, and replaceability of objects, did not enter as significant predictors. However, social support did enter as a significant predictor β=-2.54, p=.029.

Table 5.7: Hierarchical Regression to predict hypomania with central object indices as predictor variables

DV = HCL-32		Model Summary				Contribution of each Factor in Model 2				
		R^2	$R^2\Delta$	F	*p*	B	SE	b	t	*p*
Model 1		.011	-	1.104	.296					
	# Lost Obj					.781	.743	.107	1.05	.296
Model 2		.016	.005	.377	.825					
	# Lost Obj					.765	.781	-.105	.098	.330
	Self-Resil.					-.578	.930	-.076	-.622	.536
	Replaceab.					.173	.883	.025	.196	.845
	Social Supp.					.103	.547	.020	.187	.852

Neither model 1 nor model 2 was significant, and none of the indices entered as a significant predictor.

Table 5.8: Hierarchical Regression to predict mood post questionnaires with central object indices as predictor variables

DV = Mood		Model Summary				Contribution of each Factor in Model 2				
		R^2	$R^2\Delta$	F	*p*	B	SE	b	t	*p*
Model 1		.017	-	1.66	.201					
	# Lost Obj					-.012	.099	-.130	-1.29	.201
Model 2		.115	.098	3.03	**.021**					
	# Lost Obj					-.054	.100	-.055	-.548	.585
	Self-Resil.					.002	.118	.002	.021	.983
	Replaceab.					-.153	.112	-.163	-1.377	.175
	Social Supp.					.211	.070	-.306	3.040	**.003**

Model 1 was not significant and number of lost objects did not enter as a significant predictor. Model 2 was significant and predicted around 10% of the variance of mood; F(3, 93)=3.03, p=.021). Resilience of self despite object loss, and replaceability of objects, did not enter as significant predictors. However, social support did enter as a significant predictor β=.211, p=.003.

Qualitative Findings

From the 206 answers in which a clear impact to identity was stated, a number of categories and subcategories were identified (see appendix 18). Responses in the most frequently stated subcategories are assessed below.

Family Member

Almost a quarter (23.7%) of participant responses defined their role as part of a family as a central object in their life. Significant themes arising from the data are unconditional love, imparting of values, ability to be oneself, emotional support, providing role models and security (e.g. Participant 1: *"They gave me a sense of freedom to do whatever I wanted to do, within reason. I was never forced to do anything that didn't sit right with me. They still cheer me on when I have messed up and continue to love me regardless"*). Where a parent or home life is considered to have been 'bad' or not ideal, identity values have been based on doing and being the opposite of what was experienced as a child, enabling positivity to be taken from a negative situation (e.g. Participant 36: *My dad is a bad person.. A lot of my self-esteem issues stem from him..i would be a lot different if I hadn't gone*

through all the bad things he's done... A lot of my ideals are the opposite of his and I feel I would value them less strongly if I hadn't been exposed to his views and him being a dickhead").

Religion

10.1% of responses related to religion, which was considered to have influenced the self by providing a foundation for values and giving support (e.g. Participant 49: *"My religion is an important object in my life because I have been raised in Christianity. My religion contributes massively to my sense of self because I am part of my Church community for such a long time"*). In some cases, outward demonstration of religious values, such as wearing a headscarf (e.g. Participant 38: *"Being a Muslim is my life, so my headscarf is one of my central objects that make me feel truly myself; it separates me from others as I wish to be*") or introducing oneself as a member of a particular faith (e.g. Participant 71: "*A religion is a way of life, everything i do is about my religion and/or for my religion (Islam). I wear a headscarf, i pray, i fast. I attended mosque growing up. If i introduce myself, one of the first things I'd say is i am a Muslim*"), were used as part of the social identity.

Spouse/Partner

A number of participants considered the relationship critical to their identity (e.g. Participant 3: *"It would be difficult to remain myself, it would be something that hits deep, so it would be hard to remain myself"*). Where the relationship is current and the narrative positive, participants frequently related themes around confidence and self-esteem which had been derived from the relationship (e.g. Participant 48: "*the relationship has been a big part of my life in providing me with emotional support and developing and learning as an individual"*). Where the relationship had broken down, or anticipating it breaking down, participants stated that sense of self had been lost or would be lost. There are themes of redemption, where identity has been rediscovered or recreated after a breakdown of a relationship (e.g. Participant 1: "*the breakup really affected me mentally, emotionally, and psychologically. It taught me that I can fight through anything and I am stronger than I thought I was. It allowed me to rediscover who I am as an individual: future goals, my strengths*"; Participant 67: "*My marriage was central to my identity for 30 years. I didn't see myself as single but part of a partnership…I didn't know who I was without my marriage. I had to rediscover my identity*").

Academic Success

This category is potentially higher than in a general population, given that a large proportion of the demographic was drawn from the student community. In a number of examples, self-worth is tied to achievement (e.g. Participant #15: "*Helps show me that I am worth something and I can do good*

things in life if I set my mind to it. It's a reminder that I am able to achieve good things"). There is also a desire to make the family proud (e.g. Participant 46: "*Makes my mum proud of me and it makes me proud of myself*"), and to achieve career goals (e.g. *Participant#20: I believe this is very crucial to my sense of self as this is the pathway I am currently taking to achieve the career path i want*"). In spite of the importance of academic success, most participants felt that it could be replaced if they were not successful, however, usually it was necessary that the academic achievement be replaced by another form of success.

5.4 Discussion

The aim of the current study was to extend previous research by investigating the impact of object loss in a subclinical population and assessing whether the specific factors of self-representation resilience, perceived ability to replace objects, and availability of social support contributed to the impact of object loss in depression, anxiety and hypomania.

The prediction that the number of lost central objects would be a significant predictor of scores on measures of depression, anxiety and hypomania was not supported. In fact, the number of lost objects was not significant for any measure of psychopathology or for mood of participants after taking the measures. Predictions had been based on earlier findings that suggest some forms of depression may be a response to loss of transference objects that are central to identity or a primary source of motivation and cannot be replaced (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987). Proposals that this relationship would also be observed in hypomania was based on underlying low self-esteem (Granger et al., 2021; Lyon et al., 1999; Winters & Neale, 1985). It had also been hypothesised that concern with current and future threat (Beck et al., 2005) would underlie this effect in anxiety but based around future objects; this was not observed, although the majority of objects were future based rather than objects that had already been lost, and despite the mean score on both trait and state anxiety measures being above the cutoff for clinical significance.

The prediction that impact of the loss of the object to identity would predict depression, anxiety and hypomania scores due to interconnectedness of self-aspects with related attributes (McConnell, 2011) was supported for trait depression only. This expectation was based on findings that multiple self-aspects do not increase the risk of depression (Hards et al., 2020), and it was proposed that importance of lost self-aspects might be a critical factor. These findings did not extend to anxiety or hypomania. Finding loss or potential loss of an object central to identity to be a predictor of

depression supports a relationship between self-concept and depression, and the theory that importance rather than volume of lost objects is more important to wellbeing.

The prediction that confidence in the ability to replace a lost object would predict lower scores for depression and hypomania, and also for anxiety where related to a future loss, was not supported. This prediction was based on the theory that inability to replace a transference object is a contributory factor to depression (Pyszczynski & Greenburg, 1987), and that threat to implicitly low self-esteem (Winters & Neale, 1985) from such loss in hypomania, and increased future threat (Beck et al., 2005) in anxiety, may also extend this effect to hypomania and anxiety.

The prediction that perceived availability of social support during loss of a central object would predict lower depression and anxiety scores, but not lower hypomania scores, was supported. Additionally, perceived availability of social support predicted scores on mood measures post-questionnaire. Social support had been observed as a factor in depression in the original research (Oatley & Bolton, 1985), and it had been anticipated that prospective social support through both current and future loss would lower anxiety scores. In hypomania, self-focus is elevated (Bobrowicz-Campos et al., 2016), and identity diffusion internally rather than externally triggered (Wright et al., 2022), suggesting reduced impact of social support. However, there is some evidence of links between bipolar disorder and decreased perception of social support availability (Johnson et al., 2003), and this may be why no relationship was found between scores on hypomania measures and social support in the current study.

The effect of social support may not be directly linked to loss of objects, as there is a body of evidence supporting an inverse relationship between perceived availability of social support and anxiety and depression (Dour et al., 2014; Rueger et al., 2016). Recent research has suggested that social support is a correlate for a number of mood and anxiety disorders (Stewart et al., 2022). Finally, the study found that participants who stated a higher number of their central objects were still current also reported better access to social support, though this was no longer significant after correcting for multiple tests. Possibly, a wider support network increases the number of objects seen as central and mitigates the impact of loss, but further research would be needed to ascertain causation.

The findings of this study do not support the theory of social-cognitive depression in reaction to life events (Oatley & Bolton, 1985) which suggests that loss of objects from which sense of self is derived may be an underlying cause of depression. There are a number of reasons why this study may not have reproduced this effect. Firstly, the original meta-analysis is stated to apply only to depression occurring after a “provoking agent” event, that is, an event which is disruptive in a wide social sense.

Participants were not screened to select individuals who defined themselves as having been impacted by such an event, as the aim of this study was to assess the general population. Secondly, the studies which made up the original meta-analysis related to clinical populations, and it is possible that the effect is not replicated in a non-clinical population. Thirdly, only 11.4% of responses were based on actual loss of a central object, possibly due to the low mean age of the sample. Therefore, 88.6% of responses were based on the participant's hypothetical reaction to loss of a central object, rather than actual experience. Response to an actual loss may be greater than anticipated if it subsequently occurs. Loss of objects also did not predict anxiety (state or trait), hypomania, or state mood post recall of objects. However, social support did predict all of these factors, with the exception of hypomania.

Given previous findings that suggest loss of an object central to identity may be one factor underlying depression in response to life events (Oatley & Bolton, 1985), it may be that this phenomenon is seen only under a specific set of circumstances or conditions. The Social Cognitive Theory of Reactive Depression (Oatley & Bolton, 1985) and Self-Regulatory Perseveration Theory of Reactive Depression (Pyszczynski & Greenberg, 1987) both acknowledge that they do not conform to all types of depression, and additionally that not every person experiencing loss of a central object will become depressed. Both theories reference the diagnostic category of "reactive depression". This category was historically challenged by clinicians, as treatment varied from other types of depression; for example, there were queries around the efficacy of antidepressants (Baumeister et al., 2009). Reactive depression is now reclassified in DSM-5 under Adjustment Disorder (emotional or behavioural symptoms occurring within three months of a stressor) with the subtype Adjustment Disorder with Depressed Mood (American Psychological Association, 2013). Adjustment disorder also has additional subtypes, including adjustment order with anxiety and adjustment order with mixed anxiety and depressed mood. Consideration of these factors changes the focus to why certain individuals experience negative mental health consequences following a significant loss or life change, while others do not, and what psychological factors may be involved. It may be that this type of reaction will not be detected in a subclinical population.

A further correlation that was observed is that participants who stated that they would retain their sense of identity in the face of actual or hypothetical loss of central objects also reported a greater ability to replace lost objects, and this relationship remained significant after correcting for multiple tests. This implies a more resilient sense of self which can be sustained in the face of loss and change. A phenomenon which may be applicable here is self-concept clarity (Campbell, 1996) (see section 1.3.6, page 27). Self-concept clarity is a significant predictor of wellbeing (Campbell et al., 2003) and if the sense of self is destabilised, individuals become more dependent upon external

sources (Campbell, 1990). This could lead to a greater impact on psychological wellbeing, with object loss causing destabilisation of the self-representation. The belief that objects foundational to identity can be replaced could strengthen self-concept, and a stronger self-concept could reduce the importance of external objects, creating a perception that they could be replaced after loss. However, the correlational nature of the study does not allow direction of causation to be inferred, and other variables may be involved.

The Identity Disruption Model (Vartanian et al., 2018) suggests childhood adversity disrupts normal identity development and leads to a fragmented self-representation which underlies psychopathology. Support for this model has been found across a variety of psychopathologies (Cicero, 2017) including depression and perceived stress (Wong et al., 2019) and anxiety (Hayward et al., 2020). It is not known what proportion of people who were diagnosed with reactive depression had suffered adverse experiences in childhood and might therefore have had a disrupted sense of identity. To our knowledge, no study has been carried out to investigate the relationship between adverse childhood experiences and adjustment disorder. Following on from Erikson's theory of psychosocial development (Erikson, 1968), self-concept clarity is generally accepted to develop during adolescence (Habermas & Reese, 2015; Schwartz et al., 2011). It is therefore logical that disruptive or traumatic experiences suffered during childhood may hinder development of a clear and stable self-concept. However, it is not clear whether ACEs are necessary for an adverse mental health response to loss of an object central to identity, or whether the sense of self can be disrupted in individuals who have not experienced childhood distress. Though self-concept clarity is considered to be a fairly stable trait in adulthood (Lodi-Smith & Roberts, 2010), it has been demonstrated (Light & Visser, 2013) that role exits are associated with lower self-concept clarity. A role which is important to a person's sense of self would be a valid central object. A variety of roles exits were assessed, both relational (e.g. divorce, children leaving home) and social (e.g. job loss, retirement) and findings showed that a greater experience of role exits over the preceding year was related to lower self-concept clarity. Therefore, in addition to the wide body of social psychological literature suggesting that the influencing factor on self-concept is the internalisation of attributes of the role, relational and social roles may also have an influence (Light & Visser, 2013). As neither childhood experiences nor role exits were specifically investigated in the current study, it is not possible to state the extent to which they may have played a part in self-concept resilience and reaction to object loss. However, it is notable that role exits were not listed in central object categories.

In fact, qualitative content analysis reveals a fairly narrow set of categories. This may be due to the relatively young age of the sample, as family and academic success form a large proportion of the central objects cited. Responses vary significantly in depth and affect. As many of the central objects

were still current, and affective responses were therefore speculative, conclusions that can be drawn are limited. An older sample might be expected to have produced a wider range of experiences and categories and greater affective detail.

Limitations and Future Directions

There are a number of limitations to this study that need to be considered. This is a correlational, cross-sectional study and therefore causation cannot be inferred from findings. The most important issue is that only 11.4% of responses were based on actual loss, so it would seem that imagined loss is not linked to psychological wellbeing. The low level of actual loss may be due to the mean age of participants (21.5 years), and it is possible that the effect might be seen in an older sample where more actual loss has been experienced. As scores are self-reported, this creates a large degree of subjectivity in responses. In this study, we attempted to examine an effect identified in a specific clinical population to ascertain whether this was replicated in a non-clinical sample. Constraints did not allow for carrying out this experiment in a clinical population, but potentially this study could be rerun with an experimental group diagnosed with adjustment disorder, and a control group from the general population. Adjustment order, a subclinical disorder defined as the development of emotional or behavioural symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s) (American Psychological Association, 2013), and there is a possible relationship between failure to adjust and loss of objects central to identity. Adjustment disorder has been suggested in a systematic review (O'Donnell et al., 2019) to lack quality of evidence for psychological and pharmacological interventions. Such an experiment could measure responses prior to and following potential interventions, such as the proposed Brief Adjustment Order Intervention (BADI) (Eimontas et al., 2018) or Skills for Life Adjustment and Resilient (SOLAR) (Gibson et al., 2019), and assess changes in symptoms, changes in measures of central object related variables, and any interactions.

No investigation was made into the structural component of self-concept. A future study will investigate the role of self-concept clarity in depression, anxiety and hypomania, as a mediator against childhood and current adversity.

Conclusion

Loss (or potential loss) of central objects was not found to have a significant relationship to mental health outcomes in a non-clinical sample. However, social support was demonstrated to have a

strong relationship with depression and anxiety, and state mood, although no relationship was found between social support and hypomania. This suggests that previous findings of the link between loss and depression in clinical samples does not generalise to subclinical depression (or anxiety and hypomania). Findings suggest that interventions which bolster perceived availability of social support may also be beneficial in improving mental health outcomes. However, it appears that additional factors must be present for central object loss to precipitate negative mental health outcomes. One such factor might be low self-concept clarity. The influence of this factor in predicting poor mental health outcomes in non-clinical participants is examined in the next chapter.

CHAPTER 6: DOES SELF-CONCEPT CLARITY MEDIATE THE RELATIONSHIP BETWEEN CHILDHOOD ADVERSITY AND PSYCHOLOGICAL DISTRESS?

6.1 INTRODUCTION

Adverse childhood experiences (ACEs) are acknowledged to be a predictor of poor physical and psychological outcomes in adulthood (Felitti et al., 1998; Kessler et al., 2010) (see section 1.1, page 6). For example, links have been found between number of aversive experiences in childhood and both poor health behaviours (e.g., number of sexual partners; obesity) and various psychopathologies (e.g., addiction, depression, attempted suicide) in adolescence and adulthood (Afifi et al., 2009; Felitti et al., 1998; Infurna et al., 2016). Whilst research has focused predominantly on biological mechanisms explaining the link between ACEs and psychopathology (e.g. Boullier & Blair, 2018), other studies have examined cognitive factors that might account for this relationship. Three such mechanisms are self-concept clarity, self-esteem and intolerance of uncertainty. Self-concept clarity (see section 1.3.6, page 27) is an important structural component of the self-concept (Campbell et al., 1996). Self-concept refers to beliefs an individual holds about their abilities, behaviour and defining characteristics (Harter & Leahy, 2001). Self-esteem (see section 1.3.5, page 26) is the degree to which one's attitude to oneself is favourable or unfavourable (Rosenberg, 1965), and self-concept clarity is thought to be a pillar of stable self-esteem (Kernis et al., 2000). Intolerance of uncertainty (Freeston et al., 1994) appears to manifest as desire for predictability, certainty seeking and cognitive paralysis in the face of uncertainty, and has been identified as a potential predictor for Generalised Anxiety Disorder (Birrell et al., 2011) (see section 1.2.2, page 11).

Early research on the role of self-concept in psychopathology focused predominantly on content components, most commonly self-esteem. There is good evidence that these elements of the self-concept play an important role in the development of psychopathology, notably depression and anxiety. The role of self-esteem in the development of psychopathology has been well-researched. For example a meta-analysis confirmed it is strongly related to depression and anxiety (Sowislo & Orth, 2013). However, more recently there has been growing interest in the organizational aspects of identity and how they may influence psychological wellbeing, with an increasing body of evidence linking self-concept-clarity and psychopathology (see section 1.3.6, page 29) and suggesting its influence across a range of different psychopathologies, including depression, anxiety and

schizophrenia, and also in autism (Cicero, 2017). However, to the best of our knowledge, it has not been investigated with hypomania.

It is believed that adverse childhood experiences (ACEs) may influence psychological wellbeing indirectly via self-concept clarity, as proposed by Identity Disruption theory (Vartanian et al., 2018). This model posits that ACEs interrupt the normal development of identity, leading to a less clear sense of self. This disrupted identity would explain the heightened need for external sources to define and support self-concept in individuals with low self-concept clarity (Campbell, 1990).

Evidence also suggests that perception of early childhood experience may mediate the relationship between self-concept clarity and self-esteem. For example, negative childhood experiences predicted high self-clarity when aligned with current self-esteem, and low self-clarity when not aligned (Streamer & Seery, 2015); in other words, individuals with positive childhood experiences and current positive self-views, or negative childhood experience and current negative self-views, showed higher self-concept clarity than individuals where childhood experience was negative and current self-esteem positive, or vice versa. Self-esteem has also been shown to be directly influenced by adverse childhood experiences (Solomon & Serres, 1999). Given the complex interactions between self-esteem, self-concept clarity and mental health outcomes it has been suggested that there is a benefit to inclusion of self-esteem as a variable in studies examining the influence of self-concept clarity on psychological wellbeing (DeMarree & Bobrowski, 2017).

Intolerance of uncertainty (Freeston et al., 1994) is negatively related to self-concept clarity (Kusec et al., 2016) and self-esteem (Lowe & Harris, 2019), and along with self-concept clarity has also been shown to predict the frequency of social comparisons (Butzer & Kuiper, 2006) (see section 1.2.2, page 12) . This relationship suggests that intolerance of uncertainty should also be considered in investigations of the relationship between childhood adversity and psychopathology.

Existing evidence has shown support for self-concept clarity, self-esteem and intolerance of uncertainty as mediators of the relationship between childhood adversity and psychopathology predicted by the identity disruption model (Vartanian et al., 2018). Wong et al (2019) found that self-concept clarity mediated the association between adverse childhood experiences (ACEs) and depression with the indirect effect remaining significant after controlling for self-esteem. Similarly, Hayward et al (2020) demonstrated childhood adversity predicted depression and anxiety symptoms via the parallel mediators of self-concept clarity and intolerance of uncertainty. To date, research in this field has focused on the direct and indirect effects (via self-concept clarity, self-esteem, and intolerance of uncertainty) of childhood adversity on state depression and anxiety. Therefore, it is important to establish if these factors also mediate the influence of childhood adversity on trait

depression and anxiety. Further, given that childhood adversity predicts hypomanic symptoms (Johnson et al., 2015), it is important to determine if self-concept clarity, self-esteem and/ or intolerance of uncertainty also mediate this relationship.

The Current Study

The aims of the current study were to investigate the direct effects of childhood adversity on psychopathology, and to investigate indirect paths between childhood adversity and psychopathology with self-concept clarity, self-esteem and intolerance of uncertainty as parallel mediators. Existing research was extended to investigate trait anxiety and depression, and also hypomania.

A non-clinical community sample completed online measures of self-concept clarity, self-esteem, intolerance of uncertainty, aversive experiences in childhood, and symptoms of psychopathology (state and trait depression, state and trait anxiety, and hypomanic traits). Bias corrected bootstrapping was used to examine the direct and indirect effects (via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty) of childhood adversity on measures of psychopathology. The proposed mediation model is illustrated in Figure 6.1. Based on Wong et al. (2019) and Haywood et al (2020) it was expected that there would be a significant direct effect (c') of childhood adversity on state depression and state anxiety. Furthermore, it was expected that there would be significant indirect effects (a + b) via the parallel mediators of self-concept clarity (Haywood et al., 2020; Wong et al., 2019), self-esteem (Wong et al., 2019) and intolerance of uncertainty (Haywood et al., 2020). Finally, the potential mediating effects of self-concept clarity, self-esteem, and intolerance of uncertainty on the link between childhood adversity and trait depression, trait anxiety, and hypomanic traits were examined.

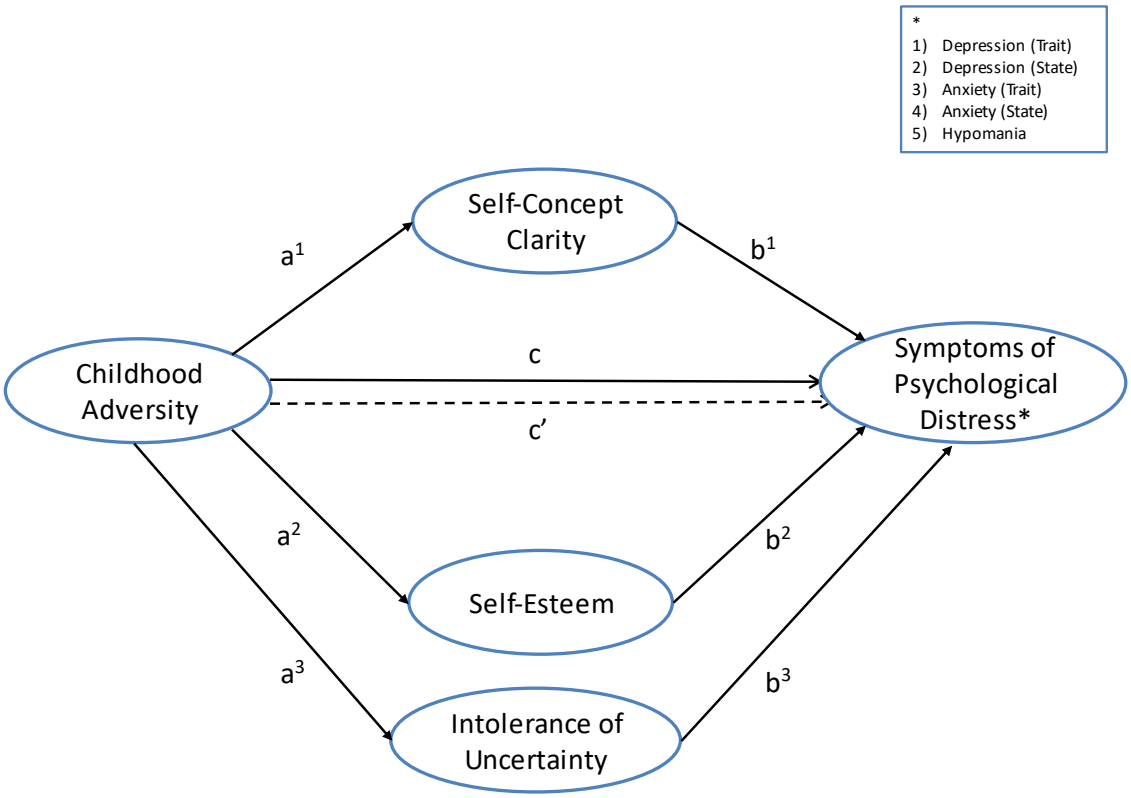


FIGURE 6.1: Proposed mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and psychological distress via the parallel mediators of self-concept clarity (a1+b1), self-esteem (a2+b2) and intolerance of uncertainty (a3+b3)

6.2 METHOD

Design

The current study used a cross-sectional correlational design to investigate the direct and indirect relationships (via the parallel mediators of self-concept clarity, self-esteem, intolerance of uncertainty) between childhood adversity and measures of psychopathology (depression, anxiety and hypomania).

Participants

Based on the effect sizes observed in Haywood et al. (2020) and Wong et al. (2019) an a priori power calculation was conducted using the tables reported in Fritz and MacKinnon (2007). The average relationship between ACE and SCC from Wong et al. (2019) and Haywood et al. (2020) was -.33 (-.2 + -.44). The average relationship between SCC and depression was -.30 (-.25 and -.34), and -.24 for

anxiety. This gave a calculation of -.33, -.3, for depression, and -.33, -.24 for anxiety, which were closest to HH and suggested 148 participants would be required using bias corrected bootstrapping. Therefore, this study was adequately powered for depression, and potentially for anxiety, though if taking a cautious approach to power it falls just below the .26 level for a medium effect on the β path for anxiety. There is therefore some risk that the anxiety mediation may be underpowered. Assuming that the figures for trait depression and anxiety would be similar to those for state mood suggests, we were likely to be similarly powered for those analyses. The analysis for which we could not be confident is the mediation of hypomania as we did not have the data on which to base the prediction.

A community sample of 186 participants[5] was recruited via Prolific (n=82) and social media (n=104). To be included, participants were required to be aged between 18 – 65 and to be able to read and understand written English. The data from 27 participants (15% of the sample) was excluded from the analysis due to incomplete or missing measures. Thus, the data from 159 participants (30 males, 127 females, 2 preferred not to say; mean age = 41.8 years, S.D. = 12.0) was included in the mediation analyses, which suggests these analyses were adequately powered. All participants provided informed consent and the study was approved by Aston University's Research Ethics Committee.

Materials and Measures

Self-Concept Clarity Scale (SCC) (Campbell et al., 1996)

The SCC is a 12-item scale, which assesses coherence, stability, and definition of the sense of self (e.g., "In general, I have a clear sense of who I am and what I am"). Participants rate each item using a 5-point Likert scale with scores ranging from 1 (strongly disagree) to 5 (strongly agree). The range of scores on this measure is 12 – 60, with higher scores indicating greater clarity of self-concept. This scale has been a measure in previous studies examining the link between childhood adversity and psychopathology (Wong et al., 2019) and was used in the current study to provide an index of self-concept clarity . This measure has been shown to have good validity and reliability (Smith et al., 1996). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .92.

Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965)

[5] As the aim was also to conduct a longitudinal analysis (see Section 2.6) the recruitment target was increased by 25% to allow for participant attrition between initial testing and 3 month follow up.

The SES is a 10-item scale assessing global self-worth by measuring positive and negative aspects of the self (e.g., I feel that I'm a person of worth, at least on an equal plane with others). Participants rate each item on a four-point Likert scale, from strongly disagree to strongly agree. Some items are reverse scored. Each item is scored 0-4 and the range of scores on the measure is 0 – 40, with higher scores indicating more positive self-esteem. This scale was chosen to measure the self-esteem of participants as it is frequently used in self-esteem studies (Ekinci & Kandemir, 2015). Previous studies have confirmed that the SES is a reliable (Greenberger et al., 2003). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .93.

Intolerance of Uncertainty Scale Short Version (IUS-12) (Carleton et al., 2007)

The IUS-12 is a 12 item scale that assesses reactions to uncertainty, ambiguity and future situations (e.g., "Unforeseen events upset me greatly" and "When I am uncertain I can't function very well"). Participants rate each item from 1 – 5 (1 = Not at all characteristic of me to, 5 = Entirely characteristic of me). The range of scores is 12 – 60, with higher scores indicating greater intolerance of uncertainty. This scale is the main measure used to assess how participants report their resilience to uncertainty. Previous evidence has confirmed that this measure is reliable (Carleton et al., 2007). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .92.

Adverse Childhood Experiences (ACE Scale) (Felitti et al., 1998)

The ACE is a 10-item scale measuring three categories of adverse childhood experiences: abuse (emotional, physical, sexual); neglect (physical and emotional) and household challenges (such as violence, drug abuse, divorce, mental illness, or incarceration). Participants respond either "yes" or "no" depending on whether they experienced each item before their 18th birthday. 1 point is given for each "Yes" response, with the cumulative total forming the ACE score. The potential range is 0 - 10, with the final score being cumulative across all categories, given that the elements of abuse, neglect and dysfunction are interrelated and have cumulative impact (Dong et al., 2004). This scale was chosen as it has been used in other studies looking at self-concept clarity (Wong et al., 2019). Previous work has confirmed that this measure is reliable (Murphy et al., 2014). The responses on this measure in the current study showed moderate internal consistency, Cronbach's alpha = .77.

Risky Families Questionnaire (RFQ) (Taylor et al., 2004)

The RFQ is an 11-item scale measuring participants' perceptions of growing up in a stressful and dysfunctional household between the ages of 5 and 15 (conflict/aggression, coldness/lack of support and neglect: e.g., "How often did a parent or other adult in the household swear at you, insult you, put you down, or act in a way that made you feel threatened?") Each item was rated on a 5-point scale (0 = Not at all, 4 = Very often). Some items are reverse scored. Scores range from 0 - 44, with higher scores indicate greater family adversity. This scale was chosen as it has been used in other studies looking at self-concept clarity (Hayward et al., 2020). Previous research has confirmed that the RFQ is a reliable measure (Coelho et al., 2014). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .90.

Maryland Trait and State Depression Scale (MTSD) (Chiappelli et al., 2014)

The MTSD consists of two 18-item scales measuring trait and state depression. Participants respond to each item on a 4=point Likert scale (scored 0-4) giving a total score on each subscale of 0-72, with higher scores indicating greater depression. The results of the current study confirm that both subscales showed excellent reliability; state depression (Cronbach's alpha = .95) and trait depression (.96).

State-Trait Anxiety Inventory (STAI) (Spielberger et *al,* 1983)

The STAI is a clinically reliable 40 item self-report scale, split into two equal sections, the "state" section capturing current anxiety symptoms and the "trait" section capturing habitual anxiety trait behaviours. Participants are asked to state how they feel right now (trait) and how they generally feel (state) (e.g. "I am calm.") Scores are assigned on a Likert scales between 1 - 4 for each item, with scoring reversed for anxiety-absent items. Scores range from 20 - 80 for each section, with a cue point over 40 suggested as a cut-off for clinically significant symptoms on the STAI-S scale. The scores on both subscales in the current study demonstrated excellent reliability in the current study, with a Cronbach's alpha of .95 for both (state and trait) scales.

Hypomanic Checklist (HCL-32) (Angst et al., 2005)

The HCL-32 is a 32-item checklist in which participants report either "yes" or "no" to questions (e.g. "I think faster") about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits.

Procedure

The study was carried out via an online questionnaire on Qualtrics. After providing informed consent, participants completed the measures in the following order: SCCS, SES, IUS-12, ACE, RFQ, MSTD-S, MSTD-T, STAI-S, STAI-T, HCL-32. Following completion, participants were provided with a debrief.

Scoring and data analysis

Data from 159 participants were analysed using Jamovi (version 2.3.21). A principal components analysis was conducted on scores on the Adverse Childhood Experiences and Risky Families Questionnaires which revealed that these scores loaded onto a single latent factor (.89), which was specified as childhood adversity. Relationships between variables were analysed using Pearson correlations, followed by separate mediation analyses for depression (state and trait), anxiety (state and trait) and hypomania using bias corrected bootstrapping (5000 iterations) to determine the 95% confidence intervals around the estimates for the direct and indirect effects of childhood adversity on psychological distress via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

6.3 Results

Questionnaire scores

Means, standard deviations, and range of scores on the mood measure scales are presented in Table 6.1.

Table 6.1: Mean scores on measures of psychopathology, self-concept clarity, self-esteem, intolerance of uncertainty, and childhood adversity (standard deviations are presented in parentheses)

n=159	**Mean (SD)**	**Range**
State Depression (MSTD-S)	22.3 (17.3)	0 – 72

Trait Depression (MSTD-T)	27.0 (16.8)	0 – 72
State Anxiety (STAI-S)	41.3 (13.4)	20 – 80
Trait Anxiety (STAI-T)	44.6 (13.2)	20 – 80
Hypomania (HCL-32)	12.7 (5.88)	1 – 32
Self-Concept Clarity (SCCS)	37.1 (10.4)	12 - 59
Self-Esteem (SES)	17.5 (6.04)	0 - 30
Intolerance of Uncertainty (IUS-12)	34.3 (10.6)	16 - 60
Adverse Childhood Experiences (ACE)	2.8 (2.4)	0 - 10
Risky Families Questionnaire (RFQ)	15.2 (10.1)	0 - 44

MSTD-S = Maryland State and Trait Depression Scale (State), MSTD-T = Maryland State and Trait Depression Scale (Trait), STAI-S = State-Trait Anxiety Inventory (State), STAI-T = State-Trait Anxiety Inventory (Trait), HCL-32 = Hypomanic Check List

Relationships between predictor, mediator and outcome variables

Table 6.2 shows correlations between self-concept clarity, self-esteem, intolerance of uncertainty and the latent factor of childhood adversity (comprising adverse childhood experiences and a risky family environment). Highly significant relationships were present between all of the mediator variables (self-concept clarity, self-esteem, intolerance of uncertainty), and between the predictor variable childhood adversity and all mediator variables. Self-concept clarity and self-esteem were positively correlated, and both were negatively correlated with intolerance of uncertainty and childhood adversity. Intolerance of uncertainty was positively correlated with childhood adversity.

Table 6.2: Correlations between predictor and mediator variables.

n=159	**SCCS**	**SES**	**IUS-12**	**CA**
SCCS	1	.78***	-.49***	-.30***

SES	1	-.61***	-.30***
IUS-12		1	.26***
CA			1

***** p<.001. SCCS = Self-Concept Clarity Scale, SES = Self Esteem Scale, IUS-12 = Intolerance of Uncertainty Scale (short version), CA = Childhood Adversity**

Correlations between participant responses on predictor, mediator and outcome variables are shown in Table 6.3. Results showed that relationships between the mediator variables (self-concept clarity, self-esteem and intolerance of uncertainty), and the predictor variable childhood adversity, were all highly significant for measures of anxiety and depression, both state and trait. Scores on hypomania measures showed a highly significant relationship with self-concept clarity and self-esteem, and a significant relationship with intolerance of uncertainty and childhood adversity.

Table 6.3: Correlations between predictor/mediator and outcome variables

n=159	MSTD-S	MSTD-T	STAI-S	STAI-T	HCL-32
Self-Concept Clarity	-.64***	-.65***	-.61***	-.74***	-.39***
Self Esteem	-.71***	-.70***	-.67***	-.79***	-.31***
Intolerance of Uncertainty	.57***	.58***	.48***	.68***	.23**
Childhood Adversity	.35***	.46***	.37***	.37***	.24**

****P<.01, *** p<.001**

State depression

A mediation analysis was conducted with childhood adversity as the predictor variable, state depression as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 6.2, and the coefficients and confidence intervals from this analysis are presented in Table 6.4.

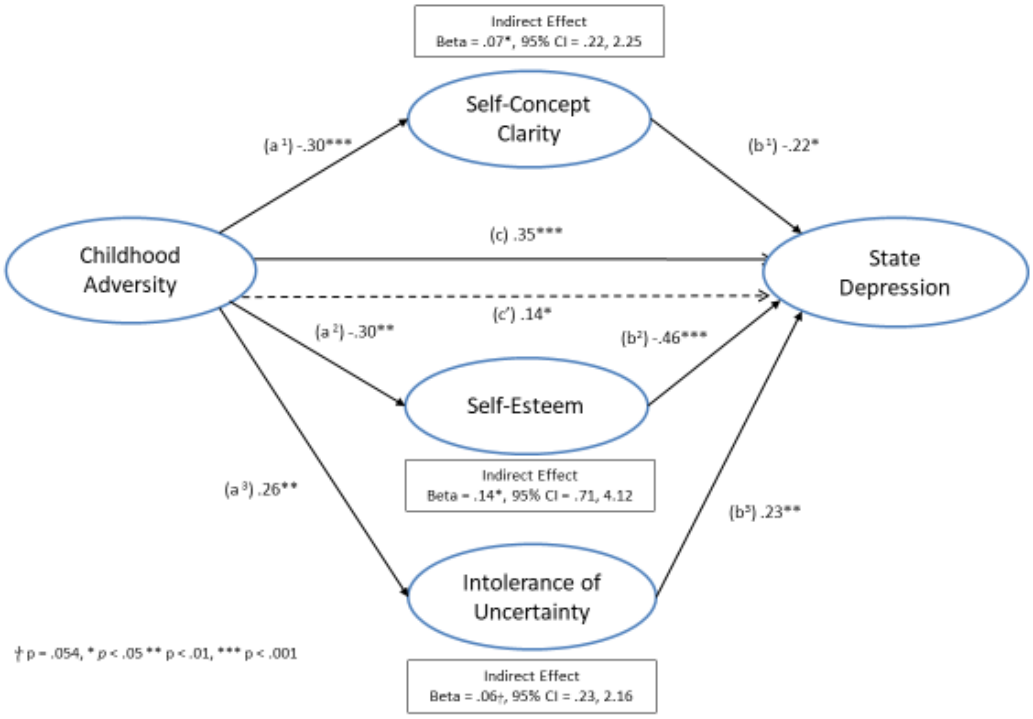


FIGURE 6.2. Mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and state depression via the parallel mediators of self-concept clarity (a1+b1), self-esteem (a2+b2) and intolerance of uncertainty (a3+b3)

The path from childhood adversity to self-concept clarity (a1) was highly significant, as were paths from childhood adversity to self-esteem (a2) and intolerance of uncertainty (a3). The path from self-esteem to state depression (b2) was highly significant, as were the paths from intolerance of uncertainty to state depression (b3) and from self-concept clarity to state depression (b1). The total effect of childhood adversity on state depression (c) was highly significant. The direct effect of childhood adversity on state depression (c') was significant even after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. Importantly, there were significant indirect pathways from childhood adversity to state depression via the mediators of self-concept clarity and self-esteem, but not via intolerance of uncertainty. The expected indirect pathway via intolerance of uncertainty was not statistically significant (*p*=.054), however, the confidence intervals did not cross over 0, suggesting a statistically significant difference. Given that CI does not require an assumption of normality, which was violated by disagreement of CIs and *p* value, CIs were judged to be the most appropriate basis for hypothesis testing. Although the *p* value did not allow rejection of the null hypothesis, CIs suggest that it should also not be accepted.

A post hoc power analysis suggested that the study may have been underpowered for self-concept clarity, although the relationship was significant. A conservative estimate according to Fritz & MacKinnon (2007) suggests 368 participants (HS category) may have been required. The original estimate was that the effect would be within the HH category, which requires a β path of .26, while the HS category requires a β path of .14 . The β path was .22. Intolerance of uncertainty, which was not significant, may also have been underpowered: β path was .23.

Table 6.4. Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of childhood adversity on state depression via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Depression	a^1	-.30 (.83)***	-4.73	-1.48
	a^2	-.30 (.56)**	-2.89	-.73
	a^3	.26 (.92)**	0.10	.55
	b^1	-.22 (.14)*	-.62	-.06
	b^2	-.46 (.27)***	-1.64	-0.59
	b^3	.23 (.11)**	.10	.55
	c	.35 (1.29)***	3.54	8.58
	c’	.14 (1.05)*	-.03	4.07
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Childhood Adversity	Self-Concept Clarity	.07 (.50)*	.22	2.25
	Self-Esteem	.14 (.86)*	.71	4.12
	Intolerance of Uncertainty	.06 (.46)†	.23	2.16

Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

†p = .054, * *p* < .05 ** p < .01, *** p < .001

Trait depression

A mediation analysis was conducted with childhood adversity as the predictor variable, trait depression as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 6.3, and the coefficients and confidence intervals from this analysis are presented in Table 6.5.

The paths from childhood adversity to self-concept clarity (a^1),self-esteem (a^2) and intolerance of uncertainty (a^3) were all significant. The path from self-esteem to trait depression (b^2) was significant, as were the paths to trait depression from self-concept clarity (b^1) and intolerance of uncertainty (b^3). The total effect of childhood adversity on trait depression (c) was significant. The direct effect of childhood adversity on trait depression (c') was still significant after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. However, there were also significant indirect pathways from childhood adversity to trait depression via self-concept clarity, self-esteem, and intolerance of uncertainty.

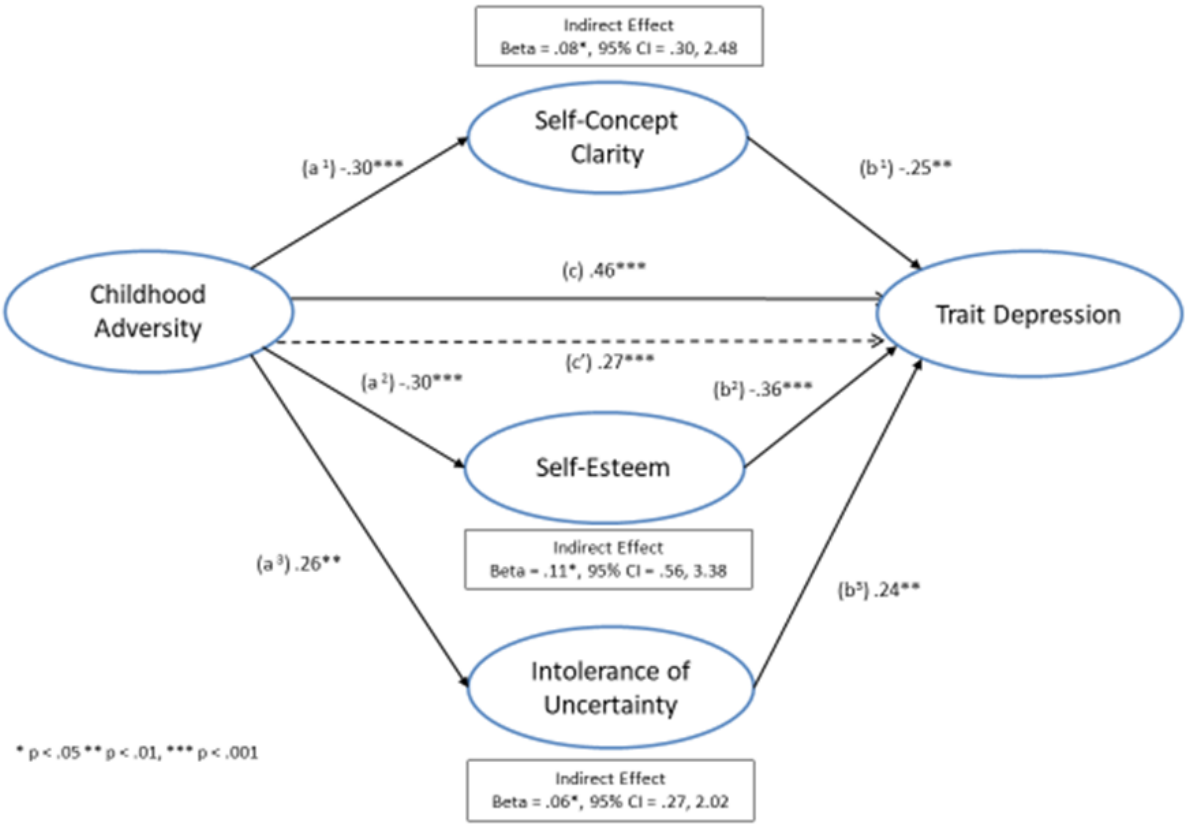


FIGURE 6.3. Mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and trait depression via the parallel mediators of self-concept clarity (a^1+b^1), self-esteem (a^2+b^2) and intolerance of uncertainty (a^3+b^3)

Table 6.5: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of childhood adversity on trait depression via the parallel mediators of self-concept clarity, self-esteem and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Trait Depression	a^1	-.30 (.83)***	-4.73	-1.46
	a^2	-.30 (.55)***	-2.87	-.74

	a^3	.26 (.90)**	0.93	4.52
	b^1	-.25 (.13)**	-.63	-.11
	b^2	-.36 (.24)***	-1.37	-0.42
	b^3	.24 (.10)**	.14	.55
	c	.46 (1.19)***	5.34	9.98
	c'	.27 (1.0)***	2.07	6.01
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Childhood Adversity	Self-Concept Clarity	.08 (.55)*	.30	2.48
	Self-Esteem	.11 (.69)*	.56	3.38
	Intolerance of Uncertainty	.06 (.44)*	.27	2.02

Note. Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

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

Although significant, a post hoc analysis suggests the study may have been slightly underpowered for self-concept clarity and intolerance of uncertainty, with β paths of .25 and .24.

State anxiety

A mediation analysis was conducted with childhood adversity as the predictor variable, state anxiety as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 6.4, and the coefficients and confidence intervals from this analysis are presented in Table 6.6.

The paths from childhood adversity to self-concept clarity (a^1), self-esteem (a^2), and intolerance of uncertainty (a^3) were all significant. The path from self-esteem to state anxiety (b^2) was significant, as was the path from self-concept clarity to state anxiety. However, the path from intolerance of uncertainty to state anxiety (b^3) was not significant. The total effect of childhood adversity on state anxiety (c) was significant. Furthermore, the direct effect of childhood adversity on state anxiety (c') remained significant after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. There were also significant indirect pathways between childhood adversity and state anxiety via the mediators of self-esteem and self-concept clarity, but not via intolerance of uncertainty.

Although significant, a post hoc analysis suggests the study may have been underpowered for self-concept clarity, with a β path of .21.

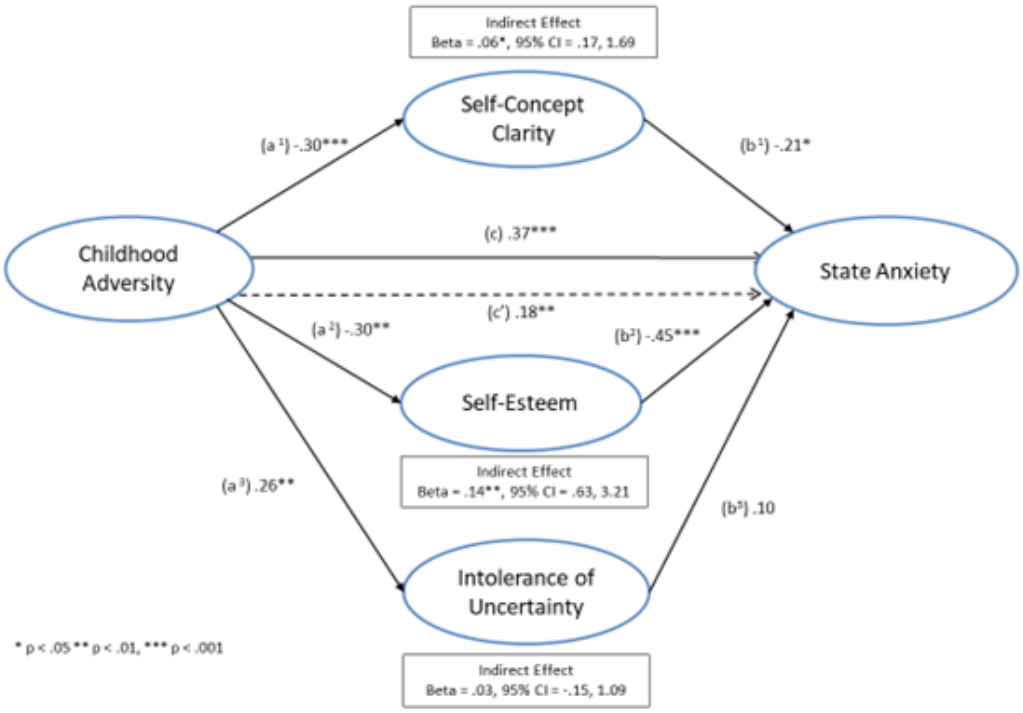


FIGURE 6.4. Mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and state anxiety via the parallel mediators of self-concept clarity (a1+b1), self-esteem (a2+b2) and intolerance of uncertainty (a3+b3)

Table 6.6 Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of childhood adversity on state anxiety via the parallel mediators of self-concept clarity, self-esteem and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Anxiety	a^1	-.30 (.83)***	-4.75	-1.53
	a^2	-.30 (.55)**	-2.90	-.73
	a^3	.26 (.92)**	.97	4.50
	b^1	-.21 (.11)*	-.46	-.05
	b^2	-.45 (.21)***	-1.35	-0.50
	b^3	.10 (.10)	-.07	.30
	c	.37 (.99)***	3.06	6.93
	c'	.18 (.80)**	.65	3.78
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Childhood Adversity	Self-Concept Clarity	.06 (.38)*	.17	1.69
	Self-Esteem	.14 (.63)**	.63	3.21
	Intolerance of Uncertainty	.03 (.30)	-.15	1.09

Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

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

Trait anxiety

A mediation analysis was conducted with childhood adversity as the predictor variable, trait anxiety as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 6.5, and the coefficients and confidence intervals from this analysis are presented in Table 6.7.

The paths from childhood adversity to self-concept clarity (a^1), self-esteem (a^2) and intolerance of uncertainty (a^3) were significant. The paths from self-concept clarity (b^1), self-esteem (b^2) and intolerance of uncertainty (b^3) to trait anxiety were all significant. The total effect of childhood adversity on trait anxiety (c) was significant. Furthermore, the direct effect of childhood adversity on trait anxiety (c') was still significant after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. However, there were also significant indirect pathways from childhood adversity and trait anxiety via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

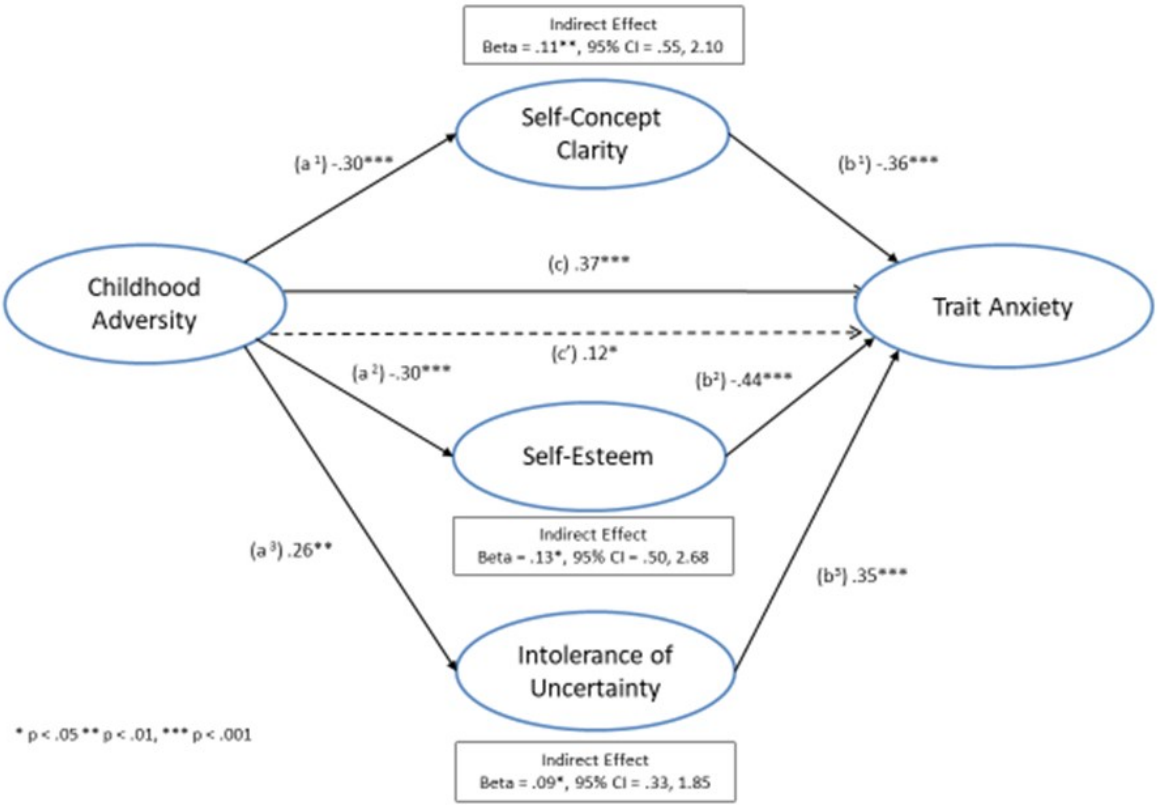


FIGURE 6.5. Mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and trait anxiety via the parallel mediators of self-concept clarity (a^1+b^1), self-esteem (a^2+b^2) and intolerance of uncertainty (a^3+b^3)

Table 6.7. Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of childhood adversity on trait anxiety via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Trait Anxiety	a^1	-.30 (.83)***	-4.70	-1.46
	a^2	-.30 (.55)***	-2.87	-.74
	a^3	.26 (.90)**	.94	4.49
	b^1	-.36 (.08)***	-.54	-.21
	b^2	-.44 (.17)***	-1.10	-0.44
	b^3	.35 (.07)***	.23	.49
	c	.37 (.97)***	2.98	6.79
	c’	.12 (.62)*	.18	2.62
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Childhood Adversity	Self-Concept Clarity	.11 (.38)**	.55	2.10
	Self-Esteem	.13 (.56)*	.50	2.68
	Intolerance of Uncertainty	.09 (.38)*	.33	1.85

Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval.

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

Hypomania

A mediation analysis was conducted with childhood adversity as the predictor variable, hypomania as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 6.6., and the coefficients and confidence intervals from this analysis are presented in Table 6.8.

The paths from childhood adversity to self-concept clarity (a^1), self-esteem (a^2) and intolerance of uncertainty (a^3) were significant. The path from self-concept clarity (b^1) to hypomania was significant. However, the paths from self-esteem (b^2) and intolerance of uncertainty (b^3) to hypomania were not significant. The total effect of childhood adversity on hypomania (c) was significant. However, the direct effect of childhood adversity on hypomania (c’) was not significant once the influence of mediators was controlled. There was a significant indirect pathway from childhood adversity to hypomania via self-concept clarity, but not via self-esteem or intolerance of uncertainty. These findings suggest that self-concept clarity fully mediated the relationship between childhood adversity and hypomania.

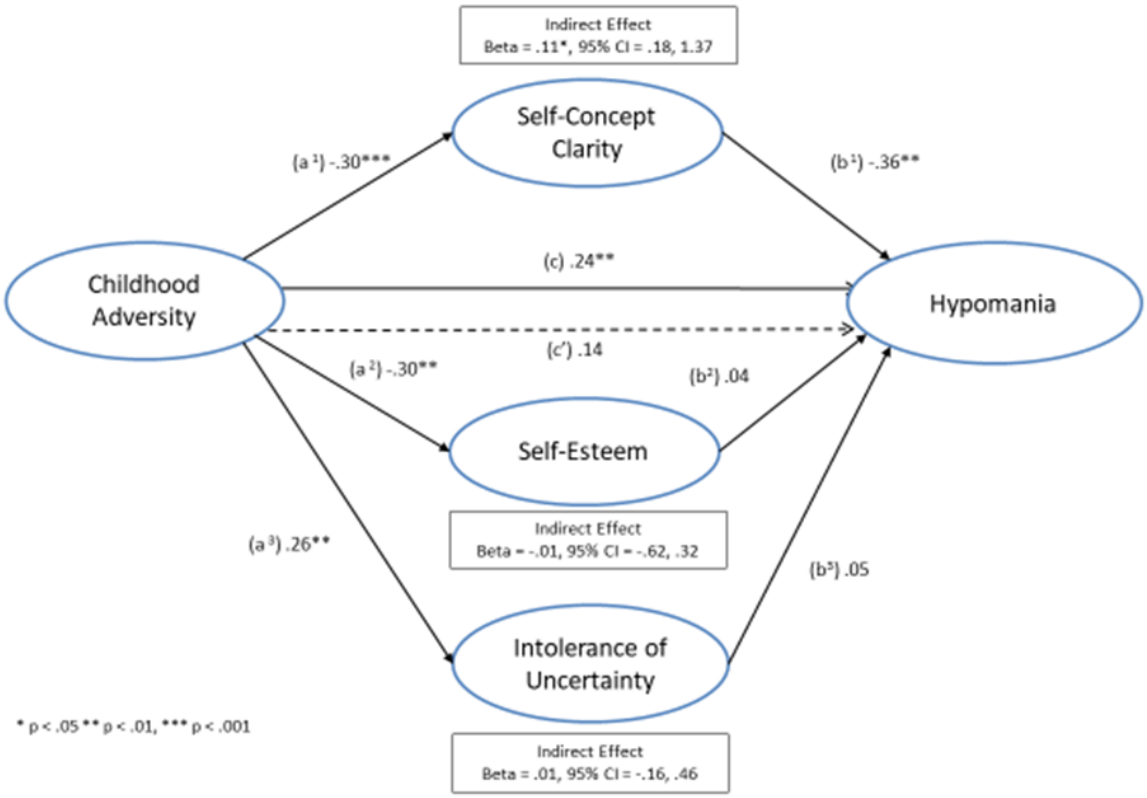


FIGURE 6.6. Mediation model Illustrating the direct pathway (c') and indirect pathways between childhood adversity and hypomania via the parallel mediators of self-concept clarity (a^1+b^1), self-esteem (a^2+b^2) and intolerance of uncertainty (a^3+b^3)

Table 6.8. Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of childhood adversity on hypomania via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Hypomania	a^1	-.30 (.84)***	-4.80	-1.49
	a^2	-.30 (.56)**	-2.94	-.75
	a^3	.26 (.92)**	.92	4.56
	b^1	-.36 (.07)**	-.36	-.07
	b^2	.04 (.12)	-.19	.29
	b^3	.05 (.05)	-.06	.13
	c	.24 (.45)**	.54	2.32
	c'	.14 (.49)	-.14	1.77
Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Childhood Adversity	Self-Concept Clarity	.11 (.29)*	.18	1.37

Self-Esteem	-.01 (.23)	-.62	.32
Intolerance of Uncertainty	.01 (.14)	-.16	.46

Note. LLCI=lower limit 95% confidence interval; ULCI=upper limit 95% confidence interval. * $p < .05$ ** $p < .01$, *** $p < .001$

6.4 Discussion

Childhood adversity is an acknowledged risk factor for poor lifetime outcomes, including an increased risk of mental health disorders in adolescence and adulthood (Felitti et al., 1998; Kessler et al., 2010). Understanding the psychological mechanisms that underpin this relationship is an important area of investigation. The aim of this study was to expand earlier research into factors that contribute to the influence of childhood adversity on the development of psychopathology (Hayward et al., 2020; Wong et al., 2019) . In particular the aim was to examine if self-concept clarity, self-esteem, and intolerance of uncertainty mediated the impact of childhood adversity on anxiety, depression, and hypomania with a view to examining the validity of the identity disruption model (Vartanian et al., 2018) across different psychopathologies.

The prediction that childhood adversity would directly predict state depression was supported by the current findings, as was the hypothesis that childhood adversity would predict state depression indirectly via self-concept clarity and self-esteem. These findings are consistent with previous work (Hayward et al., 2020; Wong et al., 2019). Contrary to previous findings (Hayward et al., 2020), the expected indirect pathway via intolerance of uncertainty was not statistically significant (p=.054), however confidence intervals suggested a statistically significant difference, supporting a potential relationship. Additionally, given that post hoc analysis suggests the study may have been underpowered, repeating with a larger sample would rule out a type II error. This would also be useful in confirming whether the statistically significant path from childhood adversity to state depression via self-concept clarity was a type I error, though this is also supported by previous findings (Hayward et al., 2020; Wong et al., 2019).

The prediction that childhood adversity would directly predict state anxiety was also supported, as was the hypothesis that childhood adversity would indirectly predict state anxiety via self-concept clarity. These findings are consistent with previous findings (Hayward et al., 2020) and additionally provided novel evidence of an indirect pathway between childhood adversity and state anxiety via self-esteem. However, the expected indirect pathway between aversive childhood experiences and state anxiety via intolerance of uncertainty was not observed. This is not consistent with previous studies (Hayward et al., 2020) and may be a Type II error. As post-hoc analysis also suggested the

study may have been underpowered to show the statistically significant path from childhood adversity to state anxiety via self-concept clarity, caution should be exercised and the study repeated with a larger sample to ensure this is not type I error, though it is supported by previous findings (Hayward et al., 2020; Wong et al., 2019).

The prediction that childhood adversity would directly predict trait depression was supported, as were the predictions of indirect pathways between aversive experiences in childhood and trait depression via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty. These are novel findings that extend previous work (Hayward et al., 2020; Wong et al., 2019). However, again post hoc findings suggest that the study may have been underpowered for self-concept clarity and intolerance of uncertainty, so caution should be used in interpreting the results and the study should be re-run with a larger sample.

The hypothesis that childhood adversity would directly predict trait anxiety was supported, as were the predictions that there would be indirect pathways between aversive experiences in childhood and trait anxiety via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty. These important findings extend previous work (Hayward et al., 2020; Wong et al., 2019). The direct path from adverse events experienced in childhood to recurring and habitual symptoms of anxiety and depression aligns with data showing poorer psychological outcomes for individuals with negative early life experience (Kessler et al., 2010). Findings in this study, which support the Identity Disruption Model (Vartanian et al., 2018), suggest that, in addition to its direct relationship with adult psychopathology, and its impact on mood, childhood adversity leading to disruption of identity may play an indirect role in dispositional tendencies to depression and anxiety.

The observation that childhood adversity did not predict hypomania directly, but did predict hypomania indirectly via self-concept clarity is an important novel finding. It suggests that disruption of the self-concept is a risk factor for hypomania. This is consistent with the identity disruption model (Vartanian et al., 2018), as lack of a clearly defined self-representation could cause individuals to focus on opportunities for goal pursuit and achievement to bolster sense of self, and these activities have been linked with hypomanic and manic symptoms (Nusslock et al., 2007; Proudfoot et al., 2011). It may also be explained by the manic defence hypothesis (Lyon et al., 1999; Winters & Neale, 1985), which suggests that individuals compensate for feelings of inferiority and fear of failure by engaging in grandiose thinking and striving for goal success, to defend against feelings of worthlessness and an underlying negative self-schema of depression (Carlstedt, 2009). An individual whose self-concept clarity is low following childhood adversity, in an endeavour to define the self may seek activities which will support their grandiose thinking, elevate their mood, and support their goal striving. These activities may create positive affect and a more positive self-

schema, but also move the individual towards a manic state. There is experimental evidence (Knowles et al., 2005) of a link between hypomanic symptoms, risk-taking behaviours and rumination, which suggests that engagement with these activities may temporarily elevate mood and defend against rumination on childhood trauma.

Manic defence may also explain why hypomania was the only measure of psychopathology on which there was no mediation effect of self-esteem. Individuals with remitted bipolar disorder have been shown to score higher on explicit measures of self-esteem than individuals with remitted unipolar depression despite scoring similarly to depressed participants on implicit measures (Winters & Neale, 1985), and the current study used explicit measures. As hypomania is a precursor to bipolar disorder, potentially self-reports of self-esteem did not show underlying deficits.

The lack of mediation by intolerance of uncertainty could also be explained by manic defence, as a focus towards goal achievement and grandiose thoughts may reduce the tendency to dwell on potential for failure and make uncertainty less relevant. Alternatively, this may be explained by the BAS Dysregulation Model (Depue & Iacono, 1989), an alternative model of bipolar disorder which suggests that highs and lows are fluctuations in the behavioural approach system, which links to rewards and goals and is cued by potential threats or gains. Positive support has been found (Urosevic et al., 2008) for hypomania being linked to elevated expectation of goal expectancy, which might also reduce the perceived relevance of uncertainty.

The manic defence hypothesis (Lyon et al., 1999; Winters & Neale, 1985) is compatible with the Identity Disruption Model (Vartanian et al., 2018) which proposes that childhood adversity interrupts the normal development process, leading to lower self-concept clarity, and a heightened need for external sources to define and support self-concept (Campbell, 1990). Identity disruption would be reinforced by negative self-views gained in childhood and positive self-views currently being strived for. The external sources required to define and support self-concept would be found in goal achievement, or in the positive relational or social identities (Sedikides & Brewer, 2001) being presented to others.

Self-Concept Clarity

The findings that self-concept clarity partially mediated the influence of childhood adversity on state and trait depression and anxiety, and fully mediated its effect on hypomania, strongly support the suggestion that a disrupted sense of personal identity may be one mechanism by which adversity in the early years might result in psychological distress in adulthood, as proposed by the Identity Disruption Model (IDM; Vartanian et al., 2018). The IDM was originally proposed to explain the links

between early childhood experience and disordered eating (Vartanian et al., 2018; Vartanian & Hayward, 2018). However, more recently it has been proposed to have explanatory power regarding the links between adversity in childhood and depression and anxiety in adulthood (Haywood et al., 2020). The current finding that childhood adversity predicts self-concept clarity is consistent with the idea that childhood adversity interrupts normal identity development and leads to an unclear sense of self (Vartanian et al., 2018). The indirect path via self-concept clarity further supports the identity disruption model (Vartanian et al., 2018), suggesting that childhood adversity may disrupt identity development and lead to an unclear sense of self which creates vulnerability to a variety of forms of psychological distress, including anxiety, depression and hypomania. The mechanism by which this effect is created across a range of psychopathologies suggests a strong common factor that would affect a variety of causes of psychological distress. One potential explanation is that self-concept stabilises in adolescence (Habermas & Paha, 2001), and experiencing adversity prior to formation of the stable self-concept may create a self which is vulnerable to external events (Campbell, 1990) and to psychological distress.

This study suggests that the role of self-concept clarity in psychopathology following childhood adversity is complex, moving between a moderate parallel mediator with self-esteem and intolerance of uncertainty to fully mediating the relationship between a traumatic childhood and hypomania. The strongest effects were observed in trait depression, and particularly in hypomania.

As self-concept clarity is a structural component of self-concept, and underpins organisation of self-referencing information (Campbell et al., 1996), potentially a reduced ability to retrieve information about one's capabilities, skills and attributes may increase baseline levels of anxiety. An increased reliance on external influences for self-definition (Campbell, 1990) would reduce autonomy, self-efficacy and control over change, which in turn may heighten stress. Reduced clarity of self-concept, particularly if consisting of conflicting positive and negative self-views, may lead to hypomanic behaviour around goal achievement and grandiose self-assessments as a defence against depression and negative cognition and self-views.

Self-Esteem

The current evidence that self-esteem mediated the influence of childhood adversity on state depression and anxiety supports findings that childhood adversity impacts self-esteem, which then has an ongoing impact in adulthood (Solomon & Serres, 1999) and is consistent with recent findings (Wong et al., 2019). The current findings that self-esteem mediated the influence childhood trauma on trait depression and anxiety extends this previous research. However, the evidence that self-

esteem did not mediate the influence of adversity in childhood on hypomania suggests that this effect does not generalise to all psychopathologies.

Self-esteem mediated the influence of childhood adversity on all measures of psychopathology with the exception of hypomania, supporting earlier findings (Hayward et al., 2020; Wong et al., 2019). The knowledge components of self-concept, which form the foundations for conceptualisations of self, are comprised of beliefs about who and what we are. Self-esteem is an evaluative component which defines how one feels about the conceptualised self (Campbell et al., 1996). It is therefore logical that self-esteem, as an affect-based response to one's perceptions of their identity, whether positive or negative, would play a strong role in both depression and anxiety. No mediation was demonstrated for hypomania, potentially because self-esteem deficits in bipolar disorder are implicit.

Intolerance of Uncertainty

Intolerance of uncertainty mediated the relationship between childhood adversity and trait depression and trait anxiety. This aligns with the findings of Hayward et al. (2020) and the theory that intolerance of uncertainty may be a predictor for Generalised Anxiety Disorder (Birrell et al., 2011). The intolerance of uncertainty model of generalised anxiety (Dugas et al., 1997) suggests anxiety is predicted by an excess of worry, and that this is a pathological response to an inability to cope with uncertainty. These findings suggest that this coping mechanism may also be problematic in depression, though not in hypomania, where potentially it is invalidated by goal focus and elevated anticipation of success. The finding that intolerance of uncertainty mediated trait but not state anxiety and depression may highlight differences between Generalised Anxiety Disorder (GAD) and Clinical Depression and subclinical anxiety and dysphoria. For instance, it has been suggested that the underlying cause of GAD is inability to control one's environment (Alloy et al., 1990; Beck et al., 2005). However, given that retrospective power analysis suggested that this study was underpowered in the relationship between intolerance of uncertainty and state anxiety and depression, potentially this is a Type II error and these relationships may have been found with a larger sample. Confidence intervals suggested that this relationship may also be present in state depression.

Limitations and Future Directions

Although models and regression analyses have been used, and there is correct conceptual timing between the variables (Tate, 2015), data are nevertheless correlational and cross-sectional, and therefore limited in the extent to which causal pathways can be shown. Potential type I and type II errors were identified which suggest carrying out these aspects of the study in a larger sample. It would be beneficial to carry out experimental studies to obtain more empirical evidence on the relationships in this study. Additionally, using longitudinal research to examine the predictive power of these factors over time would be an important avenue of research (see chapter 7, page 147). Results implicating self-concept clarity in hypomania are novel and interesting but require further research. Studies could explore the impact of low-self-concept clarity within a clinical population with bipolar disorder. Additionally, the efficacy of the Identity Disruption Model could be extended outside mood and anxiety disorders, potentially looking at personality disorders where the self-concept is strongly implicated (Caligor et al., 2015; Kerr et al., 2015).

Clinical Implications

This study was conducted with a community sample and did not use diagnostic measures, therefore, caution must be used in drawing conclusions. Nevertheless, results suggest that increasing self-concept clarity may have a direct positive impact on psychological distress in anxiety and depression. Most specifically, it suggests that increasing self-concept clarity in individuals with a history of childhood trauma may prevent hypomania.

Although self-concept clarity has high rank order stability (Lodi‐Smith & Roberts, 2010), it has been demonstrated that it can be amended, for example, by role exits (Light & Visser, 2013). Theories of narrative psychology (McAdams, 1993) already suggest that a coherent life narrative is critical to mental wellbeing and use narrative theory to improve life story coherence (Gonçalves & Stiles, 2011; Dan P McAdams, 2006; Pennebaker, 1993). Self-affirmation theory has been suggested to provide increases to self-concept positivity across a variety of situations (Sherman et al., 2021) and a self-concept clarity manipulation has been demonstrated in an experimental setting (Lewandowski Jr et al., 2010). Further experimental trials on increasing self-concept clarity could produce results which could be translated successfully into a clinical setting.

Conclusion

Current findings confirm that childhood adversity predicts state depression and anxiety directly and indirectly via with the parallel mediators of self-concept clarity and self-esteem. However, the influence of early childhood experiences on state mood was not mediated by intolerance of uncertainty. The current study also provided novel evidence of direct and indirect effects (via self-concept clarity, self-esteem, and intolerance of uncertainty) of childhood adversity on trait anxiety and depression. Another important novel finding was that the influence of childhood adversity on hypomania was fully mediated by self-concept clarity. Taken together the findings provide evidence for the identity disruption model, which posits that early aversive experiences lead to poorer outcomes. Findings suggest that interventions to improve the clarity of the self-concept could have positive effects on levels of psychopathology, particularly hypomania.

CHAPTER 7: DOES SELF-CONCEPT CLARITY MEDIATE THE RELATIONSHIP BETWEEN RECENT STRESSORS AND PSYCHOLOGICAL DISTRESS?

7.1 INTRODUCTION

The self-concept refers to beliefs an individual holds about their abilities, behaviour and defining characteristics (Harter & Leahy, 2001) and derives from semantic self-knowledge about lived experiences and relationships, as well as traits, roles and beliefs (Rathbone et al., 2015). In addition to these knowledge components, the self-concept also contains evaluative aspects such as self-esteem (see section 1.3.5, page 26) and structural components such as self-concept clarity (Campbell et al., 1996) (see section 1.3.6, page 27).

Recent research (Hayward et al., 2020; Vartanian et al., 2018; Wong et al., 2019) investigated relationships between childhood adversity and psychopathologies such as depression, anxiety, and disordered eating. These studies confirmed that self-concept clarity mediated the influence of aversive childhood experiences on psychopathology. The results of the previous study (Chapter 6, page 127) extended this work and showed that self-concept clarity and self-esteem, and in some cases intolerance of uncertainty, mediated the relationship between childhood adversity and depression (state & trait) and anxiety (state & trait). Furthermore, self-concept clarity was shown to fully mediate the relationship between childhood adversity and hypomania. These important findings show that self-concept plays a central role in the impact of childhood trauma on psychological outcomes in adulthood.

In addition to influencing the link between childhood trauma and mental health outcomes, a relationship has been observed between low self-concept clarity and life distress across the domains of social functioning, life satisfaction, employment, and marital distress (Wong et al., 2019), suggesting that self-concept clarity may have significant implications for life outcomes and wellbeing. Indeed, Ritchie et al (2011) reported that self-concept clarity mediated the relationship between recent stressors, as measured by the survey of recent life events (SRLE), and subjective wellbeing. Given that recent stressful life events have been linked to depression (Anderson et al., 2010; Park et al., 2020), anxiety (Young & Dietrich, 2015) and hypomania (Proudfoot et al., 2011), the question remains as to whether self-concept clarity would mediate the influence of recent stressful life events on depression, anxiety, and hypomania.

The disruption caused by stress in childhood to the developing self-concept may not be replicated by stress caused in adult life, when the self-concept becomes more fixed and a life story has developed (see section 1.4.1, page 33). Additionally, the self-continuity function of autobiographical memory becomes stronger with age (Rice & Pasupathi, 2010; Rutt & Löckenhoff, 2016), allowing better use of memory for the purpose of maintaining a coherent sense of self across time and change, and supporting integration of changes into the self-concept. Also, self-concept clarity has high rank order stability (Lodi-Smith & Roberts, 2010). Therefore, it is less likely that a stressful event in adulthood would disrupt self-concept clarity in the way that childhood stressors have been suggested to do. However, self-concept clarity may still play a mediating role between current stressors and psychopathology, independent of change. Furthermore, it has been shown that role exits can affect self-concept clarity (Light & Visser, 2013), so potentially, events that change the way a person views themselves may have an impact on self-concept clarity even in adulthood, and this may play a role in psychopathological responses to stressful events. If this is so, then self-concept clarity and self-esteem may also mediate the relationship between current stressors and psychopathology.

Though evidence is mixed, a number of studies suggest that stressful everyday events do impact wellbeing (Johnson & Stone, 1987; Nakano, 1988; Park et al., 2020; Proudfoot et al., 2011; Young & Dietrich, 2015), and potentially even have a stronger effect on wellbeing than major life events (Holahan & Holahan, 1987; Ivancevich, 1986). These findings led to the development of the Survey of Recent Life Experiences (SRLE), a decontaminated 'hassles' measure to determine the extent to which everyday stressors impacted psychological wellbeing (Kohn & Macdonald, 1992). The scale is designed to cover everyday stressful occurrences that may be anticipated to occur in the lives of the general adult population, and to measure the level of stressors to which a participant is currently exposed. It therefore offers the means to ascertain a participant's exposure to stress, and to analyse whether the relationship between current adversity and psychological distress may be mediated by self-concept clarity, self-esteem and intolerance of uncertainty as childhood adversity is mediated.

The Current Study

Ritchie et al. (2011) demonstrated that influence of recent stress (as measured by the SRLE) on subjective wellbeing was mediated by self-concept clarity. Given the links between recent stressors and mental health symptoms (Anderson et al., 2010; Park et al., 2020; Proudfoot et al., 2011; Young & Dietrich, 2015) and the evidence that SCC mediated the effect of childhood trauma on psychological distress (depression, anxiety, & hypomania), it is plausible that SCC might mediate the link between recent stress and psychological wellbeing. The current study was conducted as a

longitudinal follow up to the study reported in chapter 6 (page 127). The aim of the current study was to expand findings from this previous research with an exploratory analysis into the impact of current stressors on psychopathology, and the mediating effects of self-concept clarity. Based on the findings of the previous study (see Chapter 6, page 127) which showed self-esteem and intolerance of uncertainty to be parallel mediators between childhood adversity and psychopathology, self-esteem and intolerance of uncertainty were also included in mediation analyses.

It was predicted that there would be a direct path from current stressors to all measures of psychopathology, based on previous research showing links between stress and mental health symptoms (Anderson et al., 2010; Park et al., 2020; Proudfoot et al., 2011; Young & Dietrich, 2015). Second, based on Ritchie et al. (2011) and the study reported in chapter 6 (page 127) it was predicted that self-concept clarity would mediate the influence of recent stress on psychopathology. Third, based on Wong et al. (2019) and the study reported in chapter 6 (page 127), it was expected that self-esteem would mediate the influence of recent stress on psychopathology. Fourth, based on Hayward et al. (2020) and the study reported in chapter 6 (page 127), it was expected that intolerance of uncertainty would mediate the influence of recent stress on psychopathology.

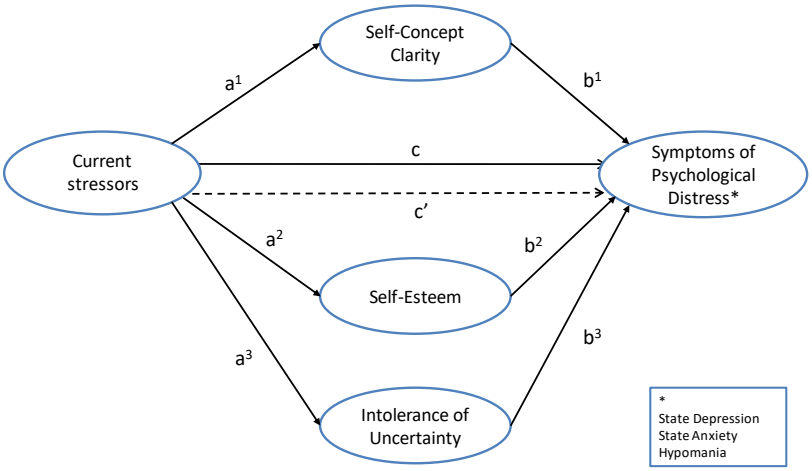


FIGURE 7.1. Proposed mediation model Illustrating the direct pathway (c') and indirect pathways between current stressors and psychological distress via the parallel mediators of self-concept clarity (a^1+b^1), self-esteem (a^2+b^2) and intolerance of uncertainty (a^3+b^3)

7.2 METHOD

Design

The current study used a longitudinal correlational design with bias corrected bootstrapping to investigate the direct and indirect relationships (via the mediators of self-concept clarity, self-esteem, intolerance of uncertainty) between current stressors and measures of psychopathology (depression, anxiety, and hypomania). The period between the initial study (chapter 6, page 127) and the follow-up (this chapter) was three months.

Participants

The 159 participants who took part in the study reported in chapter 6 (page 127) were invited to take part in the follow up. Of these, 122 participants (98 female, 23 male, 1 preferred not to say; mean age = 41.4, SD=11.6) responded to the invitation and completed tests for the current study. Participants were initially recruited from the general population via social media and Prolific. Inclusion criteria were aged between 18 – 65 and a good understanding of written English. Findings from previous studies have shown a relationship between stressful life events and SCC of -.48 (Ritchie et al, 2011), an average relationship between SCC and depression (Wong et al, 2019; Haywood et al, 2020) of -.30, relationship between SCC and anxiety of -.24 (Haywood et al, 2020). In Chapter 6 (page 126), the observed relationship between SCC and hypomania was -.36 Therefore, the a priori power calculation for mediation by SCC would be -.48, -.30 for depression, -.48, -.24 for anxiety and -.48, -.36 for hypomania, which would equate to in Fritz and MacKinnon (2007) to MH (116 participants) for depression and hypomania, but working to conservative estimates could suggest a requirement for 391 participants for anxiety. Thus, a priori, the mediations for depression and hypomania were adequately powered, but the mediation for anxiety was potentially underpowered.

All participants provided informed consent and the study was approved by Aston University's Research Ethics Committee.

Measures

Survey of Recent Life Experiences (SRLE) (Kohn & Macdonald, 1992)

The SRLE is a reliable (Kohn & Macdonald, 1992) decontaminated 51-item self-report hassles scale for adult participants. Participants are asked to indicate how many times over the previous month each item (e.g., being let down or disappointed by friends) has been part of their life. Scores are

assigned on a Likert scales between 1 - 4 for each item (1=not at all, 4 = very much). This measure was used because it aligns to the stress appraisal process and is designed to be used with a generalised adult sample of participants, rather than any specific subgroup. Items cover the topics of mundane annoyances, domestic responsibilities, work, romance, friends, family, other social relationships, finances, environment, time pressure, competitive standing (in terms of abilities, attractiveness, etc.), and future security, with questions relating to physical and mental health, or perceptions of being stressed, being specifically avoided. The possible range of scores is 51 – 204, with higher scores being linked to a greater frequency of stressors. The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .94. Responses were collected at the time of the current study.

Self-Concept Clarity Scale (SCC) (Campbell et al., 1996)

The SCC is a 12-item scale, which assesses coherence, stability, and definition of the sense of self (e.g., "In general, I have a clear sense of who I am and what I am"). Participants rate each item using a 5-point Likert scale with scores ranging from 1 (strongly disagree) to 5 (strongly agree). The range of scores on this measure is 12 – 60, with higher scores indicating greater clarity of self-concept. This scale has been a measure in previous studies examining the link between childhood adversity and psychopathology (Wong et al., 2019) and was used in the current study to provide an index of self-concept clarity . This measure has been shown to have good validity and reliability (Smith et al., 1996). The responses on this measure in the current study showed excellent internal consistency, Cronbach's alpha = .92. Responses from the initial study (chapter 6, p.127) were used.

Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965)

The SES is a 10-item scale assessing global self-worth by measuring positive and negative aspects of the self (e.g., I feel that I'm a person of worth, at least on an equal plane with others). Participants rate each item on a four-point Likert scale, from strongly disagree to strongly agree. Some items are reverse scored. Each item is scored 0-4 and the range of scores on the measure is 0 – 40, with higher scores indicating more positive self-esteem. Consistent with that the scores on the SES in the current study showed excellent reliability, Cronbach's alpha = .93. Responses from the initial study (chapter 6, p.127) were used.

Intolerance of Uncertainty Scale Short Version (IUS-12) (Carleton et al., 2007)

The IUS-12 is a 12 item scale that assesses reactions to uncertainty, ambiguity and future situations (e.g., "Unforeseen events upset me greatly" and "When I am uncertain I can't function very well"). Participants rate each item from 1 – 5 (1 = Not at all characteristic of me to, 5 = Entirely characteristic of me). The range of scores is 12 – 60, with higher scores indicating greater intolerance of uncertainty. Consistent with that finding the scores on the IUS-12 in the current study showed a high degree of reliability, Cronbach's alpha = .92. Responses from the initial study (chapter 6, p.127) were used.

Maryland Trait and State Depression Scale (MTSD) (Chiappelli et al., 2014)

The MTSD consists of two 18-item scales measuring trait and state depression. Participants respond to each item on a 4=point Likert scale (scored 0-4) giving a total score on each subscale of 0-72, with higher scores indicating greater depression. This measure has been shown to be reliable (Chiappelli et al., 2014). The results of the current study confirm that both subscales showed excellent reliability; state depression (Cronbach's alpha = .95) and trait depression (.96). Responses were collected at the time of the current study.

State-Trait Anxiety Inventory (STAI) (Spielberger et *al,* 1983)

The STAI is a clinically reliable 40 item self-report scale, split into two equal sections, the "state" section capturing current anxiety symptoms and the "trait" section capturing habitual anxiety trait behaviours. Participants are asked to state how they feel right now (trait) and how they generally feel (state) (e.g. "I am calm.") Scores are assigned on a Likert scales between 1 - 4 for each item, with scoring reversed for anxiety-absent items. Scores range from 20 - 80 for each section, with a cue point over 40 suggested as a cut-off for clinically significant symptoms on the STAI-S scale. The scores on both subscales in the current study demonstrated excellent reliability in the current study, with a Cronbach's alpha of .95 for both (state and trait) scales. Responses were collected at the time of the current study.

Hypomanic Checklist (HCL-32) (Angst et al., 2005)

The HCL-32 is a 32-item checklist in which participants report either "yes" or "no" to questions (e.g. "I think faster") about certain behaviours that they carry out while in elevated mood. The measure is scored by summing the number of yes responses, with a range of 0 – 32, with higher scores equating to greater number of hypomanic traits. A score on the HCL-32 of 14 or above is considered indicative of clinically significant hypomanic traits. Responses were collected at the time of the current study.

Procedure

The study was carried out via an online questionnaire on Qualtrics. Having provided informed consent to take part in the follow up study, participants provided informed consent and were provided with an information sheet on the study before completing measures for current stressors, hypomania, state depression and state anxiety. Measures were completed in this set order and not counterbalanced. Scores from the first phase of the study were used for all other measures (i.e. self-concept clarity, self-esteem and intolerance of uncertainty). Following completion, participants were provided with a debrief.

Scoring and data analysis

122 participants completed the study. Data were analysed using Jamovi (version 2.3.21). Relationships between variables were analysed using Pearson correlations, followed which bias corrected mediation analyses (5000 iterations) were conducted to examine the direct and indirect effects of current stressors on psychological distress via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty. Separate analyses were conducted for state depression, state anxiety and hypomania.

7.3 Results

Means, standard deviations, and range of scores on the mood measure scales are presented in Table 7.1.

Table 7.1 Mean age and scores on individual difference and psychopathology measures (standard deviations are presented in parentheses)

n=122	Mean (SD)	Range
Age	41.4 (11.6)	18 - 63
Self-Concept Clarity (SCCS)	36.5 (9.7)	15 - 59
Self-Esteem (SES)	17.2 (5.9)	1 - 29

Intolerance of Uncertainty (IUS-12)	35.2 (10.7)	17 - 60
Current Stressors (SRLE)	90.0 (21.1)	56 - 167
State Depression (MSTD-S)	21.6 (16.5)	0 – 67
State Anxiety (STAI-S)	42.2 (11.8)	21 – 73
Hypomania (HCL-32)	11.9 (5.4)	1 - 27

Correlations are presented in Appendix 19 (page 225). Significant correlations were found between all factors with the exception of hypomania and intolerance of uncertainty, and hypomania and state anxiety.

State Depression

A mediation analysis was conducted with current stressors as the predictor variable, state depression as the outcome variable, and self-concept clarity, self-esteem and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 7.2, and the coefficients and confidence intervals from this analysis are presented in Table 7.2.

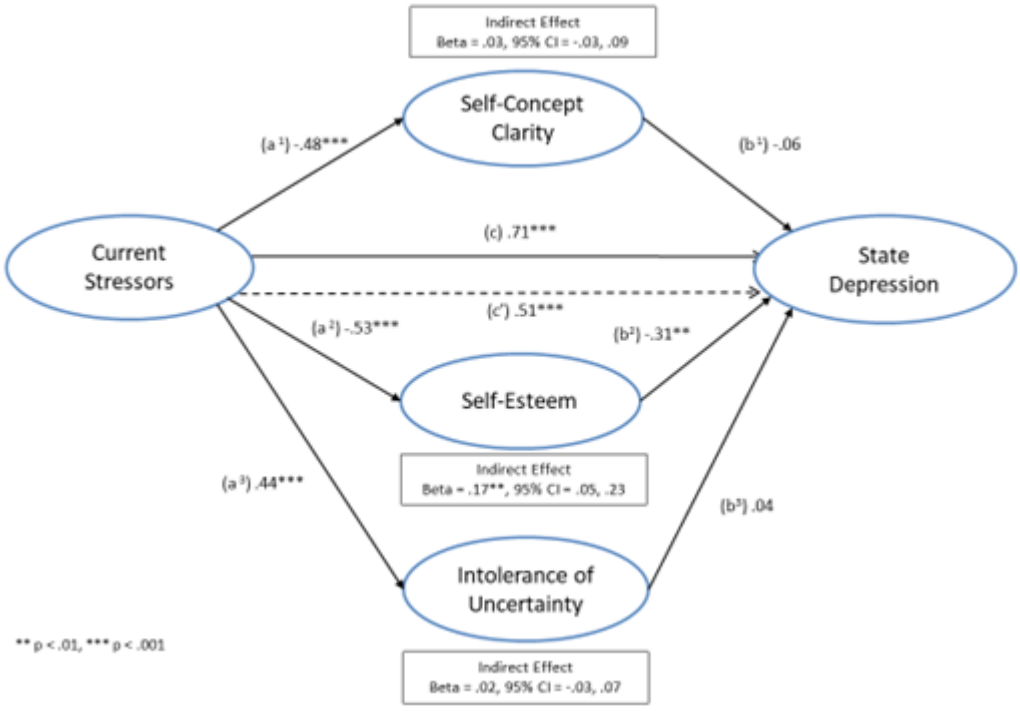


Figure 7.2. Mediation model showing the direct (c') and indirect pathways from current stressors to state depression via the parallel mediators of self-concept clarity ($a^1 + b^1$), self-esteem ($a^2 + b^2$) and

intolerance of uncertainty (a^3 +b^3). The model also shows the total effect (c) of current stressors plus all three mediators on state depression.

Table 7.2: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of current stressors on state depression via the parallel mediators of self-concept clarity, self-esteem and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Depression	a^1	-.48 (.04)***	-.30	-.16
	a^2	-.53 (.02)***	-.19	-.10
	a^3	.44 (.04)***	0.14	.29
	b^1	-.06 (.13)	-.37	.16
	b^2	-.31 (.28)**	-1.41	-0.33
	b^3	.05 (.12)	.14	.31
	c	.71 (.05)***	.46	.65
	c’	.51 (.07)***	.25	.52

Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Current Stressors	Self-Concept Clarity	.03 (.03)	-.03	.08
	Self-Esteem	.17 (.04)**	.05	.23
	Intolerance of Uncertainty	.02 (.03)	.03	.08

Note. ** p < .01, *** p < .001

The paths from current stressful events to self-concept clarity (a^1), self-esteem (a^2) and intolerance of uncertainty (a^3) were all highly significant. The path from self-esteem to state depression (b^2) was significant. No significant path was shown from self-concept clarity (b^1) or intolerance of uncertainty (b^3) to state depression. The total effect of current stressors on state depression (c) was highly significant, as was the direct effect of current stressors on state depression (c’) after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. There was a significant indirect path to state depression via self-esteem (a^2+b^2).

State Anxiety

A mediation analysis was conducted with current stressors as the predictor variable, state anxiety as the outcome variable, and self-concept clarity, self-esteem and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 7.3, and the coefficients and confidence intervals from this analysis are presented in Table 7.3.

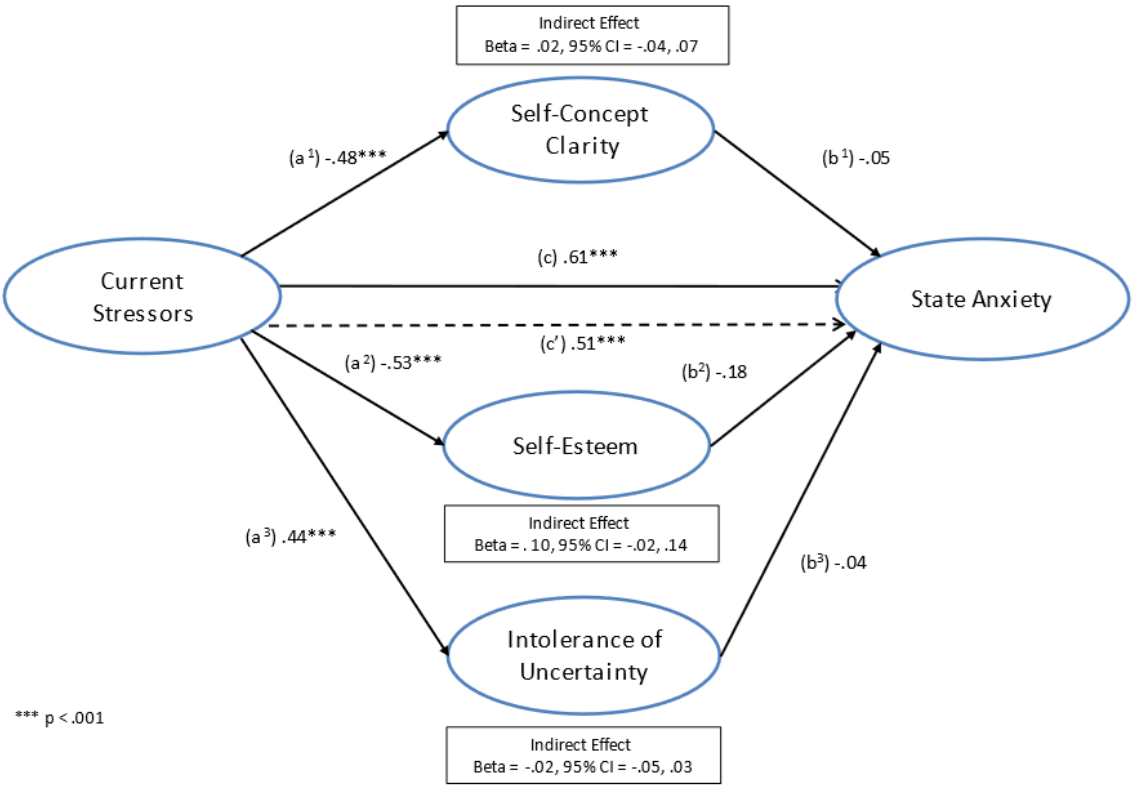


Figure 7.3. Mediation model showing the direct (c') and indirect pathways from current stressors to state anxiety via the parallel mediators of self-concept clarity ($a^1 + b^1$), self-esteem ($a^2 + b^2$) and intolerance of uncertainty ($a^3 + b^3$). The model also shows the total effect (c) of current stressors plus all three mediators on state anxiety.

The paths from current stressful events to self-concept clarity (a^1), self-esteem (a^2) and intolerance of uncertainty (a^3) were all highly significant. None of the paths from self-concept clarity (b^1), self-esteem (b^2) or intolerance of uncertainty (b^3) to state anxiety were significant. The total effect of current stressors on state anxiety (c) was highly significant, as was the direct effect of current stressors on state anxiety (c') after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. There were no significant indirect paths to state anxiety via any of the potential mediators.

Table 7.3: Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of current stressors on state anxiety via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
State Anxiety	a^1	-.48 (.04)***	-.30	-.16
	a^2	-.53 (.02)***	-.19	-.10
	a^3	.44 (.04)***	.14	.29
	b^1	-.05 (.13)	-.32	.19
	b^2	-.28 (.26)	-.85	-.13

b^3	-.04 (.10)	-.23	.16
c	.61 (.04)***	.26	.42
c’	.51 (.05)***	.18	.39

Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Current Stressors	Self-Concept Clarity	.02 (.03)	-.04	.07
	Self-Esteem	.10 (.04)	.-02	.14
	Intolerance of Uncertainty	-.02 (.02)	-.05	.04

Note. *** p < .001

Although no paths were significant, post hoc analysis suggests that the failure to see a mediation of self-esteem may be a Type II error. The study is potentially underpowered for this effect and according to Fritz and MacKinnon (2007) would require 391 participants for this to be demonstrated.

Hypomania

A mediation analysis was conducted with current stressors as the predictor variable, hypomania as the outcome variable, and self-concept clarity, self-esteem, and intolerance of uncertainty as parallel mediators. The paths of this model are illustrated in Figure 7.4, and the coefficients and confidence intervals from this analysis are presented in Table 7.4. The paths from current stressful events to self-concept clarity (a^1), self-esteem (a^2) and intolerance of uncertainty (a^3) were all highly significant. The path from self-concept clarity (b^1) to hypomania was highly significant. The paths from self-esteem (b^2) and intolerance of uncertainty (b^3) to hypomania were moderately significant. The total effect of current stressors on hypomania (c) was moderately significant. The direct effect of current stressors on hypomania (c’) was moderately significant after controlling for self-concept clarity, self-esteem, and intolerance of uncertainty. There were a highly significant indirect path to hypomania via self-concept clarity (a^1+b^1), and a moderately significant indirect path to hypomania via self-esteem (a^2+b^2) and intolerance of uncertainty (a^3+b^3).

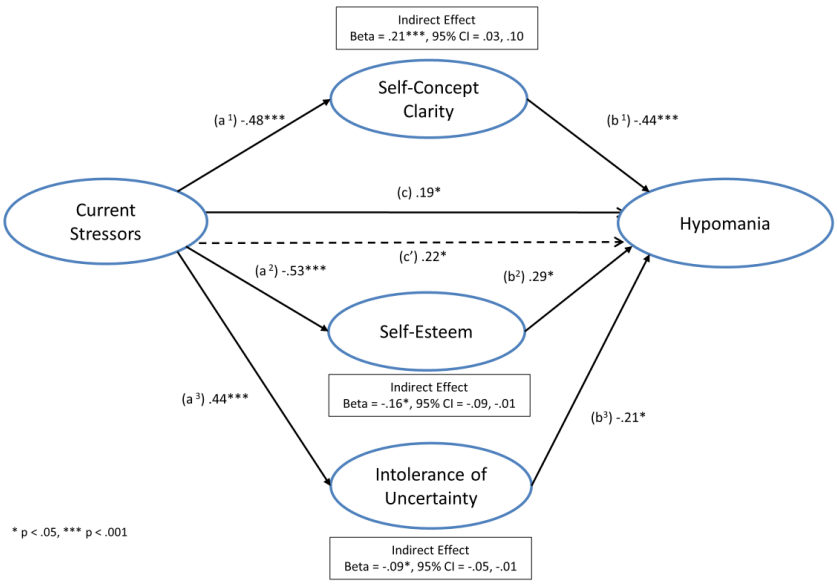


Figure 7.4. Mediation model showing the direct (c') and indirect pathways from current stressors to hypomania via the parallel mediators of self-concept clarity ($a^1 + b^1$), self-esteem ($a^2 + b^2$) and intolerance of uncertainty ($a^3 + b^3$)

Table 7.4. Path coefficients and 95% confidence intervals (estimated using bias corrected bootstrapping) for the mediation analysis of current stressors on hypomania via the parallel mediators of self-concept clarity, self-esteem, and intolerance of uncertainty.

	Path Estimates	*Coefficient (SE)*	*LLCI*	*ULCI*
Hypomania	a^1	-.48 (.04)***	-.30	-.15
	a^2	-.53 (.02)***	-.19	-.10
	a^3	.44 (.04)***	.14	.29
	b^1	-.44 (.06)***	-.38	-.14
	b^2	.29 (.12)*	.04	.54
	b^3	-.21 (.05)*	-.21	-.01
	c	.19 (.02)*	.00	.09
	c'	.22 (.03)*	.01	.12

Indirect Effects	*Path*	*Effect (SE)*	*LLCI*	*ULCI*
Current Stressors	Self-Concept Clarity	.21 (.02)***	.03	.10
	Self-Esteem	-.16 (.02)*	-.09	-.01
	Intolerance of Uncertainty	-.09 (.01)*	-.05	-.00

Note. * p< .05, *** p < .001

A retrospective power analysis suggested that hypomania was unpowered for intolerance of uncertainty according to Fritz & MacKinnon (2007), and therefore the significant mediation may be a Type I error.

7.4 Discussion

The aim of this study was to determine if self-concept clarity, self-esteem and intolerance of uncertainty mediated the effect of recent life stress on depression, anxiety, and hypomania. As predicted, based on earlier research showing links between stress and mental health symptoms (Anderson et al., 2010; Park et al., 2020; Proudfoot et al., 2011; Young & Dietrich, 2015), there was a direct effect of current stressors on all measures of psychopathology. Based on Ritchie et al. (2011) it was expected that self-concept clarity would mediate the influence of recent stress on psychopathology, however, this was only observed for hypomania. Based on Wong et al. (2019) and the study reported in chapter 6 (page 127), it was expected that self-esteem would mediate the influence of recent stress on psychopathology; this was supported for depression and hypomania, but not for anxiety, though post hoc tests suggest that failure to find this relationship may be a Type II error. Based on Hayward et al. (2020) and the study reported in chapter 6 (page 127), it was expected that intolerance of uncertainty would mediate the influence of recent stress on psychopathology, but this was only evident for hypomania, and according to post hoc tests may have been a Type I error due to the study being underpowered.

Self-Concept Clarity

There is ample evidence of a relationship between self-concept clarity and psychological wellbeing. Study 6 (page 127) suggested that self-concept clarity may partially mediate the relationship between childhood adversity and state depression, trait depression, state depression, state anxiety and trait anxiety, and fully mediate its relationship with hypomania. Ritchie et al. (2011) showed self-concept clarity to be a partial mediator between stress and life satisfaction. Wong (2019) found an indirect path from childhood adversity via self-concept clarity to depression, perceived stress and life distress, and Hayward demonstrated an indirect path from childhood adversity via self-concept clarity to depression and anxiety. However, this study has demonstrated self-concept clarity to be a mediator between current stressors and hypomania only, with no significant indirect path shown via self-concept clarity from recent stressors to anxiety or depression.

Though an indirect path has been shown from recent stressors via self-concept clarity to life satisfaction (Ritchie et al., 2011), this does not equate directly to psychopathology. In this study, the relationship with anxiety and depression appears to be underpinned by the highly significant direct relationships. This suggests a different relationship from that deriving from childhood adversity, where self-concept clarity is a significant mediator (Wong et al., 2019; Hayward et al., 2020; Chapter

6, p.127). As self-concept clarity is a structural component of self-concept, and underpins organisation of self-referencing information (Campbell et al., 1996), it is logical that it would have a more significant impact for where identity has been disrupted during development, as suggested by the Identity Disruption Model (Vartanian et al., 2018).

Self-concept clarity fully mediated the relationship between childhood adversity and hypomania in an earlier study (chapter 6, page 127), suggesting disruptions in the self-concept during the developmental years lead to hypomania. In the current study, self-concept clarity partially mediated the relationship between recent stressors and hypomania.

Self-Esteem

Self-esteem has also been shown to be a mediator of psychological wellbeing. Chapter 6 (page 127) found self-esteem to partially mediate the relationship between childhood adversity and state depression, trait depression, state depression, state anxiety and trait anxiety, though no relationship was demonstrated with hypomania. Wong (2019) found an indirect path from childhood adversity via self-esteem to depression, perceived stress and life distress. This study has demonstrated self-esteem to be a mediator between current stressors and both state depression and hypomania, but not state anxiety. The direct path from current stressors to state anxiety was found to be significant, with no significant mediations from any of the potential mediators. The previous study (chapter 6 page 127) found an indirect path to anxiety via self-esteem from childhood stressors, which was not replicated in the current study. Potentially this phenomenon occurs only when identity disruption is present (Vartanian et al., 2018), which may not have been the case in a study investigating current everyday stressors. While the findings on childhood adversity (Chapter 6, page 127) suggested that both self-esteem and self-concept clarity mediated the relationship, with self-esteem being the stronger mediator, findings on current adversity (current chapter) suggest that in state anxiety, the affect is a direct result of the stressor, and the content and structural elements of self-concept are not playing a role in psychological distress. Previous findings (Wong et al., 2019) showed self-esteem to be the strongest mediator of the relationship between childhood adversity and state depression, and a meta-analysis has supported an effect of self-esteem on depression (Sowislo & Orth, 2013). Findings from this study suggest that in current adversity, only self-esteem is mediating the impact of stressors in depression. Self-esteem is an evaluative component of the self-concept which defines how an individual feels about the beliefs they have about who they are (Campbell et al., 1996), so it is logical that this may impact positive or negative affect. Alternatively, the failure to find a mediation of self-esteem for anxiety may be a Type II error due to the study being underpowered for

this relationship. Post hoc analysis supports carrying out a further study with a larger number of participants, to ascertain if, in fact, self-esteem is also a mediator for anxiety.

The implicit low self-esteem in hypomania is similar to that of unipolar depression (Lyon et al., 1999; Winters & Neale, 1985) and may explain why self-esteem is a mediator for both. However, in hypomania, the reaction is reversed, with higher self-esteem scores relating to higher scores on measures of hypomania, which supports the manic defence hypothesis (Winters & Neale, 1985).

Intolerance of Uncertainty

Intolerance of uncertainty can also mediate psychological wellbeing. Study 6 (page 127) found intolerance of uncertainty to partially mediate the relationship between childhood adversity and trait depression and trait anxiety. Hayward (2020) found an indirect path from childhood adversity to anxiety and depression via intolerance of uncertainty. This study found intolerance of uncertainty to be a mediator only between current stressors and hypomania.

Intolerance of uncertainty is theorised to be a predictor for Generalised Anxiety Disorder (Birrell et al., 2011). Hayward et al. (2020) used precise anxiety measures of GAD and social anxiety, though also in a subclinical population, and it may be that the variance in measures underlies no path to anxiety via intolerance of uncertainty being found in this study. The earlier study (chapter 6 page 127) also did not support intolerance of uncertainty as a mediator for state anxiety. It may be that this effect is not observed in either anxiety or depression without the identity disruption caused by childhood adversity. The same study also failed to find support for intolerance of uncertainty as a mediator between childhood adversity and state depression.

The indirect path via intolerance of uncertainty from current stressors to hypomania suggested that higher intolerance of uncertainty reduces hypomania. Logically, this may because it has a dampening effect on hypomanic mood. However, and alternate explanation is that this is a Type I error, as post hoc analysis suggested the study was underpowered for this effect. A further study with a greater number of participants would need to be conducted to clarify this.

Hypomania

An indirect path was found from all three mediators to hypomania. In summary, lower self-esteem was related to increased hypomanic symptoms. Higher self-concept clarity and higher intolerance of uncertainty were related to reduced symptoms.

The manic defence hypothesis (Lyon et al., 1999; Winters & Neale, 1985) suggests individuals engage in grandiose thinking and strive for goal success, with the purpose of increasing self-esteem and defend against feelings of worthlessness and underlying negative self-schema of depression (Carlstedt, 2009). This theory is supported by findings on this study of a negative path between self-esteem and hypomanic symptoms. Higher intolerance of uncertainty may reduce the elevated expectation of goal success associated with bipolar disorder (Urosevic et al., 2008) and therefore reduce goal strivings and associated hypomanic symptoms.

The earlier study on childhood adversity (chapter 6 page 127) found self-concept clarity to be the sole mediator of hypomania. The current study suggests that self-esteem (and potentially also intolerance of uncertainty) may play a mediating role between current stressors and hypomania, though self-concept clarity remains the strongest predictor. The path from low self-concept clarity to higher hypomanic symptomology suggests this relationship may also be underpinned by manic defence (Granger et al., 2021; Neale, 1988), with negative affect around self-concept potentially supporting behaviours that drive hypomania.

The significant paths from current stressors to all three mediators (self-concept clarity, self-esteem, and intolerance of uncertainty) mirror those found in the earlier study on childhood adversity (chapter 6, page 127) and suggest that stressful events in adult life, as well as stressful events in childhood, can impact the way in which individuals structure their self-views, their favourable or unfavourable attitudes in relation to themselves, and their ability to deal with unknown events. The influence of current stressors on self-concept clarity suggests that in addition to being open to disruption by adversity before self-concept stabilises in adolescence (Habermas & Paha, 2001), which may be caused because normal identity development is disrupted (Vartanian et al., 2018), self-concept clarity may be reduced by a volume of current stressful life experiences. This findings adds to earlier research (Light & Visser, 2013) showing that self-concept clarity can be reduced by role exits, that is, leaving a life role such as a job. The effect of current stressors on self-esteem implies that in addition to evidence that childhood adversity impacts self-esteem in adulthood (Solomon & Serres, 1999) this element of the self-concept is also undermined by current stressors, with a higher levels of current stressors being linked to lower self-esteem.

The present study's findings suggested current adversity directly affects anxiety, depression and hypomania. Additionally, it was shown mediating effects of self-concept clarity, self-esteem and potentially intolerance of uncertainty are present between current adversity and hypomania. Further, these findings suggest that a disrupted sense of personal identity may predict hypomania even where childhood adversity is not a factor.

Limitations and Future Directions

Although models and regression analyses have been used, data is nevertheless correlational and cross-sectional, and therefore limited in the extent to which it can show causal pathways. It would be beneficial to carry out experimental studies to obtain more empirical evidence on the relationships in this study.

The extension of research investigating the mediators of self-concept clarity, self-esteem and intolerance of uncertainty beyond childhood adversity to current adversity has shown some interesting parallels and differences, but further research is required. A study investigating the impact of current stressors with an experimental population with high childhood adversity scores, and a control group with low childhood adversity scores, could provide more granularity on mediation effects.

A further study with a greater sample size is needed to clarify the mediating role of self-esteem in state anxiety, and intolerance of uncertainty in hypomania, for current stressors.

Clinical Implications

This study was conducted with a community sample and did not use diagnostic measures, therefore, caution must be used in drawing conclusions. Nevertheless, results suggest that increasing self-concept clarity and self-esteem, and reducing intolerance of uncertainty, may have a direct positive impact on psychological distress in anxiety, depression and hypomania and increase the ability to deal with stressors.

Although self-concept clarity has high rank order stability (Lodi‐Smith & Roberts, 2010), it has been demonstrated that it can be amended, for example, by role exits (Light & Visser, 2013). Theories of narrative psychology (McAdams, 1993) already suggest that a coherent life narrative is critical to mental wellbeing and use narrative theory to improve life story coherence (Gonçalves & Stiles, 2011; McAdams, 1996a, 1996b; Pennebaker, 1993). Self-affirmation theory has been suggested to provide increases to self-concept positivity across a variety of situations (Sherman et al., 2021) and a self-concept clarity manipulation has been demonstrated in an experimental setting (Lewandowski Jr et al., 2010). Further experimental trials on increasing self-concept clarity could produce results which could be translated successfully into a clinical setting.

Numerous clinical interventions e.g. Cognitive Behavioural Therapy (Beck et al., 1979), Client-Centered Therapy (Rogers, 2012), Rational Emotive Therapy (Ellis & Grieger, 1986) incorporate strategies to improve self-esteem. Findings in this study support the benefit of providing

intervention to improve self-concept to individuals who have experienced childhood trauma, including aspects which have received less attention, such as family disorganisation and neglect.

At the current time, we are unaware of any existing intervention targeting intolerance of uncertainty. However, given that it has been suggested that intolerance of uncertainty, combined with low self-concept clarity, increases the risk of a client refusing therapy, it would be beneficial to also explore if tolerance of uncertainty may also be increased.

Conclusion

This study found evidence that the level of current stress experienced is directly related to self-concept clarity, self-esteem, and intolerance of uncertainty. Additionally, it found that relationships between current stressors and depression and hypomania are mediated by factors relating to the self-concept. Self-concept clarity, self-esteem and intolerance of uncertainty appear to have varying levels of influence in different psychopathologies. These findings extend previous research on the mediating role of self-concept clarity, self-esteem, and intolerance of uncertainty to current stressors. Findings suggest that if interventions can be developed to improve these risk factors, they may have a wider application than individuals who have experienced childhood adversity.

CHAPTER 8: GENERAL DISCUSSION

8.1 SUMMARY OF AIMS AND BACKGROUND

The central aim of the thesis was to expand on previous research on the links between identity and mental health outcomes by conducting novel studies of factors relating to identity and the self-concept (e.g., autobiographical memory and self-concept clarity), attempting to interpret how they may impact the life story and narrative identity. Additionally, the aim of the thesis was to understand how identity impacts subclinical psychopathology. In 2020, 7% of ill health in the UK, measured by disability adjusted life-years (DALYs), was accounted for by mental health conditions (McDaid et al., 2022) and nosology is beginning to acknowledge the need for dimensional approaches to psychopathology (Cuthbert & Insel, 2013; Kotov et al., 2017; Kotov et al., 2021; Kozak & Cuthbert, 2016; Krueger et al., 2018). Individuals below 'caseness' levels have traditionally been neglected in both research and clinical practice, despite subclinical symptoms causing psychological distress and barriers to life outcomes, and being risk factors for escalation to clinical significance (Bodden et al., 2022; Cuijpers & Smit, 2004; Kertz & Woodruff-Borden, 2011; Kwapil et al., 2000; Martínez-Arán et al., 2004; Mendlowicz & Stein, 2000; Newman et al., 2002; Nobile et al., 2003). This research therefore sought to increase knowledge around factors relating to identity and self-concept which could inform interventions in the subclinical population. Due to high prevalence of depression, anxiety and bipolar disorder in the population (McDaid et al., 2022), it has focused on subclinical depression, anxiety and hypomania.

A key cognitive function that has been implicated in the self is autobiographical memory, which is the source of information from which the self is formed (Conway et al., (2004). It has been theorised that the long-term self within autobiographical memory comprises the conceptual self, a set of socially constructed schemas defining the self, and the autobiographical knowledge base (Conway et al., 2004). Maintaining a sense of self-continuity over time is considered essential to human functioning (Dweck, 2017). Narrative identity supports a continuous sense of self by integrating change into the narrative through the process of autobiographical reasoning, allowing motivated change (Habermas & Köber, 2015b). Life narratives comprise motivational and affective themes, autobiographical reasoning, and structural aspects, with motivational and affective themes being most closely related to wellbeing (McLean et al., 2020). Individuals integrate elements into the self-concept that have personal and social meaning (Schwartz et al., 2011) and are important to wellbeing because they carry affect (Leary, 2007). There is a scarcity of research looking directly at identity and psychological distress, through there is a wealth of literature on the related topics of

autobiographical memory (Conway & Pleydell-Pearce, 2000; Conway et al., 2004; Fivush & Haden, 2003) and autobiographical memory specificity (e.g. Williams et al., 2007; Barry et al., 2021), and a smaller body of research on autobiographical memory function (Bluck & Alea, 2002), self-discrepancy (Higgins et al., 1985; Mason et al., 2019) and self-concept clarity (Campbell et al., 1996; Vartanian et al., 2018). Research to date suggests that these factors may all impact psychological distress. Specificity deficit is a robust effect across psychopathologies (Williams et al., 2007), the self-continuity function of autobiographical memory has been shown to correlate with depressive symptomology (Grace et al., 2016), self-discrepancy has been demonstrated to relate to both anxiety and depression (Mason et al., 2019) and self-concept clarity has been found to mediate the effect of adverse childhood experiences on depression (Wong et al., 2019) and anxiety (Hayward et al., 2020). However, little work has approached these varying factors from a unified viewpoint of the individual's life story and self-conceptions and attempted an analysis combining the disparate factors in the context of contribution to developing psychopathology.

8.2 PRINCIPAL FINDINGS

AUTOBIOGRAPHICAL MEMORY

The novel aspect of study 1 (reported in chapter 2, page 49) was to extend research on the link between memory specificity and related variables and psychopathology by examining the influence of hypomanic symptoms on autobiographical memory specificity in voluntary and involuntary autobiographical memories in a non-clinical sample. An additional aim was to gather evidence on depression and rumination in voluntary and involuntary memories in the same sample.

An important novel finding of the involuntary memory data was a memory congruency effect in hypomania, with higher scores on hypomania relating the rating of negative events more positively, both at the time of the event and at the time of recall. These findings suggest that, beyond specificity, the interpretation of events may play a wider role in the link to psychopathology. These findings suggest a response bias in individuals experiencing hypomania, which may cause them to interpret negative events less negatively. This aligns with the depression avoidance hypothesis (Granger et al., 2021; Neale, 1988) which states that mania is a defence against underlying low self-esteem. It is also supported by cognitive theory, which suggests that the cognitive triad, which includes a 'self' aspect, is negative in depression (Beck, 1976) and positive in mania (Newman et al., 2002). If self-referent thinking is consistently positive or negative, this may influence affective

response to recalled memories, raising or lowering mood and, consequently, raising or lowering depressive or manic symptomology. A response bias inclining a positive interpretation of negative events, both at time of occurrence and time of recall, would protect against lowering of self-esteem and self-perceptions in those with hypomania.

Given that impaired autobiographical memory retrieval has been implicated in the onset and maintenance of many forms of psychopathology (Barry et al., 2021) it was expected that higher psychopathology scores would relate to reduced specificity in generative retrieval. However, no such relationships were found between memory specificity and dysphoria or hypomania. This is inconsistent with previous findings in dysphoria (Romero et al., 2014) and hypomania (Delduca et al., 2010). Failure to find support for specificity deficits in this subclinical sample may be methodological, and support suggestions that the traditional autobiographical memory test may be less suitable for a sub-clinical population that alternative methodologies such as SCEPT (Raes et al., 2007). An alternative explanation is that the previous studies took a categorical approach while the current study was dimensional, and evidence suggests continuously measured depression severity does not explain differences in memory specificity (Farina et al., 2019).

Another novel aspect of study 1 was examining direct retrieval of AMs in hypomania, but this exploratory investigation revealed no significant relationship between hypomanic symptoms and specificity. There was however, a negative relationship between depression and specificity of positive memories. This was unexpected as, based on previous work (Kvavilashvili & Schlagman, 2011), no relationship was expected, but these findings are aligned with original generative memory research (Williams & Broadbent, 1986). These findings support the belief that methodology underlay lack of findings; participants rated the memory a number of seconds after recall, which would allow engagement of executive processes prior to rating valence, and the student population may be anticipated to have had a relatively high executive function.

The study also failed to find a significant relationship between rumination and memory specificity, which is inconsistent with previous work in clinical and subclinical depression (Romero et al., 2014; Watkins & Teasdale, 2004) though again this may be a consequence of the methodology used, as the autobiographical memory test may be less sensitive to autobiographical memory deficits in student samples (Romero et al., 2014). However, it is worth noting that a meta-analysis has queried that the importance of rumination in explaining deficits in autobiographical memory specificity (Chiu et al., 2018), suggesting that although rumination may be associated with specificity, ruminative states may need to be induced for the effects to be measurable, and additionally that the measure used in the current study may not capture the aspect of rumination that impacts specificity.

Study 1 (Chapter 2) also examined thematic content of the memories retrieved, which confirmed that the participants tended to focus on memories concerning relationships with parents, friends, and romantic partners. This limited range of themes might be due to the use of a student sample. The most important point taken from qualitative aspects was that many memories, though 'specific' as per requirements of the autobiographical memory test, were insignificant in terms of any deep personal meaning, in that they related to events unlikely to have great emotional significance. A challenge to therapies such as Memory Specificity Training (MEST) (Raes et al., 2009) has been that results are transitory (Barry et al., 2019). A focus on changing content could potentially provide therapeutic solutions with greater longevity. A challenge to research has been that standard cued 'autobiographical' memories are not autobiographical in the sense of conveying any personally significant information (Bluck & Habermas, 2000). These observations prompted study 2, which investigated the specific memories defined as 'self-defining' (Blagov & Singer, 2004; Singer & Salovey, 1993).

The novel aspect of study 2 (reported in Chapter 3, page 74) was to investigate the combined impact of the characteristics of self-defining memories (importance, vividness, and valence) and confidence in goal attainment on psychopathology measures. Self-defining memories help a person to understand themselves and describe themselves to others, have strong links to other memories with a common narrative theme, and reflect enduring concerns or unresolved conflicts (Singer & Salovey, 1993). Given that autobiographical memory is the source for self-concept and provides a balance between ongoing goal activity ('adaptive correspondence') and a record of self in relation to the world ('self-coherence') (Conway et al., 2004), these memories are likely to be closely related to identity.

A key finding of study 2 was a negative relationship between measures of psychopathology (state depression, trait depression, state anxiety, & trait anxiety) and expectations of goal achievement. The findings in relation to state depression are consistent with previous work (Conway et al., 2004), but the other findings are novel. As anxiety is predominantly future oriented (Eysenck & Fajkowska, 2018), this negative relationship between anxiety and expectation of goal achievement was predicted. Gaps between current and desired states align to gaps between actual and ideal self, which have been linked to anxiety and depression as part of self-discrepancy theory as a transdiagnostic framework (Mason et al., 2019). These findings support the suggestion (Jacob et al., 2022) that goal setting can be helpful in improving symptoms in young people who are experiencing anxiety or depression, and suggest that this may be efficacious even when symptoms are below clinical levels.

Given that bipolar disorder is linked with goal attainment (Urosevic et al., 2008), ambition and goal pursuit (Murray & Johnson, 2010) and reward sensitivity (Duffy et al., 2016), it is notable that no relationship was found between goal confidence and hypomania, which suggests there are variances between bipolar disorder and hypomania. Indeed, there is evidence of hypomanic participants describing less goal achievement events (Robyn et al., 2012). Potentially, this effect is not seen in the subclinical population, but may have been observable in a clinical sample.

The study also found some support for the expectation that psychopathology would be linked to a greater number of negative self-defining memories, as valence of memories was negatively related to trait depression and hypomania. However, these relationships were only trend significant, and no relationship was found between memory valence and measures of state depression and anxiety (state & trait). A further study is recommended which is sufficiently powered for this effect, given that failure to find a significant result may be a Type II error. Though these findings were not significant, they support theories of SDMs that threaten a positive view of the self being related to depression (Berntsen & Rubin, 2007) and evidence than SDMs in bipolar disorder are more negative (Raucher-Chéné et al., 2021). Viewed from a self-concept perspective, memories which support a negative view of the self could logically underpin both unipolar and bipolar depression. These findings suggest these effects are observable in a subclinical population. This effect was also expected in anxiety (Nourkova & Vasilenko, 2018) but not observed, which may be due to the significant methodological differences between the studies, or because differences in SDM valence relating to anxiety may not be observable in a subclinical population. The moderate correlation found between importance and goal confidence supports theories (Conway et al., 2004) that memory is the basis for expectations of success or failure in goal attainment.

It was expected that there would be a negative relationship between vividness and psychopathology measures (Williams et al., 2007), as vividness was included as a proxy for specificity but this was not found. This mirrors the results in study 1 where there were not significant relationships between specificity and measures of psychopathology. As noted earlier, specificity deficits are not always detectable in subclinical samples (Raes et al., 2007) and specificity does not always correlate with individual differences (Farina et al., 2019). Valence-related vividness effects have been identified previously in depression (Werner-Seidler & Moulds, 2012). Further research with a larger sample would be required to draw any conclusions on potential vividness deficits.

An additional relationship was found between higher goal confidence and importance, with increased goal confidence being linked to a higher rating of the importance of memories. This supports theories that memory is the basis for expectations of success or failure in goal attainment

(Conway, 2001). One point of note for this study is that the mean age was fairly low, and as the autobiographical self does not begin to develop until adolescence (Habermas & Paha, 2001) the impact of goals on identity may be stronger than in an older sample. Also, the study was correlational. An experimental study assessing the impact of manipulating goal achievement expectations in a wider age demographic may provide more insight on the impact of goal expectations and how closely these may align with self-discrepancy.

It has been suggested that self-defining memories are central to the sense of self (Bluck & Habermas, 2000; Conway & Pleydell-Pearce, 2000), and support for the prediction that higher scores on importance would correlate with positively with vividness support this theory.

To draw any conclusions from this study that may be useful for therapeutic interventions, investigation is suggested beyond "self-defining memory" which is generatively produced, and into the life story (Adler et al., 2016; McAdams, 2013) and narrative identity (McAdams, 2018). Autobiographical reasoning (Bluck & Habermas, 2000; Habermas & Köber, 2015b), the process by which the life story is formed and used, makes sense of the information processed following recall from memory, and it is possible that events which are overtly negative may have been integrated more positively into the life story, possibly through a redemption sequence (McAdams & Bowman, 2001). This study did not find that research on self-defining memory as an entity is sufficient to show the relationship between identity and subclinical psychopathologies.

Following the first two studies, the conclusion was drawn that autobiographical memory specificity alone was insufficient to account for the impact of identity-related memories on psychological wellbeing in a subclinical population. In study 3 (Chapter 4, page 91) investigation moved on to look at how autobiographical memory was used to support the sense of self.

The aim of study 3 (Chapter 4, page 91) was to expand previous work examining the use of AM in dysphoria (Grace et al, 2016) to examine if findings in state depression, of increased using of self-continuity function, generalise to trait depression, state and trait anxiety, and hypomania. The question raised by Grace et al., (2016) was why, given that use of autobiographical memory for self-continuity is theorised to be adaptive (Bluck & Alea, 2002), more frequent use of autobiographical memory for self-continuity was linked to higher scores on measures of depression. It was proposed that the cause might be rumination (Grace et al., 2016). However, as Bluck and Alea (2002) demonstrated a negative relationship between self-continuity and self-concept clarity, and as self-concept clarity has been shown to negatively relate to depression (Wong et al., 2019), it was theorised in the current study that self-concept clarity might act as a mediator between use of

autobiographical memory for self-continuity and depression, and potentially also for anxiety (Hayward et al., 2020). An exploratory analysis was extended to include hypomania.

There were two important novel findings from this study, the first of which is that self-concept clarity fully mediated the relationship between self-continuity and both state and trait depression, and state and trait anxiety. Potentially this underlies the relationship between greater use of self-continuity and higher depression scores observed in Grace et al. (2016), as increased use of AM for self-continuity was related to lower self-concept clarity scores, and lower self-concept clarity scores to higher scores on the psychopathology measures. Evidence suggests that autobiographical memory can be used to restore the sense of self (Jiang et al., 2020), so given that increasing self-concept clarity related to decreasing psychopathology scores, these findings may have implications for interventions based around self-continuity and targeting self-concept clarity.

The second important novel finding was a direct path from self-continuity to hypomania, and potentially a less significant indirect path from self-continuity to hypomania via self-concept clarity, though post-hoc analysis suggests the latter factor may have been underpowered, so a cautious approach should be taken to interpretation in case of Type I error. A long-held theory of bipolar disorder is that it is a defence against underlying implicit low self-esteem (Neale, 1988; Winters & Neale, 1985). Potentially, direct use of the self-continuity function of autobiographical memory in a strategic manner might increase hypomanic symptoms via selection of memories inducing euphoria, while destabilising self-concept clarity. Additionally, identify deficits have been identified within bipolar disorder which can potentially destabilise narrative identity and which may be linked to self-esteem and self-concept clarity (Wright et al., 2022), and these may lead to a greater reliance on use of the self-continuity function of autobiographical memory to support identity.

The initial three studies in this thesis presented findings which suggested significant variances between hypomania, and depression and anxiety. In the first study, the mood congruency effect showed individuals scoring high for hypomania rated negative memories more positively, while dysphoric individuals rated memories more negatively. In the second study, there was no effect of low expectation of goal achievement on hypomania, though this effect was found for dysphoria and anxiety. In the third study, self-concept clarity fully mediated the relationship between self-continuity and depression and anxiety, while a direct relationship remained for hypomania. These findings supported the planned expansion of the thesis in later chapters to a more direct investigation of self-concept. Expanding memory studies to include the function of memory provided more insight into how memory supports wellbeing via identity-related information.

The remainder of the empirical work of the thesis focused on the links between facets of the self-concept and psychological wellbeing.

Self-Concept

As the results of studies 1 and 2 suggested that autobiographical memories were insufficient to support a clear sense of self, study 4 (Chapter 5, page 107) examined the influence of losing important roles, relationships etc. (referred to as central objects), around which the sense of self might be constructed. Historical research suggested that loss of an object which is a primary source of self-esteem or motivation (Carver & Scheier, 1981) is linked to the development of depression (Oatley & Bolton, 1985; Pyszczynski & Greenberg, 1987). Study 4 aimed to discover whether a relationship existed between such 'central objects' and subclinical depression, anxiety, and hypomania. The key finding was that the number of lost objects was not significantly related to any measure of psychopathology. Therefore, it is possible that the relationship between loss of central objects and psychopathology is limited to what is now referred to as adjustment disorder (American Psychological Association, 2013). However, the results might have been due to the fact that only a few participants reported losing central objects and therefore based their responses on imagined losses. It is possible that the response to an actual loss would be stronger and would show a relationship with psychopathology scores. The mean age of this population was 21.5 years, which might explain why so few participants had lost central objects. An older population would be expected to have experienced more actual loss of central objects, thus may have demonstrated the expected relationships between loss of objects and psychopathology. The only significant finding from study 4 was that perceptions of available social support, in the context of a lost object, was negatively related to depression and anxiety, but not hypomania. Although this supports on the efficacy of social support in the presence of lost objects, this may be due to a more general effect which has been demonstrated of an inverse relationship between perceived availability of social support and anxiety and depression (Dour et al., 2014; Rueger et al., 2016; Stewart et al., 2022). The absence of this relationship in hypomania may be due to the greater role of another factor, for example self-concept clarity, or potentially it may be due to an individual with hypomania believing they do not need social support or that it is irrelevant, or potentially being ambivalent about the need for social support. One final point of note is that participants who had lost fewer central objects reported better access to social support, though this relationship did not remain significant after controlling for multiple tests. Possibly, a wider support network increases the number of objects seen as central and mitigates the impact of loss, but further research would be needed to ascertain causation. A positive relationship was found between perception of a higher impact of loss

(of an object) and trait depression, which was not seen in any other measure of psychopathology. Though this does support a relationship between identity and depression, the conclusion from study 4 was that there was insufficient evidence to suggest that loss of central objects is a critical factor linking identity and psychopathology. The main significant relationship identified, which remained significant after controlling for multiple corrections, was between replaceability of objects and a resilient sense of identity, which suggests a factor such as self-concept clarity (Campbell, 1990) may play a stronger role.

Study 5 (Chapter 6, page 127) extended the identity disruption model (Vartanian et al., 2018) to determine if self-concept clarity mediated the influence of childhood adversity on trait depression and anxiety and hypomania. Though post-hoc analysis suggested that some factors may have been underpowered for state and trait depression, and state anxiety, and therefore caution should be exercised in interpretation of these results, findings showed a direct link between adverse childhood experiences and all measures of psychopathology except hypomania , supporting and extending previous findings (Hayward et al., 2020; Wong et al., 2019). However, importantly, self-concept clarity mediated the influence of childhood adversity on all measures of psychopathology, extending previous findings (Haywood et al., 2020; Wong et al., 2019). In addition, self-esteem, and to a certain extent intolerance of uncertainty, were parallel mediators of the link between childhood adversity and psychopathology. An important novel finding from study 5 was that self-concept clarity (alone) fully mediated the link between adverse childhood experiences and hypomania. This finding supports the idea that disruption of the self-concept is a risk factor for hypomania and suggests that the Identity Disruption Model applies more generally across psychopathologies (Vartanian et al., 2018). These findings highlight several points. Firstly, they reinforce the need for consideration of both the structural (e.g., self-concept clarity) and evaluative components (e.g., self-esteem) of self-concept in understanding the influence of childhood experiences on psychopathology, which has implications for interventions. Secondly, they demonstrate that these important relationships can be detected in a subclinical population. Thirdly, they highlight that intolerance of uncertainty, a suggested predictor of Generalised Anxiety Disorder (Birrell et al., 2011) may also be a factor in the development of depression and may merit further research in this area.

Study 6 (Chapter 7, page 152) established if self-concept clarity also mediated the influence of recent stressful life events on psychological wellbeing. Recent stressors were found to exert a direct effect on depression, anxiety, and hypomania, which is consistent with previous findings (Anderson et al., 2010; Park et al., 2020; Proudfoot et al., 2011; Young & Dietrich, 2015). Important novel findings were that the relationship between recent stressors and hypomania was mediated by self-concept clarity, self-esteem, and intolerance of uncertainty, though post hoc analysis suggested the

study to have been underpowered for intolerance of uncertainty, so this particular finding may be a Type I error. On the other hand, the relationship between recent stressors and depression was moderated by self-esteem alone. None of the mediators influenced the link between recent stress and anxiety, however, post hoc analysis suggested a Type II error might be responsible for failure to find a mediation of self-esteem.

A direct path was found in both studies to depression and anxiety, suggesting that both childhood adversity and current stressors directly impact wellbeing. The significant difference between these studies was seen in hypomania, where there was no direct effect of childhood adversity, with the relationship being completely mediated by self-concept clarity only. This suggests that disruption of the developing self-concept due to adverse events in childhood is a risk factor for hypomania. This would be consistent with the Identity Disruption Model proposed more generally across psychopathologies (Vartanian et al., 2018), which suggests that ACEs may disrupt identity because the negative events being experienced undermine the self-representation or cause emotional and cognitive responses that cannot be integrated into the developing life story narrative (Carlson et al., 1997). However, this raises the question of why the impact in hypomania may produce findings differing from other psychopathologies, in that there was no mediation effect of self-esteem or direct effect of childhood adversity. This specific question may be explained by the manic defence hypothesis (Lyon et al., 1999; Winters & Neale, 1985), which suggests that individuals compensate for feelings of inferiority and fear of failure by engaging in grandiose thinking and striving for goal success, to defend against feelings of worthlessness and an underlying negative self-schema of depression (Carlstedt, 2009). Self-esteem deficits would not have been apparent in this self-report study, given evidence that explicit measures of self-esteem do not detect the deficits that are shown by implicit measures (Winters & Neale, 1985). An individual whose self-concept clarity is low following childhood adversity, in an endeavour to define the self, may seek activities which will support their grandiose thinking, elevate their mood, and support their goal striving. There is experimental evidence (Knowles et al., 2005) of a link between hypomanic symptoms, risk-taking behaviours and rumination, which suggests that engagement with these activities may temporarily elevate mood and defend against rumination on childhood trauma. These activities may create positive affect and a more positive self-schema, but also move the individual towards a manic state. These findings suggest a specific benefit to interventions around self-concept clarity in hypomania.

With the caveat that the potential Type I and II errors noted above should be taken into account and caution exercised when interpreting results, significant differences between the studies were observed in mediators. Following childhood adversity, self-concept clarity mediated all psychopathologies, while following recent stressors it mediated hypomania only. Self-esteem

mediated anxiety and depression (state and trait) following childhood adversity, but following recent stress mediated depression and hypomania. Following childhood uncertainty, intolerance of uncertainty was a mediator for anxiety and depression (trait only) but was a mediator only for hypomania after recent stress. Differences between findings in studies 5 and 6 support the importance of the stabilisation of self-concept in adolescence (Habermas & Paha, 2001). Low self-concept clarity was implicated only in hypomania following current adversity, but mediated every psychopathology following childhood adversity. The ability to form a biographic narrative incorporating causal events does not develop until adolescence (Bluck & Habermas, 2000). This may lead to disruption of the developing identity if events are experienced in childhood which cannot be processed and integrated. This is consistent with the identity disruption model (Vartanian et al., 2018). Self-esteem was found to be a mediator for depression, which is consistent with Beck's (1979) cognitive model of depression and a negative self-representation.

The findings suggest that a disrupted sense of personal identity may predict psychological distress in hypomania even where childhood adversity is not a factor. Despite having high rank order stability (Lodi-Smith & Roberts, 2010), it has been shown that self-concept clarity can be reduced, for example by role exits (Light & Visser, 2013). Given that only hypomania was mediated by self-concept clarity following current stressors, there may be benefit to an exploration of stability of self-concept clarity in bipolar disorder. Potentially self-concept clarity is more labile in bipolar disorder. This would not be inconsistent either with the effect of self-esteem and intolerance of uncertainty that was also observed, or with what is already known of bipolar disorder. Individuals with bipolar disorder experience swings of self-esteem (Grande et al., 2016), impaired cognitive functioning (Martínez-Arán et al., 2004) and biased cognition (Newman et al., 2002). Fluctuations in self-concept clarity might reasonably be expected to impact each of these domains.

Identity and Subclinical Psychopathology

Findings from the current research support the role of identity and self-concept in subclinical psychopathology. Research linking identity and psychopathology has highlighted persistent negative self-referent thinking (Belmans et al., 2023), focus on negative events or reporting them as highly self-referent (Berntsen et al., 2011; Schuettler & Boals, 2011), with a cognitive triad and dysfunctional attitudes are proposed to be related to depressive (Beck et al., 1979), anxious (Beck et al., 2005) or euphoric (Newman et al., 2002) symptoms. Study 1 (Chapter 2, page 49) looked at generative and direct retrieval of autobiographical memory and found that, consistent with negative

self-representations and underlying dysfunctional attitudes, higher scores on a dysphoria measure were linked to rating negative memories more negatively at time of recall, for both generatively and directly recalled memories. Conversely, higher scores for hypomania were linked with rating negative memories more positively at time of recall when memories were directly recalled, consistent with a euphoria-related self-schema.

Discrepancies between actual and desired selves have been linked to depression and anxiety (Mason et al., 2019), and it has been suggested that mania may be a defence mechanism against underlying low self-esteem in bipolar disorder (Winters & Neale, 1985). Study 2 (Chapter 3, page 74) found lower expectations of goal achievements to be linked to anxiety and depression, but not to hypomania. These findings support both the theory of a gap between actual and desired selves being a factor in anxiety and depression, and of mania potentially providing a defence against negative affect deriving from such a gap in the depressive phase of bipolar disorder.

Self-concept clarity (Campbell et al., 1996) has been proposed to be implicated in psychopathology via destabilisation of identity following childhood adversity (Vartanian et al., 2018) including in depression (Wong et al., 2019) and anxiety (Hayward et al., 2020). Study 5 (Chapter 6, page 127) supported these findings and extended them to trait anxiety and depression. While childhood adversity has a direct effect on anxiety and depression, this study also found that in hypomania, the effect is fully mediated by self-concept clarity. Study 6 (Chapter 7, page 152) found that following current rather than childhood stressors, the relationship with state depression and anxiety is direct, though there is a partial mediation of state depression by self-esteem. However, in hypomania, although there is also a direct effect of the recent stressor, this is mediated by self-concept clarity, self-esteem and intolerance of uncertainty, suggesting the impact of stress on hypomania may be more susceptible to additional factors than is seen in anxiety and dysphoria.

An additional factor relating to self-concept clarity was seen in study 3 (Chapter 4, page 91), where self-concept clarity fully mediated the relationship between use of autobiographical memory for self-continuity and anxiety and depression. However, in hypomania, the mediation was only partial, with a stronger direct positive relationship between self-continuity and hypomanic symptoms. The findings of this study suggested that increased use of autobiographical memory for self-continuity was related to low self-concept clarity, which in turn was related to higher symptoms of depression or anxiety. This is logical given that an unclear sense of self would suggest increased use of autobiographical memory to support self-concept, and given evidence of the relationship between low self-concept clarity and anxiety (Hayward et al, 2020) and depression (Wong et al., 2019). However, in hypomania, the stronger direct relationship suggests use of autobiographical memory

for self-continuity to drive a positive self-narrative, support theories of manic defence (Granger et al, 2021; Neale, 1988).

The studies in this thesis support a role of identity in depression which is characterised by a negative view of the self. Negative memories, whether retrieved effortfully or spontaneously, are valanced more negatively at the time they are remembered. Expectation of the ability to achieve goals is low. Support from others is felt to be needed. Self-concept clarity is low, therefore autobiographical memory is needed for self-continuity, but if a mood congruency effect valences memories more negatively this may contribute to a depressive self-view. Low self-esteem is a known issue in depression and mediates both current and childhood stressors, but following childhood adversity self-concept clarity is also a factor. Findings for anxiety suggested many common factors between anxiety and depression as related to identity, however, mood congruency effects in anxiety were not tested.

Throughout studies, it was notable that findings for hypomania showed distinct variances from anxiety and depression. Multiple instances of support were found for hypomania being an adaptive response to underlying low self-esteem (Granger et al., 2021; Winters & Neale, 1985). Manic defence provides a potential explanation for rating negative memories more positively (chapter 2, page 49), for avoiding the low expectations of goal achievement associated with unipolar depression (chapter 3, page 74), and for a positive relationship between using autobiographical memory for self-continuity and hypomanic symptoms which suggests positive memories are being referenced (chapter 4, page 91).

Study 5 (Chapter 6, page 127) found low self-concept clarity to be a risk factor for hypomania following childhood adversity. If identify formation is disrupted during childhood, the resulting lack of a stable self-representation may cause individuals to focus on opportunities for goal pursuit and achievement in order to bolster a more positive sense of self, activities which have been linked to hypomania symptoms (Nusslock et al., 2007; Proudfoot et al., 2011). This finding supports both the identity disruption hypothesis (Vartanian et al., 2018) and the manic defence hypothesis. (Granger et al., 2021; Winters & Neale, 1985). Disrupted identity prior to stabilisation of self-concept would lead to low self-concept clarity, and manic defence would drive hypomanic behaviours in an effort to avoid resultant negative affect.

Manic defence may also explain why self-esteem mediated the relationship between childhood adversity and both depression and anxiety, but not between childhood adversity and hypomania. In bipolar disorder, low self-esteem is implicit, and individuals compensate for feelings of inferiority and fear of failure by engaging in grandiose thinking and striving for goal success, to defend against

feelings of worthlessness and underlying negative self-schema of depression (Carlstedt, 2009). A final difference in hypomania was that intolerance of uncertainty did not mediate the relationship with childhood adversity, as it did between childhood adversity and trait depression and anxiety. One possible explanation is that the elevated goal achievement expectancy associated with bipolar disorder (Urosevic et al., 2008) may reduce the impact of intolerance of uncertainty.

Findings suggests that interventions to improve self-concept clarity may benefit subclinical psychopathology developing following childhood adversity, and particularly bipolar disorder. Given the relationship between self-continuity and self-concept clarity identified in study 3 (Chapter 4, page 91), using autobiographical memory for self-continuity may be a potential approach. Research has shown that negative self-images are supported by autobiographical memories clustering around specific time periods (Rathbone & Steel, 2015) and such an intervention would need to guide memory focus.

Study 6 (Chapter 7, page 152) also found variances between hypomania and both anxiety and depression when considering the impact of self-concept clarity on recent stressors. Unsurprisingly, recent stressful events directly impacted all psychopathologies. However, anxiety was unaffected by any other factor, whereas state depression was mediated by self-esteem, and hypomania by self-concept clarity, self-esteem and intolerance of uncertainty. Low self-esteem is a recognised characteristic of depression, so this finding was not unexpected. The mediation of hypomania by all three factors was interesting given that only self-concept clarity mediated following childhood adversity, and suggests additional pathways by which hypomania may be driven by stressful life events.

One additional factor of note was the relationship between current stressors and self-concept clarity, self-esteem and intolerance of uncertainty. Current stressors were found to reduce self-concept clarity and self-esteem, and to increase intolerance of uncertainty. The same relationship was found for childhood adversity and self-concept clarity, self-esteem and intolerance of uncertainty. Given the relationships of these factors with psychopathology, findings suggest benefit to considering them in interventions for psychopathologies where they have been implicated.

8.3 CONCLUSION

The aim of the thesis was to examine how factors relating to ‘the self’ (or identity) contribute to subclinical symptoms of psychopathology, with a view to increasing understanding and expanding

knowledge, and to identifying potential interventions that might prevent escalation to clinical levels of psychopathology across depression, anxiety and bipolar disorder. The most significant findings that emerged related to the ways in which hypomania differed from subclinical depression and anxiety in the studies across the various elements investigated, and to the role of self-concept clarity as a mediator of psychopathology.

In depression, in addition to supporting previous evidence on autobiographical memory and self-concept clarity, this research found that the relationship with use of autobiographical memory for self-continuity is fully mediated by self-concept clarity, that the relationship with childhood adversity is partially mediated by intolerance of uncertainty in addition to self-concept clarity and self-esteem, and that there is both a direct relationship between depression and current stressors and an indirect path via self-esteem.

In anxiety, a relationship was found with low expectations of goal achievement, it was found that (as in depression) the relationship with use of autobiographical memory for self-continuity is fully mediated by self-concept clarity, and that there is a direct relationship between anxiety and current stressors.

For hypomania, novel findings were a valence effect where involuntarily recalled negative memories were rated more positively both at the time of recall and time of the event, a direct positive relationship between hypomania and the use of the self-continuity function of autobiographical memory, and that the latter relationship is partially mediated by self-concept clarity. Additionally it was found that there was no direct relationship with childhood adversity, and this relationship was fully mediated by self-concept clarity. Finally, it was found that there was a direct relationship with current stressors, and an indirect path via self-concept clarity, self-esteem and intolerance of uncertainty.

For individuals with subclinical depression, assigning their negative memories a more negative valence and having low assumptions of goal achievement may be assumed to feed into a negative self-representation. If self-concept clarity fully mediates the relationship with self-continuity, with depressive symptoms decreasing as self-concept clarity increases, an intervention to increase self-concept clarity may be helpful in reducing depressive symptoms and preventing escalation of psychopathology. Valence effects suggest that any such intervention should focus around a positive self-representation. As self-concept clarity also mediated the relationship with childhood adversity, findings suggest this may be particularly pertinent for individuals who have suffered abuse, neglect or family dysfunction during their formative years. The additional mediations via self-esteem and intolerance of uncertainty suggest that such an intervention would benefit from an inclusion of

elements to increase self-esteem and reduce intolerance of uncertainty. Findings on current stressors suggest that self-esteem also mediates this relationship, therefore inclusion of an element to raise self-esteem should be beneficial in bolstering coping mechanisms to deal with current stressful situations for individuals with subclinical depressive symptoms.

Findings from this study suggest that anxiety shares many common factors with depression, with regard to identity related factors potentially having an impact on psychopathology. Commonalities were seen across mediations for self-continuity and childhood adversity. However, the one area in which there was significant variance from depression was in current stressors, where no mediation was found for self-concept clarity, self-esteem or intolerance of uncertainty, and there was a direct effect of stressors only. Valence effects in memory recall were not measured and so no comparison with depression can be drawn. Findings in anxiety suggest it is likely that the intervention detailed above may also be useful for individuals with clinical anxiety who have experienced childhood adversity, and findings on self-continuity suggest it may have a wider application, but that this may have little efficacy for individuals with subclinical anxiety where only current stressors are the source of stress.

Hypomania scores were linked with rating involuntary negative memories more positively, both at time of recall and at the time of the event. There was no evidence of a relationship with goal achievement. A variance was found in the relationship with use of autobiographical memory for self-continuity compared to that seen in depression and anxiety, in that there was a direct relationship where greater use of autobiographical memory was linked with higher scores on the hypomania measure, as well as the indirect relationship where self-concept clarity mediated the psychopathology score. As in depression and anxiety, it appears that lower self-concept clarity relates to greater use of autobiographical memory for self-continuity, and that lower self-concept clarity also relates to higher scores on the hypomania measure. The positive valence effect seen in hypomania for involuntary memories suggests that use of memory for self-continuity may drive manic symptomology. Interestingly, following childhood adversity, the relationship with hypomania was fully mediated by self-concept clarity, suggesting that disruption of identity development may be a risk factor for hypomania. Additionally, a direct relationship was shown between current stressors and hypomania, but also an indirect path via self-concept clarity, self-esteem and intolerance of uncertainty. Findings suggest that an intervention to improve self-concept clarity may be particularly beneficial in hypomania, especially following childhood adversity, and elements supporting an increase in self-esteem and a reduction in intolerance of uncertainty may also be beneficial in supporting mechanisms of coping with current stressors. However, any such

intervention should be modified to ensure that it does not escalate manic symptoms and grandiosity.

In summary, this thesis aimed to understand how factors relating to the self contribute to symptoms of subclinical psychopathology, and to identify potential interventions that might prevent escalation to clinical levels of psychopathology across depression, anxiety and bipolar disorder. Findings suggest that an intervention designed to improve self-concept clarity, with additional elements to increase self-esteem and reduce intolerance of uncertainty, may benefit individuals with symptoms of subclinical depression, anxiety and hypomania, and may be a factor in preventing escalation to a clinical diagnosis. However, due to differences observed between psychopathologies, modifications to the intervention would be suggested for different psychopathologies.

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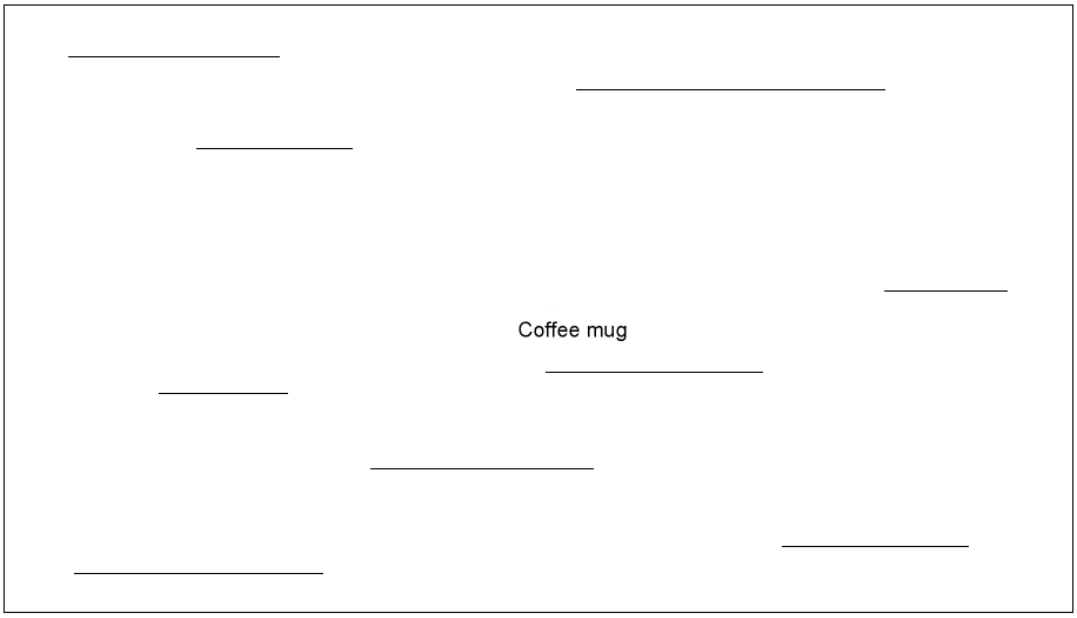
APPENDICES

Appendix 1: Autobiographical Memory Test Cue Words for Chapter 2

Angry
Clumsy
Happy
Hurt (emotionally)
Interested
Lonely
Safe
Sorry
Successful
Surprised

Appendix 2: Sample Involuntary Memory Test Stimulus for Chapter 2



Appendix 3: CES-D for Chapter 2

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	☐	☐	☐	☐
2. I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
3. I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
4. I felt I was just as good as other people.	☐	☐	☐	☐
5. I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
6. I felt depressed.	☐	☐	☐	☐
7. I felt that everything I did was an effort.	☐	☐	☐	☐
8. I felt hopeful about the future.	☐	☐	☐	☐
9. I thought my life had been a failure.	☐	☐	☐	☐
10. I felt fearful.	☐	☐	☐	☐
11. My sleep was restless.	☐	☐	☐	☐
12. I was happy.	☐	☐	☐	☐
13. I talked less than usual.	☐	☐	☐	☐
14. I felt lonely.	☐	☐	☐	☐
15. People were unfriendly.	☐	☐	☐	☐
16. I enjoyed life.	☐	☐	☐	☐
17. I had crying spells.	☐	☐	☐	☐
18. I felt sad.	☐	☐	☐	☐
19. I felt that people dislike me.	☐	☐	☐	☐
20. I could not get "going."	☐	☐	☐	☐

Appendix 4: RRS (Short Version) for Chapter 2

RRS-10 item

Think "What am I doing to deserve this?"
Analyze recent events to try to understand why you are depressed.
Think "Why do I always react this way?"
Go away by yourself and think about why you feel this way.
Write down what you are thinking and analyze it.
Think about a recent situation, wishing it had gone better.
Think "Why do I have problems other people don't have?"
Think "Why can't I handle things better?"
Analyze your personality to try to understand why you are depressed.
Go someplace alone to think about your feelings.

Appendix 5: HCL-32 for Chapters 2 - 7

In such a state:

		Yes	No
9.	I take more risks in my daily life (in my work and/or other activities)	☐	☐
10.	I am physically more active (sport etc.)	☐	☐
11.	I plan more activities or projects	☐	☐
12.	I have more ideas, I am more creative	☐	☐
13.	I am less shy or inhibited	☐	☐
14.	I wear more colourful and more extravagant clothes/make-up	☐	☐
15.	I want to meet or actually do meet more people	☐	☐
16.	I am more interested in sex, and/or have increased sexual desire	☐	☐
17.	I am more flirtatious and/or am more sexually active	☐	☐
18.	I talk more	☐	☐
19.	I think faster	☐	☐
20.	I make more jokes or puns when I am talking	☐	☐
21.	I am more easily distracted	☐	☐
22.	I engage in lots of new things	☐	☐
23.	My thoughts jump from topic to topic	☐	☐
24.	I do things more quickly and/or more easily	☐	☐
25.	I am more impatient and/or get irritable more easily	☐	☐
26.	I can be exhausting or irritating for others	☐	☐
27.	I get into more quarrels	☐	☐
28.	My mood is higher, more optimistic	☐	☐
29.	I drink more coffee	☐	☐
30.	I smoke more cigarettes	☐	☐
31.	I drink more alcohol	☐	☐
32.	I take more drugs (sedatives, anxiolytics, stimulants...)	☐	☐

4) Did the questions above, which characterise a "high", describe how you are...
(Please mark only ONE of the following)

··· sometimes? ☐ ⇒ *if you mark this box, please answer all questions 5 to 9*

··· most of the time? ☐ ⇒ *if you mark this box, please answer only questions 5 and 6*

I never experienced such a "high" ☐ ⇒ *if you mark this box, please stop here*

Appendix 6: MTSD-S for Chapters 3 - 7

Maryland Trait and State Depression – State Scale
(MTSD-S)

Additional header information can be placed here

Instruction: This scale asks your general experience of depression. Please read each question carefully and then circle the number to indicate how you felt in the recent week, that is, in the past 7 days. There are no right or wrong answers. Do not spend too much time on any one statement but give the rating that most closely describes your recent feelings.

	Not at all	<1 day	1-2 days	3-4 days	5-7 days
1. It is hard for me to feel happy.	0	1	2	3	4
2. I have lost interest in enjoyable activities.	0	1	2	3	4
3. My appetite changes a lot depending on my mood.	0	1	2	3	4
4. I sleep much more than usual because of my mood.	0	1	2	3	4
5. I feel sluggish and slow.	0	1	2	3	4
6. I feel sad.	0	1	2	3	4
7. I have no energy for anything.	0	1	2	3	4
8. I cry because my mood is low.	0	1	2	3	4
9. I can not get motivated.	0	1	2	3	4
10. I am burdened with feelings of guilt.	0	1	2	3	4
11. I don't sleep enough when my mood is low because I think of negative thoughts.	0	1	2	3	4
12. The blues stay with me no matter what I do.	0	1	2	3	4
13. I spend less time doing activities or hobbies than I used to because my mood is low.	0	1	2	3	4
14. I feel that I want to die.	0	1	2	3	4
15. I have a heavy feeling in my arms or legs when my mood is down.	0	1	2	3	4
16. My weight goes up or down a lot depending on my mood.	0	1	2	3	4
17. Even though I did not do any thing wrong, I have felt that I deserved to be punished.	0	1	2	3	4
18. I have no hope for my future.	0	1	2	3	4

Appendix 7: MSTD-T for Chapters 3 - 7

Maryland Trait and State Depression – Trait Scale (MTSD-T)

Additional header information can be placed here

Instruction: This scale asks your general experience of depression, again. However, this time it is asking how you generally feel in most of your adult life, but excluding how you felt in the past one week. Try not to be influenced just by how you feel at this moment.

IMPORTANT: The scale for rating is different here. Please read the scale a couple of times before you start.

0	1	2	3	4
Never	Experienced briefly, but less than once a year	Experienced more than once a year, but less than once a month on average	Experienced intensely for some weeks in my life time and in other times less frequent but still there, OR experienced almost every month	Experienced many times in a month for almost every month of my adult life

1. It has been hard for me to feel happy throughout my life.	0	1	2	3	4
2. I have felt less interested in enjoyable activities than my peers.	0	1	2	3	4
3. I often lose my appetite when my mood is low.	0	1	2	3	4
4. I sleep more than most people when my mood is low.	0	1	2	3	4
5. I felt sluggish and slow most of my life.	0	1	2	3	4
6. I often feel sad most of my life.	0	1	2	3	4
7. I have not had sufficient energy for most things.	0	1	2	3	4
8. I cried often because my mood was low.	0	1	2	3	4
9. It has usually been hard for me to get motivated.	0	1	2	3	4
10. I have been burdened with feelings of guilt for much of my life.	0	1	2	3	4
11. I don't sleep enough when my mood is low because I think of negative thoughts.	0	1	2	3	4
12. The blues have stayed with me no matter what I do.	0	1	2	3	4
13. I have not spent much time doing activities or hobbies because I feel down.	0	1	2	3	4
14. I have felt that I wanted to die.	0	1	2	3	4
15. I often have a heavy feeling in my arms or legs when my mood is down.	0	1	2	3	4
16. My weight has gone up or down a lot depending on my mood.	0	1	2	3	4
17. Even though I did not do any thing wrong, I often felt that I deserved to be punished.	0	1	2	3	4
18. I feel hopeless about my future.	0	1	2	3	4

Appendix 8: STAI_S for Chapters 3 - 7

SELF-EVALUATION QUESTIONNAIRE (Present Mood)

DIRECTIONS: During this part of the study you are going to be presented with a series of statements which people have used to describe themselves. Read each statement carefully and then circle the appropriate number to the right of the statement to indicate how you are feeling **RIGHT NOW**, that is, **AT THIS MOMENT**. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to best describe your present feelings	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I am regretful	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying about possible misfortunes	1	2	3	4
8. I feel rested	1	2	3	4
9. I feel anxious	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel “highly strung”	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel over-excited and “rattled”	1	2	3	4
19. I feel joyful	1	2	3	4
20. I feel pleasant	1	2	3	4

Appendix 9: STAI-T for Chapters 3 - 7

SELF-EVALUATION QUESTIONNAIRE (Usual Mood)

DIRECTIONS: During this part of the study you are going to be presented with a series of statements which people have used to describe themselves. Read each statement carefully and then circle the appropriate number to the right of the statement to indicate how you **GENERALLY** feel, that is **MOST OF THE TIME**. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to best describe how you generally feel.	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel pleasant	1	2	3	4
2. I tire quickly	1	2	3	4
3. I feel like crying	1	2	3	4
4. I wish I could be as happy as other people seem to be	1	2	3	4
5. I am losing out on things because I can't make up my mind soon enough	1	2	3	4
6. I feel rested	1	2	3	4
7. I am "calm, cool and collected"	1	2	3	4
8. I feel that difficulties are piling up so that I can't overcome them	1	2	3	4
9. I worry over something that doesn't matter	1	2	3	4
10. I am happy	1	2	3	4
11. I am inclined to take things hard	1	2	3	4
12. I lack self-confidence	1	2	3	4
13. I feel secure	1	2	3	4
14. I try to avoid facing a crisis or difficulty	1	2	3	4
15. I feel blue	1	2	3	4
16. I am content	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me	1	2	3	4
18. I take my disappointments so keenly that I can't put them out of my mind	1	2	3	4
19. I am a steady person	1	2	3	4
20. I get into a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

Appendix 10: SCC for Chapters 4, 6 and 7

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

Appendix 11: SES for Chapters 6 and 7

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

The scale is a ten item Likert scale with items answered on a four point scale - from strongly agree to strongly disagree. The original sample for which the scale was developed consisted of 5,024 High School Juniors and Seniors from 10 randomly selected schools in New York State.

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.*	At times, I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.*	I feel I do not have much to be proud of.	SA	A	D	SD
6.*	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.*	I wish I could have more respect for myself.	SA	A	D	SD
9.*	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

Scoring: SA=3, A=2, D=1, SD=0. Items with an asterisk are reverse scored, that is, SA=0, A=1, D=2, SD=3. Sum the scores for the 10 items. The higher the score, the higher the self esteem.

Appendix 12: IUS for Chapters 6 and 7

No.	Items
1	Unforeseen events upset me greatly.
2	It frustrates me not having all the information I need.
3	One should always look ahead so as to avoid surprises.
4	A small, unforeseen event can spoil everything, even with the best of planning.
5	I always want to know what the future has in store for me.
6	I can't stand being taken by surprise.
7	I should be able to organize everything in advance.
8	Uncertainty keeps me from living a full life.
9	When it's time to act, uncertainty paralyzes me.
10	When I am uncertain, I can't function very well.
11	The smallest doubt can stop me from acting.
12	I must get away from all uncertain situations.

Appendix 13: ACE for Chapter 6

Instructions:

While you were growing up, during your first 18 years of life:

		No	Yes
1	Did a parent or other adult in the household often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?	0	1
2	Did a parent or other adult in the household often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?	0	1
3	Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Try to or actually have oral, anal, or vaginal sex with you?	0	1
4	Did you often feel that... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?	0	1
5	Did you often feel that... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?	0	1
6	Were your parents ever separated or divorced?	0	1
7	Was your mother or stepmother: Often pushed, grabbed, slapped, or had something thrown at her? or Sometimes or often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?	0	1
8	Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?	0	1
9	Was a household member depressed or mentally ill or did a household member attempt suicide?	0	1
10	Did a household member go to prison?	0	1

Appendix 14: RFQ for Chapter 6

RF

These are questions about your childhood and early adolescence (age 5 – 15). Please think over your family life and answer these questions.

1. How often did a parent or other adult in the household make you feel that you were loved, supported, and cared for?

1	2	3	4	5
Not at All				Very Often

2. How often did a parent or other adult in the household swear at you, insult you, put you down, or act in a way that made you feel threatened?

1	2	3	4	5
Not at All				Very Often

3. How often did a parent or other adult in the household express physical affection for you, such as hugging, or other physical gestures of warmth and affection?

1	2	3	4	5
Not at All				Very Often

4. How often did a parent or other adult in the household push, grab, shove, or slap you?

1	2	3	4	5
Not at All				Very Often

5. In your childhood, did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

1	2	3	4	5
Not at All				Very Often

6. Would you say that the household you grew up in was well-organized and well-managed?

1	2	3	4	5
Not at All				Very Often

7. How often would you say that a parent or other adult in the household behaved violently toward a family member or visitor in your home?

1	2	3	4	5
Not at All				Very Often

8. How often would you say there was quarreling, arguing, or shouting between your parents?

1	2	3	4	5
Not at All				Very Often

9. How often would you say there was quarreling, arguing, or shouting between a parent and one of your siblings?

1	2	3	4	5
Not at All				Very Often

10. Would you say the household you grew up in was chaotic and disorganized?

1	2	3	4	5
Not at All				Very Much

11. How often would you say you were neglected while you were growing up, that is, left on your own to fend for yourself?

1	2	3	4	5
Not at All				Very Often

Appendix 15: TALE for Chapter 4

	Item
Self-Continuity Function Subscale/Alpha = .83	
1	when I want to feel that I am the same person that I was before.
3	when I am concerned about whether I am still the same type of person that I was earlier.
4	when I am concerned about whether my values have changed over time.
9	when I am concerned about whether my beliefs have changed over time.
10	when I want to understand how I have changed from who I was before.
Social-Bonding Function Subscale/Alpha = .74	
12	when I hope to also find out what another person is like.
13	when I want to develop more intimacy in a relationship.
16	when I want to develop a closer relationship with someone.
18	when I want to maintain a friendship by sharing memories with friends.
19	when I hope to also learn more about another person's life.
Directing-Behaviour Function Subscale/Alpha = .78	
21	when I want to remember something that someone else said or did that might help me now.
24	when I believe that thinking about the past can help guide my future.
25	when I want to try to learn from my past mistakes.
26	when I need to make a life choice and I am uncertain which path to take.
27	when I want to remember a lesson I learned in the past.

Appendix 16: SRLE for Chapter 7

APPENDIX: SURVEY OF RECENT LIFE EXPERIENCES (SRLE)

Following is a list of experiences which many people have some time or other. Please indicate for each experience how much it has been a part of your life *over the past month.* Put a "1" in the space provided next to an experience if it was *not at all part* of your life over the past month (e.g., "trouble with mother in law — *1*"); "2" for an experience which was *only slightly* part of your life over that time; "3" for an experience which was *distinctly* part of your life; and "4" for an experience which was *very much* part of your life over the past month.

Intensity of Experience over Past Month

1 = *not at all* part of my life
2 = *only slightly* part of my life
3 = *distinctly* part of my life
4 = *very much* part of my life

1. Disliking your daily activities ___
*2. Lack of privacy ___
3. Disliking your work ___
4. Ethnic or racial conflict ___
5. Conflicts with in-laws or boyfriend's/girlfriend's family ___
6. Being let down or disappointed by friends ___
7. Conflict with supervisor(s) at work ___
8. Social rejection ___
9. Too many things to do at once ___
10. Being taken for granted ___
11. Financial conflicts with family members ___
12. Having your trust betrayed by a friend ___
*13. Separation from people you care about ___
14. Having your contributions overlooked ___
15. Struggling to meet your own standards of performance and accomplishment ___
16. Being taken advantage of ___
17. Not enough leisure time ___
*18. Financial conflicts with friends or fellow workers ___
*19. Struggling to meet other people's standards of performance and accomplishment ___
*20. Having your actions misunderstood by others ___
21. Cash-flow difficulties ___
22. A lot of responsibilities ___
23. Dissatisfaction with work ___
24. Decisions about intimate relationship(s) ___
25. Not enough time to meet your obligations ___
*26. Dissatisfaction with your mathematical ability ___
27. Financial burdens ___
28. Lower evaluation of your work than you think you deserve ___
29. Experiencing high levels of noise ___
*30. Adjustments to living with unrelated person(s) (e.g., roommate) ___
31. Lower evaluation of your work than you hoped for ___
32. Conflicts with family member(s) ___
33. Finding your work too demanding ___
34. Conflicts with friend(s) ___

*35. Hard effort to get ahead	___
36. Trying to secure loan(s)	___
37. Getting "ripped off" or cheated in the purchase of goods	___
*38. Dissatisfaction with your ability at written expression	___
39. Unwanted interruptions of your work	___
40. Social isolation	___
41. Being ignored	___
42. Dissatisfaction with your physical appearance	___
43 Unsatisfactory housing conditions	___
44. Finding work uninteresting	___
45. Failing to get money you expected	___
46. Gossip about someone you care about	___
47. Dissatisfaction with your physical fitness	___
48. Gossip about yourself	___
49. Difficulty dealing with modern technology (e.g., computers)	___
*50. Car problems	___
51. Hard work to look after and maintain home	___

Note. Asterisks identify items to be omitted from the 41-item short form.

Appendix 17: Central Object Measure Correlations for Chapter 5

n=68	# Current Objects	Sense of Self Resilience	Object Replaceability	Social Support
# Current Objects	1	.04	-.11	.21*
Self-Repres. Resilience		1	.52***	.12
Object Replaceability			1	.13
Social Support				1

***p<.05, *** p<.001**

Appendix 18: Qualitative Content Analysis – Central Object Categories and Subcategories - Chapter 5

Category	Subcategory	# of responses
Continuity	Continuity of narrative	2
Differentiation of Uniqueness	Abilities	6
	Personality Traits	8
Personal Agency	Control	1
	Autonomy/Independence	6
	Confidence	1
Personal Relationships	Spouse/Partner	15
	Family Member	49
	Friends/Social Environment	7
	Parent	4
	Role Models	1
Beliefs and Values	Religion	22
	Activism	1
	Responsibility/Caring for Others	3
	Morals/Ethics	3
Achievements	Overcoming Adversity	3
	Ambitions	4
	Social Mobility	5
	Academic Success	15
	General Accomplishments	1
	Financial Success	4
	Finding a Vocation	3
	Business Success	1

Personal Image	Weight Loss	1
	Exercise	1
	Makeup	3
	Clothes	2
Sources of security/comfort	Inanimate	8
	Pets	3
Group Memberships	Committees/Roles	3
Activities	Hobbies	10
	Volunteering	1
Demographic	Race/Nationality	10

Appendix 19: Correlations between individuals differences and psychopathology scores – Chapter 7

n=122	SCCS	SES	IUS	SRLE	MSTD-S	STAI-S	HCL-32
Self-Concept Clarity (SCCS)	1						
Self-Esteem Scale (SES)	.722***	1					
Intolerance of Uncertainty Scale (IUS)	-.437***	-.586***	1				
Current Stressors (SRLE)	-.480***	-.529***	.438***	1			
State Depression (MSTD-S)	-.542***	-.643***	.472***	.712***	1		
State Anxiety (STAI-S)	-.407***	-.463***	.312***	.612***	.699***	1	
Hypomania (HCL-32)	-.432***	-.296***	.161	.295***	.277**	.129	1

***p<.001 **p<.005