

**“Now I know how to cope with it”: The Trajectory of the Self Over Time in
Depression and Anxiety**

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A thesis submitted in partial fulfilment of the degree of
Doctor of Philosophy (Clinical Psychology)

2019

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Abstract

Temporal self-appraisal theory (Wilson & Ross, 2001) proposes that people tend to evaluate past and future selves in a way that helps them to feel good about themselves as they are now. The theory contends that the psychological experience of temporal distance from past and future selves influences current self-appraisal and therefore, subjective temporal distance is manipulated for self-enhancement. While there has been considerable research to support this theory in non-clinical populations, there is evidence that temporal self-appraisal processes differ for individuals diagnosed with Post-Traumatic Stress Disorder (Brown, Buckner & Hirst, 2011), schizophrenia (Dinos, Lyons, & Finlay, 2005) and Body Dysmorphic Disorder (Silver & Reavey, 2010). This research suggests that the onset of mental illness may act as a maladaptive “temporal landmark” (see Peetz & Wilson, 2013, 2014) by which people make comparisons but that also deviations from typical temporal self-appraisal may reflect unhelpful cognitions. However, no study to date has explored temporal self-appraisal in a population with a diagnosis of a depressive or anxiety disorder. This is surprising given the prevalence and impact of these disorders (Slade, Johnston, Oakley Brown, Andrews & Whiteford, 2009); the relationship between depression and anxiety and the self (Kyrios et al., 2016); and the well-known temporal components of depression and anxiety (Ehring & Watkins, 2008; Eysenck, Payne, & Santos, 2006).

The overarching proposition of this thesis is that depression and anxiety are associated with maladaptive patterns of temporal self-appraisal. There are two aims of

this thesis. The first aim was to investigate the trajectory of the self in individuals with depression and anxiety. A qualitative investigation of temporal self-appraisal in eight individuals diagnosed with an anxiety and/or depressive disorder was conducted (Chapter 7/Paper 2). Symptom onset appeared to create a maladaptive temporal landmark in depression but not anxiety. The trajectory of the self was further examined through a longitudinal quantitative study (Chapter 8/Paper 3). Thirty-four participants who met criteria for a depressive and/or anxiety disorder and 109 healthy controls were asked to appraise themselves as they currently were and how they expected to be in four weeks time. Four weeks later, 20 participants who met criteria for a depressive and/or anxiety disorder and 62 healthy controls appraised themselves as they currently were and how they were four weeks ago (58% and 56% retention respectively). Similar to healthy controls, participants with a depressive and/or anxiety disorder perceived the self on an upward trajectory over time. This occurred in the absence of actual improvement, reflecting self-enhancing motives. Participants with a depressive and/or anxiety disorder tended to have lower overall self-appraisals with evidence that this relationship was stronger for depressive symptoms than anxiety symptoms.

The second aim was to examine the role of subjective temporal distance in the appraisal of self over time. It was thought that if it is possible to manipulate subjective temporal distance in individuals with depression or anxiety, then these manipulations may present feasible methods for improving self-appraisals in this population. Two widely used manipulations of temporal distance were identified in the literature: a visual and a verbal manipulation. Study 1 (Chapter 9/Paper 4) replicated the visual manipulation with a non-clinical sample (N = 438). Study 2 replicated the verbal

manipulation, again with a non-clinical sample (Chapter 9/Paper 4; Time 1 n =109, Time 2 n = 62). In both studies there was a lack of evidence to support the efficacy of these manipulations.

Overall, this thesis provides evidence that the onset of depressive symptoms acts as temporal landmark. It is argued that this maladaptive temporal landmark is likely used to frame unfavourable comparisons between past, non-symptomatic selves and the current self. When comparing the past symptomatic self and the current self, this thesis found that people perceive improvement. For those with depression, it is recommended that treatment target negative self-appraisals and in particular address unhelpful comparisons with the self prior to symptoms. The onset of anxious symptoms did not appear to create a maladaptive temporal landmark but rather, people see themselves as on an upward trajectory in terms of their ability to cope with their symptoms and lead a fulfilling life. It is recommended that clinical practice reinforce the coping trajectory in those with anxiety. This thesis suggests that further research is required into the manipulation of subjective temporal distance and in particular how this could be applied in clinical settings.

Acknowledgements

First and foremost, I would like to express my gratitude to my supervisors, Dr Maja Nedeljkovic and Dr Ben Williams. Thank you for your mentorship, support and encouragement. Your expertise and guidance have been invaluable. Thank you to Laura Abbey, Nicole Echeverria and Daniel Solomon for being part of the ‘Self in Time’ team. In particular, thank you Laura for your dedication and commitment to the qualitative study – collaborating with you was one of the highlights in completing this thesis.

Thank you to my fellow psychologists-in-training for your support and friendship. I appreciate meeting Ahona at the very beginning of this course – my PhD experience was all the better for having you by my side. Thank you to my wonderful family for your unconditional love and belief in me. My partner, Adam, has been a sounding board for all things thesis. Thank you for helping me to clarify my thoughts and stay grounded. I’m sure the completion of this thesis will be a temporal landmark for both of us in the years to come.

Finally, thank you to the all of the participants for their time and effort. In particular, thank you to the clinical cohort who shared their experiences with me during the course of the diagnostic interviews. Your openness and vulnerability was truly humbling. Your enthusiasm for this project helped to motivate me and gave meaning to the work I was doing. I dedicate this thesis to you. May the future only get better and better.

Candidate Declaration

In accordance with Swinburne University of Technology regulations, the following declaration is made:

I, Stephanie Mathews, hereby declare that this thesis contains no material that has been accepted for the award of any other degree or diploma, except where due reference is made in the text of the examinable outcome. To the best of my knowledge, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the examinable outcome. Where the work is based on joint research or publications, the thesis discloses the relative contributions of the respective workers or authors.

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I further declare that the ethical principles and procedures specified in the Swinburne University of Technology Human Research Ethics Committee documentation have been adhered to in the process of conducting this research.

Signature:



Date: 7th December 2018

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List of Publications

This thesis is based on the following manuscripts, which were under review at the time of submission:

- Chapter 6** Mathews, S., Williams, B., Nedeljkovic, M. (under review). A narrative review of temporal self-appraisal in depression and clinical implications. Manuscript submitted to *Journal of Social and Clinical Psychology*, 6th December 2018 (Journal Impact Factor = 1.304).
- Chapter 7** Abbey, L., Mathews, S., Williams, B., & Nedeljkovic, M. (under review). Patterns of temporal self-appraisal in psychopathology: Does symptom onset create a maladaptive temporal landmark in anxiety and depression? Manuscript submitted to *Australian and New Zealand Journal of Psychiatry*, 6th December 2018 (Journal Impact Factor = 5.084).
- Chapter 8** Mathews, S., Williams, B., & Nedeljkovic, M. (under review). Temporal self-appraisal in depression and anxiety: A comparison between a clinical and non-clinical sample. Manuscript submitted to *Clinical Psychology & Psychotherapy*, 6th December 2018 (Journal Impact Factor = 2.508).
- Chapter 9** Mathews, S., Williams, B., & Nedeljkovic, M. (under review). The replication of two common manipulations of subjective temporal distance in temporal self-appraisal. Manuscript submitted to *Journal of Experimental Social Psychology*, 6th December 2018 (Journal Impact Factor: 2.870).

Chapter One: Introduction and Overview of this Thesis

1.1 Introduction

This thesis examines the role of the self over time in depression and anxiety. Depression is characterised by lowered mood and/or anhedonia and associated cognitive and somatic changes (American Psychological Association [APA], 2013). Anxiety disorders share common features of fear and anxiety-related affective, cognitive and behavioural disturbances (APA, 2013). Depression and anxiety disorders are highly prevalent and are associated with significant impairment (World Health Organization [WHO], 2017). Therefore, research that increases our understanding of the phenomenology of these disorders and improves treatment outcomes is critical. One important line of enquiry is the role of the self.

The self has been found to be central in the phenomenology, aetiology, maintenance and treatment of depressive and anxiety disorders (Kyrios et al., 2016). In particular, Cognitive Behaviour Therapy (CBT), one of the most researched and practised psychotherapies, has consistently been found to be effective in treating depressive and anxiety disorders (Butler, Chapman, Forman, & Beck, 2006), including improvements in self-concept (e.g., Gregory & Peters, 2017). However, it does not take into account the multidimensional nature of the self (Clark, 2016). This represents a missed opportunity for change. One way the self is multidimensional is that it is not confined to the present moment, but temporal in nature. The temporally extended self incorporates self-representations from different times, including past selves, representations of who we were, and future selves, our ideas of who we might desire or expect to become (Moore & Lemmon, 2009). Evaluations of our past and

future selves – temporal self-appraisal – can impact our experience of the present.

This is the focus of the current thesis.

1.2 Background and Research Rationale

Temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001) proposes that people tend to strategically evaluate past and future selves in a way that helps them to feel good about themselves as they are now. Past and future representations of the self are connected to the present self along a “dimension of relative temporal proximity” (Peetz & Wilson, 2008, p. 3). Temporal self-appraisal theory proposes that the psychological experience of temporal distance from, or closeness to, past and future selves influences current self-appraisal and that temporal distance can be manipulated for self-enhancement.

There is a self-serving illusion that the self is on an upward trajectory (Ross & Wilson, 2003). People have a tendency to view their current self as better than their former selves. However, the subjective temporal distance between a past self and the current self influences how that past self is perceived. Past representations of the self that feel subjectively distant are viewed more negatively than past selves that feel closer to the present (Wilson & Ross, 2001). Inversely, negative life events are framed so as to feel more distant, as if occurring long ago, than events that show the self in a more positive light. Temporal self-appraisal theory proposes that this is because temporally close former selves can be incorporated into current self-appraisals and this helps the individual to feel good about themselves as they are now.

The illusory upward trajectory continues into the future as people believe they will continue to improve over time (Wilson, Buehler, Lawford, Schmidt, & Yong, 2012). As with past self-appraisals, temporally proximal future selves have a larger effect on current self-appraisal than future selves that are more temporally distant. Given this, people are motivated to evaluate future selves more positively when they feel subjectively closer in time as it has more direct implications for current self-appraisal. Furthermore, it is thought that future positive events feel subjectively closer than negative future events. People “bask in projected glory” to enhance how they currently feel about themselves (Wilson et al., 2012, p. 342).

While there has been considerable research to support this pattern of temporal self-appraisal in non-clinical populations, there is evidence that temporal self-appraisal processes differ for individuals diagnosed with a mental disorder. In Post-Traumatic Stress Disorder (PTSD; Brown et al., 2011) and schizophrenia (Dinos et al., 2005) the onset of mental illness acts as a maladaptive “temporal landmark” (see Peetz & Wilson, 2013, 2014). This temporal landmark creates temporal distance between the current self and the self prior to symptoms, with the self prior to the onset of symptoms being perceived more positively than current or future selves. This downward trajectory stands in contrast to the illusory upward trajectory. Similarly, Body Dysmorphic Disorder (BDD) generally lacks a clear onset, but individuals with BDD still tend to idealise their past selves and express a desire to return to how they were in the past (Silver & Reavey, 2010). Such findings indicate that psychopathology creates temporal landmarks by which people make negative comparisons and promotes unhelpful cognitions in contrast to the more normative upward trajectory.

No study to date has explored temporal self-appraisal in persons diagnosed with a depressive or anxiety disorder. This is surprising for four reasons. First, depression and anxiety are the most prevalent class of mental disorders and have a significant impact upon the individual (Slade et al., 2009). Second, the self is implicated in the pathology, maintenance and treatment of depressive and anxiety disorders. Third, depression and anxiety have well-known temporal components. Depression tends to be associated with rumination over past events, while anxiety is associated with worry over possible future events (Ehring & Watkins, 2008; Eysenck, et al., 2006). Fourth, the evidence of disturbed temporal self-appraisal in psychopathology more generally suggests that individuals with depression and anxiety likely display maladaptive patterns of temporal self-appraisal. Therefore, examining temporal self-appraisal in clinical depression and anxiety is important in understanding the maintenance of these disorders and improving treatment outcomes.

1.3 Aims and Methodology

This thesis examines the overarching hypothesis that maladaptive patterns of temporal self-appraisal are present in individuals with a depressive and/or anxiety disorder. This thesis has two main aims: the first was to examine the trajectory of the self in individuals with depression and anxiety. This was initially investigated through qualitative interviews of individuals with depressive and anxiety disorders. This methodology allowed for the exploration of the possible role of maladaptive temporal landmarks. The trajectory of the self was further examined through a longitudinal quantitative study. This enabled comparisons between current and retrospective, and current and anticipatory self-evaluations. The second aim was to examine the role of

subjective temporal distance in the appraisal of self over time. Two experimental studies were conducted that manipulated subjective temporal distance and the impact this had on self-appraisal. It was thought that if it is possible to manipulate subjective temporal distance in individuals with depression or anxiety, then these manipulations may present feasible methods for improving self-appraisals in this population.

1.4 Thesis Structure

This thesis comprises three parts. The first section (Chapters 2-5) provides an overview of depression and anxiety, its relation to the self, and presents the theory of temporal self-appraisal. Chapter 2 reviews the diagnostic conceptualisation and epidemiology of depressive and anxiety disorders. It is argued that research that excludes comorbidity is at risk of reaching misleading conclusions. Therefore, this dissertation examines depression, anxiety and comorbid depression and anxiety. It presents evidence that depression and anxiety are dimensional, rather than categorical, in nature. However, as there are benefits to adopting both dimensional and categorical approaches in research, both approaches are utilised in this thesis. Chapter 3 examines the importance of the self in cognitive models of depression and anxiety. It is argued that CBT overlooks the multidimensional nature of the self and in doing so, misses a possible avenue for therapeutic change. This chapter demonstrates that self-structure is disrupted in depression and anxiety and provides examples of how to target self-structure effectively in therapeutic settings. The chapter concludes with an examination of self-enhancement and self-protection in depression and anxiety. Chapter 4 outlines one strategy for self-enhancement, temporal self-appraisal and provides an overview of the factors that influence temporal self-appraisal and methods for manipulating temporal self-appraisal. Chapter 5 integrates the research of

the preceding chapters to argue for the importance of examining patterns of temporal self-appraisal in depression and anxiety and provides the foundation for this thesis.

The second section presents four papers that have been submitted for publication for this thesis. A more thorough consideration of how the concepts presented in Chapters 2-4 can be integrated is presented in Chapter 6 (Paper 1), where an overall picture of temporal self-appraisal in depression and theory of patterns of temporal self-appraisal in depression is provided. Evidence is synthesised to suggest that depression is associated with maladaptive patterns of temporal self-appraisal. Chapter 7 (Paper 2) features a qualitative investigation of temporal self-appraisal in eight individuals diagnosed with a current or lifetime anxiety or depressive disorder. Symptom onset appeared to create a maladaptive temporal landmark in depression but not anxiety. Ego-dystonic depression is observed to disrupt self-continuity over time, creating dissatisfaction with current identity through unfavourable temporal comparisons. Meanwhile, ego-syntonic anxiety enables self-enhancing perceptions of personal growth; similar to the subjective upward trajectory of self that is typical of non-clinical populations. Chapter 8 (Paper 3) compares the pattern of temporal self-appraisal in those with a depressive and/or anxiety disorders with individuals who did not meet criteria for any psychological disorder. Contrary to expectations, participants with a depressive and/or anxiety disorder perceived the self on an upward trajectory over time. This occurred in the absence of actual improvement, reflecting self-enhancing motives. Participants with a depressive and/or anxiety disorder tended to have lower overall self-appraisals with evidence that this relationship was stronger for depressive symptoms than anxiety symptoms. Chapter 9 (Paper 4) presents conceptual replications of two widely used manipulations of temporal distance in non-clinical

populations. In Study 1, there was lack of evidence to support a visual manipulation in altering subjective temporal distance and producing the pattern of temporal self-appraisal typical of non-clinical populations. Similarly in Study 2, a verbal manipulation failed to replicate.

The third section (Chapter 10) concludes the thesis with a summary and discussion of the findings of the four papers with reference to advancing our understanding of the role of temporal self-appraisal in depression and anxiety and implications for treatment. Methodological limitations of the research are discussed and possible directions for future research are proposed.

1.5 Summary

This chapter provided an introduction to the literature that has influenced the rationale and justification for this thesis. Temporal self-appraisal theory was briefly explained and evidence presented that suggests temporal self-appraisal processes differ for individuals diagnosed with a mental disorder. Given the prevalence and impact of depression and anxiety, and their relationship to the self and time separately, it was argued that it is important to examine temporal self-appraisal in these disorders. The aims and research methodology of this thesis were outlined including: 1) the qualitative and quantitative methods used to examine the trajectory of the self and 2) the role of subjective temporal distance in the appraisal of self over time for individuals with depression and anxiety. Finally, the content of each chapter was summarised to explain the overall structure of the presentation.

Chapter Two: Depression and Anxiety

Depressive and anxiety disorders are the most common forms of mental disorder. It is estimated that 4.4% of the global population are living with depression and 3.6% are living with anxiety (WHO, 2017). Lifetime prevalence estimates are 28.8% for anxiety disorders and 20.8% for mood disorders (Kessler et al., 2005). Furthermore, depressive and anxiety disorders have significant impact upon the individual and society. Depression is recognised as the single largest contributor to global disability, and anxiety disorders as the sixth largest contributor (WHO, 2017). Both conditions are associated with high rates of mortality, with suicide accounting for a large proportion of deaths, particularly in depression (APA, 2013; WHO, 2017).

Given the high prevalence and significant negative impact of depression and anxiety, research that can improve our understanding of these disorders and improve treatment outcomes is imperative. While much research has been conducted, there are still questions regarding the nature, classification and etiology of depression and anxiety. This chapter provides an overview of the classification and epidemiology of depression and anxiety disorders. Given depression and anxiety disorders have high rates of co-occurrence, this chapter argues for the inclusion of comorbidity in research. Although evidence suggests that the underlying structure of depression and anxiety is dimensional, it shall be argued that there are benefits in adopting both dimensional and categorical approaches in research.

2.1 Conceptualisation and Diagnostic Classification of Depressive and Anxiety Disorders

Depression and anxiety are complex emotional states (Kasper, den Boer & Sitsen, 2003). All individuals experience feelings of sadness, despondency, fear and anxiety at times in their lives (Compas, Ey, & Grant, 1993). These emotional states can have adaptive functions. Evolutionary perspectives understand depressed mood as an adaptive response to perceived threat of social exclusion (Allen & Badcock, 2006); and fear and anxiety are crucial to human survival, acting as a warning system against imminent life-threatening situations and protection against future threats (Clark & Beck, 2010). Depressed mood and anxiety shift from normal emotional states to symptoms of psychopathology when they persist for longer than would be expected under normal conditions and impact upon a person's daily, social and occupational functioning, and quality of life.

The two main diagnostic systems, the Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 2013) and the International Classification of Diseases (ICD; WHO, 1992), have a substantially similar conceptualisation of depressive and anxiety disorders, differing primarily in the level of specificity and stringency in diagnostic decisions. The ICD provides diagnostic descriptions and guidance. It does not provide operational criteria but relies heavily on clinical judgement (Tyrer, 2014). This flexibility tends to make it the preferred classification system of psychologists (Evans et al., 2013). On the other hand, the DSM provides operational criteria and uses a polythetic system for most conditions (Tyrer, 2014). This increases the reliability of diagnoses, which has made the DSM the preferred instrument in clinical research. For this reason, DSM-5 diagnostic criteria will be used in this dissertation.

The DSM-5 (APA, 2013) includes under the classification of Depressive Disorders, the following specific conditions: disruptive mood dysregulation disorder, major depressive disorder, persistent depressive disorder, premenstrual dysphoric disorder, substance/medication-induced depressive disorder, depressive disorder due to another medical condition, other specified depressive disorder and unspecified depressive disorder. The common feature of these disorders is the presence of lowered or irritable mood with cognitive and somatic changes that significantly impact upon ability to function. These disorders can be distinguished by their duration, timing and presumed etiology.

Major Depressive Disorder (MDD) is considered the main condition in this group of disorders and for this reason will be a focus of this dissertation. The diagnostic criteria for MDD are displayed in Table 2.1. MDD is characterised by emotional, cognitive, motivational, and physical signs and symptoms (Beck & Alford, 2009). Emotional manifestations include changes in feelings or overt behaviour that can be attributed directly to a change in affect. This can include crying spells, dejected mood, negative feelings towards the self, reduction in gratification, loss of emotional attachments and loss of mirth responses. Cognitive manifestations include distorted beliefs about the self and personal experience; negative expectations of the future; self-blame and holding oneself personally responsible for difficulties; and problems with decision-making. Motivational manifestations are characterised by a loss of positive motivation and are regressive in nature. Individuals tend to prefer activities that are passive and undemanding in terms of energy, responsibility and initiative. There is a wish to avoid, escape or withdraw. The most extreme form of

this is suicidal ideation. Physical manifestations include loss of appetite, sleep disturbance, loss of libido and fatigability.

Table 2.1

DSM-5 Criteria for Major Depressive Disorder

A	Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure
	1. Depressed mood most of the day, nearly every day.
	2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
	3. Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.
	4. Insomnia or hypersomnia nearly every day.
	5. Psychomotor agitation or retardation nearly every day.
	6. Fatigue or loss of energy nearly every day.
	7. Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
	8. Diminished ability to think or concentrate, or indecisiveness, nearly every day.
	9. Recurrent thoughts of death, recurrent suicidal ideation without a specific plan or a suicide attempt or a specific plan for committing suicide
B	The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
C	The episode is not attributable to the physiological effects of a substance or to another medical condition.
Note:	Criteria A-C present a major depressive episode
D	The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.
E	There has never been a manic or hypomanic episode.

Adapted from DSM-5 (APA, 2013).

DSM-5 (APA, 2013) includes a number of specifiers for depressive disorders. Of particular relevance, the specifier of “with anxious distress” aims to distinguish between individuals whose depression is unaccompanied by anxiety from those with anxious symptoms. This is a new addition and unique to DSM-5, with the justification that the presence of anxious distress may impact upon treatment choices and outcomes. The criteria for the anxiety specifier are detailed in Table 2.2. The

specifiers of mild, moderate, and severe help clinicians to distinguish between different grades of severity of anxious symptoms in depressive disorders.

Table 2.2

Anxiety specifier for Depressive Disorders in DSM

With anxious distress: Anxious distress is defined as the presence of at least two of the following symptoms during the majority of days of a major depressive episode or persistent depressive disorder (dysthymia):

1. Feeling keyed up or tense.
2. Feeling unusually restless.
3. Difficulty concentrating because of worry.
4. Fear that something awful may happen.
5. Feeling that the individual might lose control of himself or herself.

Specify current severity:

Mild: Two symptoms.

Moderate: Three symptoms.

Moderate-severe: Four or five symptoms

Severe: Four or five symptoms with motor agitation.

Note. Adapted from DSM-5 (APA, 2013, emphasis in original).

Under the classification of Anxiety Disorders, DSM-5 (APA, 2013) includes the following specific conditions: separation anxiety disorder, selective mutism, specific phobia, social anxiety disorder (SAD), panic disorder, agoraphobia, generalised anxiety disorder (GAD), substance/medication-induced anxiety disorder, anxiety disorder due to another medical condition, other specified anxiety disorder and unspecified anxiety disorder. Specific phobia, SAD, panic disorder, agoraphobia and GAD are the most prevalent anxiety disorders in adult populations and therefore,

will be examined in this dissertation. The diagnostic criteria for these disorders are presented in Table 2.3.

Anxiety disorders share common features of physiological, cognitive, behavioural, and affective signs and symptoms (Clark & Beck, 2010). The physiological responses to a perceived threat are considered defensive responses. A perceived threat elicits an automatic arousal preparing the individual to respond, commonly referred to as the “fight or flight” response. The perception of elevated arousal can be interpreted as confirmation of the initial appraisal of threat, which reinforces anxiety. Behavioural features involve avoidance as well as safety-seeking responses where avoidance is not possible. Behavioural responses that are effective in the short-term will be positively reinforced, but can maintain anxiety in the long-term (e.g., avoiding social situations can reinforce the belief that social situations are threatening and in turn anxiety; Clark, 2001). The cognitive component involves the appraisal of external situations and the internal experience of anxiety symptoms as threatening. The affective domain comprises the subjective experience of anxiety, with people describing feelings of nervousness, agitation, tension and feeling on edge.

As can be seen in Table 2.3, persistence of anxiety is a common diagnostic requirement across the anxiety disorders. A key feature of anxiety disorders is that fear and anxiety is subjectively or objectively perceived to be out-of-proportion to the situation or object inducing the response. Anxiety disorders differ from one another by the objects or situations that trigger fear, anxiety or avoidance behaviour and the content of cognitions (APA, 2013).

Table 2.3
DSM-5 Criteria for Common Anxiety Disorders in Adulthood

Criteria	Specific Phobia	Social Anxiety Disorder	Panic Disorder	Agoraphobia	Generalised Anxiety Disorder
A	Marked fear of anxiety about a specific object or situation.	Marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others.	Recurrent unexpected panic attacks (as defined by DSM-5).	Marked fear or anxiety about two (or more) of five situations (outlined in DSM-5)	Excessive anxiety and worry, occurring more days than not for at least 6 months, about a number of events or activities
B	The phobic object or situation almost always provokes immediate fear of anxiety.	The individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated.	At least one of the attacks has been followed by 1 month (or more) of one or both of the following: 1. Persistent concern or worry about additional panic attacks or their consequences. 2. A significant maladaptive change in behaviour related to the attacks.	The individual fears or avoids these situations because of thoughts that escape might be difficult or help might not be available in the event of developing panic-like symptoms or other incapacitating or embarrassing symptoms.	The individual finds it difficult to control the worry.
C	The phobic object or situation is actively avoided or endured with intense fear or anxiety.	The social situations almost always provoke fear or anxiety.	The disturbance is not attributable to the physiological effects of a substance or another medical condition.	The agoraphobic situations almost always provoke fear or anxiety.	The anxiety and worry are associated with three (or more) of the following six symptoms: 1. Restlessness, or feeling keyed up or on edge. 2. Being easily fatigued. 3. Difficulty concentrating or mind going blank. 4. Irritability. 5. Muscle tension. 6. Sleep disturbance.
D	The fear or anxiety is out of proportion to the actual danger posed by the specific object or situation and to the sociocultural contact.	The social situations are avoided or endured with intense fear or anxiety.	The disturbance is not better explained by another mental disorder.	The agoraphobic situations are actively avoided, require the presence of a companion, or are endured with intense fear or anxiety.	The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in the social, occupational or other important areas of functioning.

Adapted from DSM-5 (APA, 2013)

Table 2.3 Cont.

DSM-5 Criteria for Common Anxiety Disorders in Adulthood

Criteria	Specific Phobia	Social Anxiety Disorder	Panic Disorder	Agoraphobia	Generalised Anxiety Disorder
E	The fear, anxiety or avoidance is persistent, typically lasting for 6 months or more.	The fear or anxiety is out of proportion to the actual threat posed by the social situation and to the sociocultural context.		The fear or anxiety is out of proportion to the actual danger posed by the agoraphobic situations and to the sociocultural context.	The disturbance is not attributable to the physiological effects of a substance or another medical condition.
F	The fear, anxiety, or avoidance causes clinically significant distress or impairment in the social, occupational or other important areas of functioning.	The fear, anxiety or avoidance is persistent, typically lasting for 6 months or more.		The fear, anxiety or avoidance is persistent, typically lasting for 6 months or more.	The disturbance is not better explained by another mental disorder.
G	The disturbance is not better explained by the symptoms of another mental disorder.	The fear, anxiety, or avoidance causes clinically significant distress or impairment in the social, occupational or other important areas of functioning.		The fear, anxiety, or avoidance causes clinically significant distress or impairment in the social, occupational or other important areas of functioning.	
H		The fear, anxiety or avoidance is not attributable to the physiological effects of a substance or another medical condition.		If another medical condition is present, the fear, anxiety, or avoidance is clearly excessive.	
I		The fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder.		The fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder.	
J		If another medical condition is present, the fear, anxiety, or avoidance is clearly unrelated or is excessive.			

Adapted from DSM-5 (APA, 2013)

2.2 Course of Depressive and Anxiety Disorders

The emergence of depressive symptoms tends to be acute (Beck & Alford, 2009). The average age of onset for depression is consistent across countries, with the majority of studies reporting onsets of 24.8 to 29.5 years of age (for a review see Badelow, 2003). The average length of episode ranges from approximately 14-17 weeks for mild episodes and is around 23 weeks for severe episodes (Kessler et al., 2003). Episodes tend to be characterised by a progression in symptom severity before bottoming out and steady improvement until the episode is over (Beck & Alford, 2009). Remission is characterised by symptom-free periods between episodes (Rush et al., 2006). While some sufferers experience years with limited symptoms between discrete episodes, others may not experience complete remission and experience chronic clinical or subclinical levels of symptoms (Conradi, Ormel, & De Jonge, 2011). Recurrence is common in major depression. It is estimated that for those who experience a major depressive episode, one-third of population-based cohorts (Eaton et al., 2008) and three-quarters of clinical samples (Mueller et al., 1999) experience subsequent episodes, with the average number of episodes per individual being approximately four (Kessler et al., 2003). Episode severity and number of episodes are risk factors for recurrence continuation (Kennedy, Abbott, & Paykel, 2003).

In contrast to depression, the emergence of anxiety tends to be insidious (Barlow, 2014). The age of onset for anxiety disorders differs between disorders. A recent meta-analysis found the mean age of onset for Social Anxiety Disorder and Specific Phobias was before the age of 15, whereas for Agoraphobia, Panic Disorder and GAD the average age of onset was between 21.1 and 34.9 years (Lijster et al., 2017). Anxiety disorders tend to be chronic, with symptoms persisting over many

years, relatively low rates of remission and high rates of recurrence (Scholten et al., 2013; Yonkers, Bruce, Dyck, & Keller, 2003).

2.3 Demographics Factors Related to the Prevalence and Presentation of Depressive and Anxiety Disorders

The rates of depressive and anxiety disorders vary by a function of demographic variables. Prevalence is higher in women than men for most depressive and anxiety disorders. This gender difference is marked in panic disorder (Yonkers et al., 1998), agoraphobia (Bekker, 1996), specific phobia (Stinson et al., 2007), SAD (Asher, Asnaani, & Aderka, 2017), GAD (Vesga-López et al., 2008) and MDD (Parker & Brotchie, 2010). Similarly, there are differences in the prevalence of depressive and anxiety disorders across the lifespan. Prevalence rates of MDD tend to gradually decrease with age (Henderson, Andrews, & Hall, 2000). Anxiety disorders are relatively common in younger adults but are less common than in older adults (Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010). Specifically, the prevalence of generalised anxiety disorder peaks in middle age and then declines over the later years of the life course, with worry found to decrease with advancing age (Gonçalves & Byrne, 2013); the rates of specific phobia (Hamm, 2015) and social anxiety disorder (Gretarsdottir, Woodruff-Borden, Meeks, & Depp, 2004) tend to decline in older age. Similarly, rates of panic disorder and agoraphobia gradually increase over adolescence, peak during adulthood and then plateau in older adulthood (Kessler et al., 2006). Late onset of anxiety disorders can occur but is rare, with fewer than 1% of individuals develop an anxiety disorder after the age of 65 (Kessler et al., 2005).

Although the course and treatment responses of depression and anxiety are similar over the lifespan, there are differences in presentations (Wuthrich, Johnco, & Wetherell, 2015). For example, in MDD, younger individuals are more likely to experience hypersomnia, irritability and interpersonal sensitivity while older individuals more likely to experience somatic and vegetative symptoms (Schaakxs, Comijs, Lamers, Beekman, & Penninx, 2017). Specific phobias of inanimate objects tend to be more common in older adults, while specific phobias of animals tend to be more prevalent in younger adults (Fredrikson, Annas, Fischer, & Wik, 1996). Social anxiety in older adults tends to be at lower levels across a broad range of situations; in contrast younger adults tend to have higher levels of anxiety in specific social situations (Gretarsdottir et al., 2004). The content of worry is consistent with developmental life stages. Older adults tend to have fewer worries about interpersonal relations and work compared with younger adults but higher likelihood of worrying about health and the welfare of a loved one (Gonçalves & Byrne, 2013). Early onset panic disorder is associated with higher rates of comorbid agoraphobia, higher frequency of childhood trauma and adverse life events and higher rates of attempted suicide compared with later onset panic disorder (Tibi et al., 2013). There is a high prevalence of older adults who report anxiety symptoms but do not meet criteria for a diagnosis of an anxiety disorder (Wolitzky-Taylor et al., 2010). GAD in older adults is associated with fewer numbers of symptoms and more likely to report symptoms of difficulty concentrating, dizziness and upset stomach (Miloyan, Byrne, & Pachana, 2014). Similarly, social anxiety is associated with a reduction in the number of symptoms endorsed by older adults but the symptom profile was stable across adulthood (Miloyan, Bulley, Pachana, & Byrne, 2014).

2.4 Etiology of Depressive and Anxiety Disorders

2.4.1 The endogenous and exogenous distinction. The understanding of the etiology of depression and anxiety has changed over time. In the 1960s there was a broad trend for a “nature/nurture splitting in the conceptualisation of psychiatric disorders” (Mendels & Cochrane, 1968, p. 2) and this extended to depression and to a lesser extent anxiety. Depression was understood as either endogenous or exogenous (Mendels & Cochrane, 1968). Endogenous depression was thought to reflect internal, biological causes, while exogenous or situational depression was caused by external, environmental factors. This was reflected in the Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978). The RDC included eleven subtypes for major depressive disorder, among them situational and endogenous. Situational major depressive disorder was a class for patients who developed a major depressive episode following an event or situation that likely contributed to the appearance of the episode. Endogenous major depressive disorder was reserved for patients who manifested “the constellation of vegetative symptoms regardless of the presence or absence of precipitating events” (Spitzer et al., 1978, p. 778). Similarly, at this time there was evidence to support the classification of endogenous and exogenous cases of some anxiety disorders, in particular specific phobias and agoraphobia; with endogenous anxiety tending to have a later onset than exogenous anxiety (Mendel & Klein, 1969; Sheehan, Sheehan, & Minichiello, 1981; Thyer, Parrish, Curtis, Nesse, & Cameron, 1985).

There have been a number of critiques of the distinction between endogenous and exogenous depression and anxiety. A proportion of endogenous episodes of depression were found to be precipitated by negative stressful life events (for a review

see Jacob, 2009). Sufferers may lack sufficient insight into how events may have precipitated their symptoms, as it is difficult to determine the absence or presence of life events and their influence (Kessing, 2004). Examination of first-degree relatives suggests that exogenous depression is highly familial (Coryell et al., 1994) and a twin study found genetic factors can account for significant variance in exposure to stressful life events (Kendler, Neale, Kessler, Heath, & Eaves, 1993). Furthermore, no significant difference in episode severity or duration was found between depressive episodes related to stressful life events and those associated with lower levels of stress (Kendler, Myers, & Halberstadt, 2010). Subsequently, there has been a shift away from the endogenous and exogenous distinction (Maj, 2012).

Despite this shift, the endogenous and exogenous distinction remains in the vernacular. This may be because it appeals to the universal human tendency to find meaningful explanations for feelings and behaviours, which can result in the “trap of meaning.” Lyketsos and Chisolm (2009, p. 432) define the trap of meaning as “finding an explanation that seems meaningful and adopting it as causal.” Explanations are considered meaningful if they elicit empathy, seem plausible and are understood immediately, that is, with relative cognitive ease. Lyketsos and Chisolm argue that the trap of meaning plays out in psychiatric care, with delays in treatment occurring for presentations with a meaningful explanation compared with those without a meaningful explanation. It can also affect how clients respond to their illness. Clients try to find meaning in their depressive state through attributing significance to neutral events, as demonstrated in research involving experimental induction of depressed mood leading to a significant increase in the reports of recent stressors (Cohen, Towbes, & Flocco, 1988). Clients may live with an incorrect

understanding of the cause of their symptoms and not seek treatment until their symptoms become overwhelming. They are often surprised by their improvements following treatment when their life circumstances, what they thought to be the cause of the problem, remain unchanged. Therefore, despite lack of empirical evidence, the endogenous and exogenous distinction persists and influences both individuals' understanding of their condition and clinical practice.

2.4.2 Diathesis-stress model of psychopathology as applied to depression and anxiety. The diathesis-stress model is currently the dominant explanation for the development of psychopathology. It is based on the assumption that stress activates a vulnerability or predisposition (Monroe & Simons, 1991). Stress is viewed as “life events (major or minor) that disrupt those mechanisms that maintain the stability of individuals' physiology, emotion, and cognition” (Ingram & Luxton, 2005, p. 34). Stress is an internal process, with the appraisal of an event determining whether it is experienced as stressful. While there are many definitions of vulnerability, common features of these definitions are it is a trait, relatively stable, resides within the person and tends to be latent (Ingram & Luxton, 2005). The development of psychopathology can be explained by a complex interaction between predisposing factors and stressful life events (Malcarne, Hansdottir, & Merz, 2010). There are a number of well-established vulnerabilities and stressors that are associated with the onset of depressive and anxiety disorders.

Vulnerabilities can be present across three domains: biological, psychological, and social. The primary evidence of biological vulnerability is high heritability rates. The heritability of depression is approximately 40% (Kendler, Gatz, Gardner, &

Pedersen, 2006; Middeldorp et al., 2005; Sullivan, Neale, & Kendler, 2000); social anxiety disorder is approximately 50% (Kendler, Karkowski, & Prescott, 1999; Middeldorp et al., 2005; Skre, Onstad, Torgersen, Lygren, & Kringlen, 2000); agoraphobia is 67% (Kendler et al., 1999); specific phobias range from 45% for animals phobias to 33% for blood-injury-injection phobia (Van Houtem et al., 2013); panic disorder is 43% (Hettema, Neale, & Kendler, 2001) and generalised anxiety disorder is 32% (Dellava, Kendler, & Neale, 2011; Hettema et al., 2001). Cognitive vulnerabilities can increase the risk of developing a depressive or anxiety disorder. Response styles (Nolen-Hoeksema, 1991) and cognitive reactivity (Segal et al., 2006; Segal, Gemar, & Williams, 1999) may predispose an individual to developing depression. Similarly, there are a number of cognitive vulnerabilities to developing anxiety such as perceived uncontrollability and unpredictability (Chorpita & Barlow, 1998), looming cognitive style (Riskind & Williams, 2005), information processing biases (Beck & Clark, 1997) and anxiety sensitivity (Reese, Najmi, & McNally, 2001). There has been extensive research identifying the role of social factors in predisposing individuals to developing a depressive or anxiety disorder; with evidence that adverse childhood experiences, including parental death, divorce or marital discord, parental substance abuse and mental illness, exposure to family violence, and experiencing neglect, sexual, physical and emotional abuse, are associated with increased risk of the onset of depression or anxiety in adolescence and adulthood (e.g., Green et al., 2010).

There is substantial evidence that both major stressors (McLaughlin, Conron, Koenen, & Gilman, 2010) and minor stressors (Asselmann, Wittchen, Lieb, & Beesdo-Baum, 2017) are reliably present prior to the onset of a major depressive

episode or an anxiety disorder. Stressors have been found to be 2.5 times more likely in depressed patients compared with controls (Shrout et al., 1989) and in community samples and across a number of studies more than 80% of major depressive episodes were preceded by significant life events (for a review see Mazure, 1998). Data from a large-scale epidemiological survey indicated that 66% of individuals with an anxiety disorder experienced an adverse life event in the year prior to onset (Miloyan, Joseph Bienvenu, Brilot, & Eaton, 2018). The onset of specific phobias tend to be associated with traumatic events involving the phobic stimuli (Öst & Hugdahl, 1981), including dogs (Di Nardo et al., 1988), blood, injury and needles (Kleinknecht, 1994) and dental anxiety (Oosterink, de Jongh, & Aartman, 2009), to name but a few. Individuals with social anxiety disorder (Marteinsdottir, Svensson, Svedberg, Anderberg, & von Knorring, 2007) and panic disorder, both with and without agoraphobia (Batinic, Trajkovic, Duisin, & Nikolic-Balkoski, 2009; Faravelli, 1985; Lteif & Mavissakalian, 1995), reported a significant increase in the frequency of negative life events in the one-year period prior to onset compared with controls. In fact, individuals with agoraphobia reported twice the number of life events in the year preceding onset compared with controls (Franklin & Andrews, 1989). In a study of 123 individuals with a diagnosis of GAD, only 2.4% did not face any stressful event in the year prior to the onset of symptoms (Taher, Mahmud, & Amin, 2015). Furthermore, an increased in stressful life events is associated with an increased probability of relapse into an episode of GAD (Francis, Moitra, Dyck, & Keller, 2012). Taken together, the evidence indicates that stress plays a strong role in the development of depressive and anxiety disorders.

Different types of event tend to precede the onset of depressive and anxiety disorders. Typically, depression is associated with loss (Eley & Stevenson, 2000; Finlay-Jones & Brown, 1981); particularly in the interpersonal domain, with conflict, separation and death of loved ones associated with the onset of depression (Eysenck et al., 2006). Humiliating events are also strongly linked to the onset of depressive episodes (Kendler, Hettema, Butera, Gardner, & Prescott, 2003). Humiliating events can trigger feeling devalued in relation to a core sense of self or in relation to others' opinions. Events combining loss and humiliation have been found to be more depressogenic than pure loss events alone (Kendler et al., 2003).

In contrast, the onset of anxiety is associated with the presence of danger (Eley & Stevenson, 2000; Finlay-Jones & Brown, 1981) and entrapment events (Kendler et al., 2003). Entrapment refers to ongoing difficult circumstances, in which the individual can reasonably expect the situation to persist or deteriorate with little hope of resolution. In the case of comorbid depression and anxiety, precipitating events tend to involve aspects of both loss and threat (Asselmann, Wittchen, Lieb, Höfler, & Beesdo-Baum, 2015; Finlay-Jones & Brown, 1981; Kendler et al., 2003). The difference in the type of events that precede depression and anxiety is likely a reflection of the differences between the syndromes. In the case of depression, loss events trigger immediate distress but have limited potential for future problems (Asselmann et al., 2015). Whereas, high levels of danger reflect an increased likelihood of future negative outcomes and can increase worry about the future.

2.5 Comorbidity between Depressive and Anxiety Disorders

Depressive and anxiety disorders are the most common co-occurring psychiatric disorders (Sartorius, Ustun, Lecrubier, & Wittchen, 1996). In fact, it has been said that for depressive and anxiety disorders, “comorbidity is the rule rather than the exception” (Lamers et al., 2011, p. 347). The rate of comorbidity between depressive and anxiety disorders ranges from 41-88% depending upon the specific disorder (Lamers et al., 2011). Comorbid depressive and anxiety disorders tend to present with greater severity than depressive or anxiety disorders alone. This has been found for numerous operationalisations of severity, including: earlier onset of first disorder (Goes et al., 2012; Lamers et al., 2011), longer duration of symptoms (Lamers et al., 2011), higher symptom severity (Lamers et al., 2011), greater disability (Sartorius et al., 1996), greater selection of maladaptive coping strategies (Man, Dougan, & Rector, 2012), higher number of major depressive episodes (Goes et al., 2012), more severe form of depression, even when ignoring anxious symptoms (Goldberg et al., 2014) and greater likelihood of suicidal ideation, attempts and completed suicides (Goes et al., 2012; Goldberg & Fawcett, 2012; Mineka, Watson, & Clark, 1998). Furthermore, comorbidity of depressive and anxiety disorders has implications for treatment. For example, there is evidence that it is more important to target depressive symptoms than anxiety symptoms when treating comorbid depression and anxiety (Aderka, Beard, Lee, Weiss, & Björgvinsson, 2015). Given that comorbidity is the norm rather than the exception, and the body of research into comorbidity, symptom severity and treatment, the exclusion of comorbidity cases in research can lead to misleading conclusions and spurious comparisons (Cassano, Rossi & Pini, 2003; Merikangas et al., 2003). This thesis will include comorbidity.

2.6 Categorical and Dimensional Approaches to Psychopathology

The argument of categorical versus dimensional approaches to psychiatric diagnosis has been one of the most widely debated in psychopathology (Haslam, Holland, & Kuppens, 2012; Slade & Andrews, 2005). The categorical approach identifies an individual as suffering from a mental disorder, with a clear-cut threshold between the presence and absence of the disorder (Bjelland et al., 2009). In contrast, a dimensional approach “classifies clinical presentations based on quantification of attributes rather than the assignment to categories and works best in describing phenomena that are disturbed continuously and that do not have clear boundaries” (Kraemer, Noda, & O’Hara, 2004, p. 17).

The categorical approach has two implicit assumptions (Fried, 2015). Firstly, depression constitutes a distinct disease entity and secondly, this underlying entity causes the symptoms of depression. There is significant evidence to question these assumptions, including: high rates of comorbidity and latent models of psychopathology (Krueger, Caspi, Moffitt & Silva, 1998; Krueger, 1999) taxometric research (Haslam et al., 2012; Kertz, McHugh, Lee, & Björgvinsson, 2014; Ruscio & Ruscio, 2000; Slade & Andrews, 2005); common psychobiological features and functioning of depression and anxiety (Kircanski, LeMoult, Ordaz, & Gotlib, 2017); and lack of significant qualitative differences between subthreshold and threshold cases (Hobbs, Anderson, Slade, & Andrews, 2014; Kessler, Zhao, Blazer, & Swartz, 1997). Fried (2015) critiques the categorical approach and states, “few researchers and even fewer clinicians will defend these assumptions. In a sense, we as a community conduct research on these assumptions, while most individual researchers may not hold them” (p. 2).

Kessler (2002) recommends that the decision to adopt categorical, dimensional or both types of assessments should be made independently from the researcher's position on whether mental illnesses are discrete entities. Instead, it should be based upon the utility and practicality of the approach for the context in question. Despite the lack of evidence for a latent taxon, it is possible to have meaningful cut-points to define syndromes such as depression and anxiety. Kessler uses the analogy of blood pressure to support this position. There is no taxon for high blood pressure, however clinical guidelines provide a categorical definition of hypertension, which aids a categorical decision based upon a continuous variable. This cut-off point is selected based on research of risk factors, cost-effectiveness of treatment and evaluation of risk/benefit ratios of treatment. Therefore, it can be clinically beneficial to use a categorical approach even in the absence of a discrete entity.

Categorical and dimensional approaches both have their uses in psychological research and practice. In terms of clinical practice, categorical assessments are generally followed by dimensional assessments (Kessler, 2002). For example, in a symptom severity assessment, the clinician begins with the understanding that a phobia is present and then asks the client to focus on the severity and persistence of their symptoms. Both forms of assessment are useful. Categorical approaches help us to understand lifetime occurrence, length of episodes, time between episodes, etc. that would not be possible with a dimensional approach. Dimensional approaches allow for the assessment of individual variation in terms of presence and severity of symptoms. Similarly, concurrent use of categorical and dimensional assessments is common in research (Kessler, 2002). It is the practice in clinical trials to report results

in terms of differences on a dimensional measure of symptoms severity for those who have been categorised with an illness. Given this argument, this dissertation adopts both a categorical and dimensional approach to the assessment of depression and anxiety.

2.7 Summary

Depressive and anxiety disorders are highly prevalent and have a severe impact upon the individual and society. Therefore, research into the phenomenology and treatment of these disorders is critical. This chapter has outlined the diagnostic criteria for common depressive and anxiety disorders in adults according to the DSM-5. This dissertation adopts this diagnostic system because its operational criteria increases reliability and to be consistent with the majority of clinical research. Depressive and anxiety disorders have a high frequency of co-occurrence. This chapter has provided evidence that comorbid depression and anxiety is associated with greater severity and may impact upon treatment. Research that excludes comorbidity is at risk of ignoring cases of higher severity and of reaching misleading conclusions. Therefore, this dissertation examines depression, anxiety and comorbid depression and anxiety. There is evidence that depression and anxiety are dimensional, rather than categorical, in nature. In saying this, there are benefits to adopting both dimensional and categorical approaches in research. Both approaches will be utilised in this dissertation.

Chapter Three: Depression and Anxiety and the Self

The self is important in the phenomenology, aetiology, and maintenance of psychopathology – particularly for depressive and anxiety disorders (Kyrios, 2016). Consequently, it has been of much interest to researchers. While discussions exist within the literature regarding a consistent definition (see Katzko, 2003), the present dissertation does not attempt to enter into this debate; rather specific theories of the self will be examined. As Katzko (2003, p. 110) states “if we focus our attention on the phenomena that interests us, and on the concepts and ideas we use to make sense of such phenomena, perhaps the terminological problem will solve itself.”

This chapter provides evidence for the importance of the self in depression and anxiety and its implications for treatment. Firstly, the definition of the self according to cognitive models will be outlined and the contribution of cognitive models in understanding the self in depression and anxiety will be explored. This chapter provides evidence that cognitive-behaviour therapy is associated with improvements in self-concept but that it does not take into account the multidimensional nature of the self. Theories of self-structure, *self-complexity* (Linville, 1985), *self-discrepancy theory* (Higgins, 1987) and *possible selves* (Markus & Nurius, 1986) will be explained and their practical applications explored. This chapter concludes with an explanation of self-enhancement and self-protection and provides evidence that these processes are disrupted in depression and anxiety. It is argued that treatment could be improved by targeting maladaptive patterns of self-enhancement and self-protection.

3.1 Cognitive Models of the Self

Cognitive models understand the self-concept as a cognitive representation of information (Bhar & Kyrios, 2016). According to Hattie (2014, p. 37), “our conceptions of our self are cognitive appraisals, expressed in terms of expectations, descriptions and prescriptions, integrated across various dimensions that we attribute to ourselves.” Appraisals inherently involve values. Thoughts of the self relate to value statements, which may be good or bad, adaptive or maladaptive, rational or irrational, appropriate or inappropriate, justified or unjustified, reasonable or unreasonable. In this way, the self is both an appraiser of information and the object of appraisal (Hattie, 2014). This is reminiscent of Williams James’ (1890) conceptualisation of the self as both the object of knowledge, the ‘me self’, and the author of reality, the ‘I’ self.

Cognitive theorists understand the self-concept not only as a mental representation of self-attributes but also as a filter through which incoming information is processed (Bhar & Kyrios, 2016). In this way, the self-concept acts as a schema. Schemas are relatively enduring mental structures of stored information that facilitate the processing of new information and influence how phenomena are perceived and interpreted (Clark & Beck, 1999). Markus (1977, p.64) defines self-schemas as “cognitive generalizations about the self, derived from past experience that organise and guide the processing of self related information contained in the individual’s social experience.” Therefore, self-schemas can be understood to develop from one’s forming a set of beliefs, which in turn guide the processing of information.

3.1.1 The self in the cognitive model of depression. Beck's (1967) cognitive model of depression proposes that a constellation of negative generalisations about the self, the world, and the future act as a specific vulnerability for developing depression. Beck termed this constellation the *cognitive triad of depression*. The first component of the triad is the pattern of viewing the self in a negative way. Depressed people perceive themselves as deficient, inadequate, or unworthy and attribute unpleasant experiences to defects in themselves. There is a tendency to (over)generalise from one behaviour to a character trait. Depressed individuals tend to set high standards for themselves and any deviation from their standard is perceived to represent a major flaw. This negative self-concept has been found to be associated with self-rejection. The second component is the pattern of construing experiences negatively. There is a tendency to interpret interactions with the environment as representing deprivation, defeat, or disparagement. Life is perceived as full of burdens, obstacles, and traumatic experiences. The third component of the triad is the pattern of perceiving the future in a negative way. People experiencing depression anticipate their current suffering will continue into the future and see a life of unrelenting struggles, deprivation, and hardship. For individuals with depression there is a sense of permanence and irreversibility of their current condition, which will continue or even get worse into the future.

Beck and Alford (2009) argue that the presence of the cognitive triad acts a vulnerability to developing depression. The negative attitudes towards the self, the world, and the future may not be central or easily discernible, but exist in a latent state until activated by a specific stressor. Traumatic situations, that were responsible for initially embedding the negative attitudes of the constellation, act as prototypes for the

stress that later precipitates the activation of the constellation (for a review see Beck & Alford, 2009). Depression vulnerabilities are specific to critical sources of self-worth and attached to central values. Not only does the depressogenic self possess negative self-descriptions but the individual places high importance on these traits. For example, the belief that “I am stupid” is only problematic if the person places value on intelligence. Beck (1967) argues that self-blame is integral to depression, with the person holding themselves responsible for their personal deficiencies. When activated, the cognitive triad dominates a person’s thinking and leads to depressive symptoms. Beck and Alford suggest a sequence such as the following occurs:

Individuals interpret an experience as representing a personal defeat or thwarting; they attribute this defeat to some defect in themselves; they regard themselves as worthless for having this trait; they blame themselves for having acquired the trait and dislike themselves for it; and since they regard the trait as an intrinsic part of themselves, they see no hope of changing and view the future as devoid of any satisfaction or filled with pain (2009, p. 247).

The cognitive model understands the relationship between cognition and emotion to be bidirectional (Beck & Alford, 2009). The cognitive triad may initially act as a vulnerability to developing depression. When activated by an unpleasant life situation, the negative thought patterns result in the subjective feeling of depression. However, at this point, there is an interaction between cognitions and affect. The feelings of depression reinforce negative thinking. The more negatively a person thinks, the worse they feel and the worse they feel, the more negatively they think. This is a likely explanation for the downward spiral of depression. Moreover, self-blame is integral to depression and individuals with depression tend to further criticise

themselves for being ill and perceive it as some inexcusable weakness in who they are.

3.1.2 The self in the cognitive model of anxiety. Central to the cognitive model of anxiety disorders is the idea that the self is perceived as weak, helpless, and vulnerable to danger (Clark & Beck, 2010). Beck and Emery (1985) propose that anxiety disorders are maintained by an interaction between cognition, affect, and physiology that is powered by maladaptive schemas. Individuals with anxiety have hyperactivated negative schemas, which lead to a preferential processing of threatening information. This involves an overestimation of the probability that harm will occur and the severity of harm. Additionally, individuals with anxiety possess schemas that are under-sensitive to safety cues, which leads to an underestimation of safety in the environment and personal coping resources. Individuals experiencing clinical anxiety have a heightened sense of helplessness when presented with a perceived threat and conclude they are unable to cope with the danger. The ensuing negative evaluation of coping ability can lead a person to avoid threatening situations or act cautiously, which in turn, can impair performance and reinforce the perception of the self as vulnerable and the world as threatening.

The self-concept of individuals with anxiety fluctuates in accordance with the degree of perceived risk or threat (Clark & Beck, 2010). Lowered self-confidence and higher levels of self-criticism are activated in anxiety-inducing situations. Therefore, while across anxiety disorders the self is perceived as vulnerable to threat, the situations that activate this schema vary across anxiety disorders. Individuals with GAD view themselves as incompetent across a range of experiences and domains

(Beck & Emery, 1985). In contrast, for individuals with panic disorder, agoraphobia, specific phobia and SAD, the perception of the self as vulnerable is more restricted and contained. For example, in agoraphobia and panic disorder the self is perceived vulnerable to dangerous and unpredictable bodily sensations (McNally, 1993) while in social anxiety, the self is perceived as vulnerable to rejection and unable to meet social requirements (Clark, 2001).

3.1.3 The self in cognitive behaviour therapy for depression and anxiety.

Cognitive Behaviour Therapy (CBT) is one of the most extensively researched psychotherapies, and has consistently been found to be effective in treating depressive and anxiety disorders (Butler et al., 2006). CBT is associated with changes in maladaptive self-concepts (e.g., Gregory & Peters, 2017). Cognitive interventions, such as cognitive restructuring, can help clients with depression and anxiety to become aware of their maladaptive cognitions and to challenge negative self-appraisals. Behavioural interventions can provide experiential learning opportunities that disconfirm negative self-beliefs. Behavioural activation helps to modify negative cognition content in depression through encouraging the client to become involved in constructive and meaningful activity (Beck & Alford, 2009). This assists with the client's motivational difficulties and negative self-concepts around personal capability. By realistically building upon the number of activities scheduled each week, the client can gain a sense of competence and gather evidence contrary to their perception of the self as deficient. Similarly, exposure and response prevention therapy assists in modifying faulty threat and safety appraisals by providing direct experience and information that disconfirms anxious beliefs and provides evidence of the self as competent (Clark & Beck, 2010).

Despite the central role of the self in cognitive behavioural theories of depression and anxiety, “self-representation theory and research have not had a significant impact on cognitive behavioural treatment” (Clark, 2016, p. 125). While CBT is associated with changes in the self-concepts, there is untapped scope for incorporating the self into treatment. Clark (2016) proposes several methods to achieve this. Cognitive interventions could include the adjustment of self-values by either reducing the significance of depressogenic self-attributes or strengthening the importance of undervalued attributes. This is particularly important given that in depression and anxiety, people tend to have negative views of themselves on attributes they highly value. Furthermore, CBT practice would benefit from a greater appreciation of self-processes. CBT researchers and clinicians tend to understand depression and anxiety as a dominance of negative self-representations but overlook the nuances of self-concept. The incorporation of more complex, multidimensional models of self would further our understanding of depression and anxiety and potentially improve treatment outcomes.

3.2 The Self as Multidimensional

Early cognitive research and theory tended to overemphasise the content and valence of the self-concept (Clark, 2016). The structure of the self was for the most part overlooked. However, researchers have become interested in understanding how the cohesion, consistency and clarity of the multidimensional self may relate to psychopathology (Campbell, Assanand, & Di Paula, 2003) and inform treatment (Huflejt-Lukasik, Bak, Styła, & Klajs, 2015; Showers, Limke, & Zeigler-Hill, 2004). The following section outlines three of the most dominant self-structure models in the

literature: self-complexity, self-discrepancy, and possible selves. These models propose that the self-structure is important in depression and anxiety, help us to understand the therapeutic process, and provide specific interventions to target problems in self-structure.

3.2.1 Self-complexity. Self-complexity refers to the extent to which people view themselves as multifaceted (Linville, 1985). Linville's model of self-complexity proposes that there are two defining aspects of self-complexity: 1) the number of aspects of self, and 2) the degree of relatedness between these aspects. Different self-aspects can include representations of social roles, personal goals, and traits. The degree of relatedness refers to the differentiation between self-aspects. In other words, the extent to which they do not "spill over" into one another. An individual high in self-complexity is more likely to organise self-knowledge to include a greater number of independent aspects. Linville hypothesised that individuals low in self-complexity would experience more extreme affect, while those high in self-complexity would experience more moderate affect. Her reasoning for this is that by maintaining distinctions between self-representations, individuals are likely to be able to buffer against stress and maintain an overall positive view of the self by restricting the damaging effects of negative experiences to one domain of self. It is a case of "don't put all of your eggs in one cognitive basket" (Linville, 1985, p. 96). There have been mixed results regarding the stress-buffering effects of self-complexity (Rafaeli-Mor & Steinberg, 2002). However, it is argued that this likely due to the variation in the measurement of self-complexity, with evidence overall supporting the positive relationship between self-complexity and coping (Koch & Shepperd, 2004).

Psychological interventions have been developed to increase self-complexity. For example, Shahar (2013) developed the *multiple self analysis* as a technique to increase an individual's awareness of the multiplicity of their self-concept and in turn increase self-knowledge and acceptance. In this technique, the clinician firstly communicates the idea of multiple self-aspects in terms of "inner voices" and "different sides of yourself" (p. 322). The clinician then attends to the client's language as they express their inner critic. For example, when a client says that "I'm good-for-nothing", the therapist reframes this as "There is a part of you that feels he is good-for-nothing" (Shahar & Schiller, 2016, p. 91). This encourages the client to speak in terms of multiple selves. Following this, the therapist supports the client to identify more beneficial non-critical self-aspects. Clients are provided the opportunity to name and personalise these self-aspects and to explore the presence or absence of these aspects within their own history. While not yet empirically validated, this technique provides a possible method for increasing self-complexity and in turn, client's resilience.

3.2.2 Self-discrepancy. Higgins' (1987) self-discrepancy theory proposes that discrepancies between specific different self-representations are associated with different emotional experiences. According to this theory, there are three basic domains of the self: the *actual self*, which is the representation of the attributes a person believes they possess; the *ideal self*, which is the representation of the attributes a person would like to possess, that is one's goals, hopes and aspirations; and the *ought self*, which is the representation of the attributes a person believes they should possess, that is one's rules, obligations and duties. The theory proposes that discrepancies between the actual and ought self are associated with agitation-related

emotions such as anxiety, worthlessness, guilt, apprehension and fear. In contrast, discrepancies between the actual and ideal self are associated with dejection-related emotions such as depression, shame, and feelings of failure and disappointment. The greater the magnitude of the discrepancy, the greater the emotional intensity will be. There has since been considerable empirical evidence to support self-discrepancy theory (e.g., Cornette, Strauman, Abramson, & Busch, 2009; Scott & O'Hara, 1993; Watson, Bryan, & Thrash, 2016).

Both cognitive-behaviour therapy and interpersonal therapy have been found to be efficacious in reducing self-discrepancies, with these changes associated with reductions in both depression and anxiety (Watson, Bryan, & Thrash, 2014). Additionally, there is evidence that mindfulness-based cognitive therapy protects against the reactivation of self-discrepancies and reduces the risk of relapse of depression (Crane et al., 2008). In addressing clients' goals, standards and self-beliefs, and encouraging the client to examine who they are in the context of their world, therapy may help to reduce self-discrepancies and in turn, this may result in a reduction in depressive and anxiety symptoms.

While various psychological therapies have been shown to help reduce self-discrepancies, *Self-System Therapy* (SST; Vieth et al., 2003) specifically targets self-discrepancies. SST is a brief, structured psychotherapy that translates the principles of *Regulatory Focus Theory* (Higgins, Shah, & Friedman, 1997) into an intervention to modify maladaptive self-regulation. One of the primary therapeutic techniques is the *Self-Belief Analysis*. This is based directly on self-discrepancy theory. The aim is to “identify and examine the origins, content, and functions of the patient's beliefs about

her/himself in relation to others, and to determine how these beliefs may contribute to the patient's depressive symptoms" (Vieth et al., 2003, p. 254). The therapist may use a wide range of questions to achieve this aim, for example:

Does it refer to the actual self (the kind of person I believe, or someone else believes, I actually am), a standard, goal, or expectation (e.g., the ideal self, the ought self), or the undesired self (the kind of person I or someone else believes I must not be)? (Vieth et al., 2003, p. 255).

SST has been tested in two randomised control trials to date (for a review see Strauman & Eddington, 2017) and was found to be comparable to Cognitive Therapy in treating depression (Strauman et al., 2006) and CBT in treating depression and anxiety (Eddington, Silvia, Foxworth, Hoet, & Kwapil, 2015).

3.2.3 Possible selves. Markus and Nurius (1986) developed the concept of possible selves to describe cognitive representations of who the self may become in the future. *Hoped-for selves* reflect who we would like to become and *feared selves* represent who we are afraid of becoming. Possible selves draw upon representations of the self in the past. However, unlike past or current selves, possible selves have not been realised and therefore are not limited by plausibility. Possible selves can act as standards by which the current self can be evaluated and interpreted. They can be seen as "cognitive bridges between the present and future, specifying how individuals may change from how they are now to what they will become" (Markus & Nurius, 1986, p. 961). Maladaptive possible selves have been linked to depression and anxiety-related constructs; with higher levels of depression associated with more negative possible selves and the belief that positive possible selves are unlikely to eventuate (Penland, Masten, Zelhart, Fournet, & Callahan, 2000); and evidence that a core

feature of anxiety, self-doubt, stems more from the absence of strong positive possible selves rather than the presence of negative possible selves (Carroll, Arkin, & Shade, 2011).

Possible selves have relevance for psychological treatment. Drawing upon the *Transtheoretical Model of Change* (Prochaska & Velicer, 1997), Dunkel, Kelts and Coon (2006) developed and found support for a model of the relationship between possible selves and change in a therapeutic setting. The model predicts that as an individual contemplates change, they generate hoped-for selves. When they decide to implement change, they validate their chosen possible self. By definition, this involves the elimination of other possible selves. When change is achieved, the actualised possible self is integrated into current self-concept. This model provides guidance for treatment. For clients who require assistance in contemplating a change, therapeutic techniques could involve generating hoped-for possible selves. To assist decision-making and implementing change, therapists should support clients in the elimination of possible selves. This may be particularly helpful for clients who have difficulty in letting go of goals that are unrealistic or have an aversion to the required action for attaining to goals.

Possible selves theory has led to the development of the *best possible self activity* (King, 2001). The activity asks participants to write about themselves in the future, imagining their future as the best it could possibly be, with the specific instructions:

Think about your life in the future. Imagine that everything has gone as well as it possibly could. You have worked hard and succeeded at accomplishing

all of your life goals. Think of this as the realization of all your life dreams.

Now, write about what you imagined (King, 2001, p. 801).

The best possible self activity has been shown to increase state optimism, positive affect and life satisfaction, and a decrease in negative affect compared with control conditions and gratitude interventions (Meevissen, Peters, & Alberts, 2011; Peters, Flink, Boersma, & Linton, 2010; Seear & Vella-Brodrick, 2012). This was irrespective of dispositional optimism (Meevissen et al., 2011; Peters et al., 2010). These results have been shown to be maintained over time (Meevissen et al., 2011; Peters et al., 2010; Sheldon & Lyubomirsky, 2006) and to be equally effective whether administered in person or online (Layous, Katherine Nelson, & Lyubomirsky, 2013).

While most research has examined the best possible self activity in non-clinical populations, there is evidence that it is helpful for clinical populations. When the best possible self activity was included in a portfolio of positive psychology interventions, it was found to reduce depressive symptoms and increase social functioning and mental health in a depressed population (Lambert D'raven, Moliver, & Thompson, 2015), and also improve hopelessness and optimism for suicidal inpatients (Huffman et al., 2014). Furthermore, participants reported feeling intrinsically motivated to complete the task and there was a high completion rate (Huffman et al., 2014; Meevissen et al., 2011; Sheldon & Lyubomirsky, 2006). Together, these findings support the best possible self activity as an efficacious, feasible and client-centred intervention for improving mood and wellbeing.

3.3 Self-enhancement and Self-protection

Self-enhancement and self-protection refer respectively to the tendency for people to exaggerate their merits and minimise their negative qualities, while maintaining credibility to themselves and others (Alicke & Sedikides, 2009). Alicke and Sedikides liken the difference between self-enhancement and self-protection to the difference between the parasympathetic and sympathetic nervous system. The parasympathetic nervous system regulates ordinary processes and attends to basic needs. Similarly, the self-enhancement system regulates the basic need of feeling good and viewing ourselves positively. It involves strategies that help to claim a higher standing on a personal characteristic than is objectively deserved. On the other hand, the sympathetic nervous system is an arousal system focused on defence, commonly referred to as the flight or fight system. Likewise, self-protective processes are elicited when feedback threatens the self to below tolerance point. It involves strategies for avoiding falling below a desired standard. Both self-protection and self-enhancement are complex motives but are ultimately grounded in the assumption that people are motivated to feel good or avoid feeling bad about themselves (Alicke & Sedikides, 2010).

Historically, it was thought that psychological health depended upon accurate perceptions of the self and reality (for a review see Taylor & Brown, 1988). However, perceptual biases and illusions are commonly found in healthy normal human cognition (Taylor & Brown, 1988). In fact, illusions, and in particular unrealistically positive self-evaluations, may be adaptive for mental health and wellbeing. A meta-analysis of over 200 studies showed that (unrealistic) self-enhancement was consistently associated with personal adjustment, specifically subjective wellbeing

and mental health (Dufner, Gebauer, Sedikides, & Denissen, 2018). In terms of interpersonal adjustment, self-enhancement was found to be beneficial, neutral or detrimental dependent upon the length of relationship and the attributes which they self-enhanced. While there are concerns that self-enhancement and self-protective biases may, if taken to the extreme, be detrimental to a person's self-awareness and interpersonal relationships, the breakdown of normative positivity biases may have detrimental psychological consequences (Alloy, Wagner, Black, Gerstein, & Abramson, 2011).

3.3.1 Self-enhancement and self-protection in depression. Adaptive self-enhancement and self-protection processes appear to have broken down in depression (Alloy et al., 2011). The findings reviewed by Alloy et al. (2011) suggest that depressed individuals are more accurate or negatively distort their self-evaluations but display positive biases towards others. This contrasts with non-depressed individuals' tendency to display positive biases towards themselves and have more accurate or negative evaluations of others. However, there is an inconsistency within the literature. On the one hand, there is some evidence that depressed individuals tend to be more accurate and realistic in self-evaluations compared with non-depressed individuals (Siegel & Alloy, 1990; Stone, Dodrill, & Johnson, 2001). This is known as "depressive realism" or the "sadder but wiser" effect (Alloy & Abramson, 1979). But there is also evidence that depressed individuals tend to exhibit a negative as opposed to a realistic bias in their self-evaluations (Bynum & Scogin, 1996; Gotlib, 1981). The severity of symptoms may play a role in this observation. It has been suggested that people low in depressive symptoms display self-enhancing distortions; those with mild depressive symptoms display accuracy in self-evaluation; while those

with more severe levels of depression exhibit negative distortions (Ackermann & DeRubeis, 1991; McKendree-Smith & Scogin, 2000). Nondepressed mood may be associated with strong self-enhancing and self-protecting biases; mild to moderate depressed mood may be associated with a lessening of these mechanisms, with the outcome of greater accuracy; and severe depression may be associated with further disruptions to these processes to the point of self-degradation. Alloy et al. (2011) provide two possible reasons for this breakdown in self-enhancement and self-protection in depression. Firstly, depressed individuals may be unable to engage in self-enhancing and protective strategies due to a general lack of motivation that is characteristic of depression. Secondly, it may be that depressed individuals have low self-concept prior to symptom onset which both predisposed the individual to depression and left the individual with little of themselves they would feel motivated to self-enhance or protect.

3.3.2 Self-enhancement and self-protection in anxiety. There is some evidence that anxiety is associated with disruptions in self-enhancement processes (Gordon, Johnson, Heimberg, Montesi, & Fauber, 2013; Kashdan & Savostyanova, 2011; Vincze, 2010). However, anxiety tends to be associated more with self-protection than self-enhancement. In a study examining the relationship between anxiety and both self-enhancement and self-protection, it was found that higher levels of self-protection positively predicted anxiety levels but self-enhancement was unrelated to anxiety levels (Jiang & Kleitman, 2015). This is consistent with psychological models of anxiety. Psychodynamic theory developed the term ‘defense mechanisms’ to understand the self-protective strategies employed against anxiety (Freud, 1894/2001; Freud, 1937/1966). Cognitive models of anxiety understand

anxiety as a vulnerability to overestimate threat and underestimate coping ability, which in turn is associated with maladaptive use of self-protective strategies such as physical, cognitive and affective avoidance (Beck & Clark, 1997).

While there is evidence for the presence of excessive self-protective processes across all anxiety disorders, they are most widely studied in social anxiety. Of note, Arkin (1981) developed the *self-protection theory of social anxiety*. Arkin proposes that people with social anxiety are motivated by a desire to avoid negative social outcomes. People with higher levels of social anxiety tend to endorse a self-protective mindset and attempt to avoid embarrassment or disapproval, while people lower in social anxiety tend to be motivated by acquisitive concerns and attempt to win approval in social situations (Arkin, Appelman, & Burger, 1980; Meleshko & Alden, 1993). To avoid negative social outcomes, people with social anxiety adopt self-protective strategies. This may take the form of conservative self-presentation. Individuals with high levels of social anxiety have been found to be more moderate and conservative in their personal disclosures to a new acquaintance (Meleshko & Alden, 1993) and romantic partners and close friends (Cuming & Rapee, 2010) than those low in social anxiety. These self-protective behaviours are associated with more discomfort and less liking on the part of their conversation partner (Meleshko & Alden, 1993). This suggests that self-protection may elicit negative interpersonal responses, exactly what someone high in social anxiety fears most. Furthermore, self-protective behaviours may perpetuate social anxiety by depriving the individual from receiving new information that would modify their unhelpful beliefs about themselves and others. Thus, social anxiety particularly, and anxiety more generally, appears to be associated with maladaptive adoption of self-protective strategies.

3.4 Summary

Depression and anxiety are associated with negative self-concepts, as exemplified by cognitive models of depression (Beck & Alford, 2009) and anxiety (Clark & Beck, 2010). While cognitive-behaviour therapy is associated with improvements in self-concept and in turn has a positive effect on the disorder, it overlooks the multidimensional nature of the self. Theories of self-structure, such as self-complexity (Linville, 1985), self-discrepancy theory (Higgins, 1987) and possible selves (Markus & Nurius, 1986), demonstrate that self-structure is disrupted in depression and anxiety and provide obvious self-structures and processes to target in therapeutic settings. Depression and anxiety have been associated with maladaptive patterns of self-enhancement and self-protection. Given the way these processes typically operate, targeting these processes in cognitive-behavioural therapy could improve therapeutic outcomes.

Chapter Four: Temporal Self-Appraisal

The self is not constrained to the present moment but is thought to be a person with a “continuous existence through time” (Moore & Lemmon, 2009, p. 2). The temporally extended self incorporates self-representations from different times, including past selves – representations of who we were, and future selves – our ideas of who we might become. Thus, self-evaluation references not only the person we are now but our past and future representations of ourselves. *Temporal self-appraisal theory* (Ross & Wilson, 2002; Wilson & Ross, 2001) is one of the current most researched and cited theories concerning the temporally-extended self. Temporal self-appraisal theory proposes that, similar to social comparisons (Wilson & Ross, 2000), temporal comparisons between past, current and future selves can be used for self-enhancement.

This chapter explains temporal self-appraisal theory and reviews evidence for this theory in non-clinical populations. The operationalisation and manipulation of temporal self-appraisal is outlined. Then, research into factors that may influence the extent to which individuals use temporal comparisons for self-enhancement is reviewed. While temporal self-appraisal focuses on the motivational nature of the self over time, self-appraisal is a cognitive process. Therefore, cognitive factors, specifically construal level and phenomenal characteristics, will be drawn upon to further understand methods of manipulation and the conditions under which the pattern proposed by temporal self-appraisal theory is present.

4.1 Temporal Self-Appraisal Theory

Temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001) understands past and future representations of the self to be connected to the present self along a “dimension of relative temporal proximity” (Peez & Wilson, 2008, p. 3). The psychological experience of temporal distance from, or closeness to, past and future selves influences present self-appraisal. Temporal self-appraisal theory proposes that people are able to manipulate their subjective experience of time for self-enhancement. That is, people tend to evaluate past and future selves in a way that helps them to feel good about themselves as they are now.

There is a perception that the self is on an upward trajectory, continually improving over time (Ross & Wilson, 2003). People have a tendency to view themselves as better than their former selves. However, the subjective temporal proximity from the current self, influences how past selves are perceived. Past representations of the self that feel subjectively distant are viewed more negatively than past selves that feel closer to the present (Wilson & Ross, 2001). This is because temporally close former selves can be incorporated into current self-appraisals and help the individual to feel good about themselves as they are now. On the other side of this, negative life events tend to feel more distant, as if occurring long ago, than events that show the self in a more positive light.

The upward trajectory continues as people believe they will be better in the future than they are currently (Wilson, Buehler, Lawford, Schmidt, & Yong, 2012). As with past self-appraisals, temporally proximal future selves are thought to have a larger effect on current self-appraisal than selves that are more temporally distant.

Consequently, people are motivated to evaluate future selves more favourably when they feel closer in time as it has more direct implications for current self-appraisal than future selves that feel more remote. Similarly, it is thought that future positive events feel subjectively closer than negative future events. There is the idea that people are able to “bask in projected glory” (Wilson et al., 2012, p. 342) to enhance how they currently feel about themselves.

While it is possible that people may actually improve over time, there is evidence to suggest that this perceived upward trajectory cannot be accounted for by actual improvement alone. Wilson and Ross (2001) employed a longitudinal design to examine temporal self-appraisal. University students rated their current self on seven desirable traits. Two months later, participants rated their current selves and then evaluated their past selves of two months prior. This design allowed for comparisons between current and retrospective evaluations of the self. It was found participants derogated their past selves to benefit their perception of their current selves. The retrospective ratings were lower than the ratings two months prior, indicating that it is the perception of improvement rather than improvement itself. This supports the conclusion that temporal self-appraisal is used as a method of self-enhancement. In further support of the argument that temporal self-appraisal reflects self-enhancement motives, the effects of temporal self-appraisal have generally been found to be unique to the self (D'Argembeau & Van der Linden, 2008; Wilson & Ross, 2001; Wilson et al., 2012) and to be stronger for those with higher self-esteem (Ross & Wilson, 2002).

4.1.1 Manipulating subjective temporal distance. Temporal self-appraisal is thought to reflect the subjective experience of temporal distance. Initial research used

the actual passage of time to examine temporal self-appraisal (e.g., Wilson & Ross, 2001), however, as the understanding of temporal self-appraisal has developed, research has also manipulated participants' subjective experience of temporal distance. Wilson and Ross (2001) have used two methods to manipulate subjective temporal distance. Both of which are explained in the following paragraphs.

The first manipulation uses of a spatial metaphor for time, specifically a timeline. Wilson (2000) developed the timeline manipulation as part of her doctoral dissertation. In one of her studies, university students were instructed to mark a target event, a good or bad incident in high school, on a timeline. Participants were randomly assigned to one of two conditions; recent and distant past. In the recent condition, participants were presented with a timeline with the end points of 'Birth' and Today.' While in the distant condition, participants were presented with a timeline of the same length but with the end points of 'Age 15' and 'Today.' The logic of this manipulation is that an event should appear more recent relative to your date of birth compared with your 15th birthday. This manipulation was found to be effective; participants in the recent condition considered the target event to be subjectively closer to today compared with those in the distant condition. Similar timeline manipulations have since been used in a number of studies manipulating the subjective temporal distance of the past (Cheung & Olson, 2013; Haynes et al., 2007; Peetz, Gunn, & Wilson, 2010) and the future (Peetz, Wilson, & Strahan, 2009; Wilson et al., 2012).

The second method involves manipulating the verbal representation of a time period. In one study, Wilson and Ross (2001) asked university students to rate their

current self on seven desirable traits. Participants were then assigned to either a recent past or distant past condition. All participants were asked to think of the beginning of the university term, however, in the recent condition, the beginning of term was framed as the “recent past,” while in the distant condition participants were asked to “think all the way back to the beginning of term” (Wilson & Ross, 2001, p. 580). Following the manipulation, students were asked to rate their past selves on the same traits. To check the efficacy of the manipulation, participants were asked to indicate how subjectively distant the beginning of the term felt on an 11-point scale. The manipulation did not show any significant differences in perceived temporal distance between conditions, however it was found that participants evaluated their past selves less favourably when it was framed as distant. Verbal reframing has continued to be used to manipulate the subjective distance of the past (Ward & Wilson, 2015) and the future (Kurtz, 2008).

4.1.2 Temporal self-appraisal across attributes and characteristics.

Wilson, Ross and colleagues (Peetz et al., 2009; Ross & Wilson, 2002; Wilson & Ross, 2001; Wilson et al., 2012) have found effects of temporal self-appraisal across a number of specific attributes falling under the areas of: social acceptance and competence, academic achievement and self-direction, physical abilities, and quality of thought such as open-mindedness, common sense, maturity and naivety. This work has extended by other researchers who have found effects of temporal self-appraisal in the areas of physical attractiveness, (Haddock, 2006) and morality (Escobedo & Adolphs, 2010; Stanley et al., 2017). Therefore, there is evidence that temporal self-appraisal tends to occur across a wide range of attributes and characteristics.

The effects of temporal self-appraisal are moderated by the beliefs people hold about whether attributes can change over time. According to Dweck, Hong and Chiu's (1993) *Implicit Theory*, people tend to either believe that core attributes can change over time (incremental theorists) or are fixed and unchanging (entity theorists). In their series of studies, Ward and Wilson (2015) examined how participants' implicit theory beliefs influenced their temporal self-appraisal. In their first two studies, they measured participants' natural implicit theories using the Implicit Theory of Morality Measure (Dweck, Chiu, & Hong, 1995) and then extended upon this in their third study by manipulating implicit theory. To manipulate implicit theory, the participants were randomly allocated to read one of two fictitious articles about the nature of morality: one suggesting that morality is fixed (entity condition), and the other suggesting that morality is malleable (incremental condition). It was found that only incremental theorists rated the distant past less favourably than the near past. This was the case for both self-reported and manipulated implicit theory. For incremental theorists, derogating distant past selves may allow them to perceive continual improvement over time and boost current self-appraisal. On the other hand, entity theories are likely not to benefit from criticising even a remote self because they see those attributes as reflecting the current, unchanging self. Therefore, an implicit condition of temporal self-appraisal is that people believe that change is possible.

Similarly, the tendency to perceive the self as improving over time is moderated by attribute importance. Wilson and Ross (2001) asked undergraduate students to rate their current selves on ten attributes, to rank these attributes from least to most importance and then to rate their past self of two months ago on the same ten

attributes. Results showed that people are more likely to derogate distant past selves on attributes that are personally important. The finding that importance acts as moderator has since been replicated (Haddock, 2006). This is consistent with the self-enhancement function of temporal self-appraisal. Attributes that are important have more implications for current self-regard than attributes that are considered unimportant. Therefore, people are more likely to criticise their past selves on attributes they consider important to their self-concept as this maximises self-enhancement.

There is evidence that the relationship between temporal self-appraisal and importance of attributes is bidirectional. Ross and Wilson (2002) asked participants to recall an incident that had occurred since the end of high school in which they felt either proud or embarrassed and to rate the importance of the event, both at the time of occurrence and now. There was a tendency for the importance of embarrassing events to decline over time more rapidly than flattering events. That is, while embarrassing events may have been initially important, they were of little importance in the present. This may reflect the self-enhancing tendency to deny the importance of negative events in an attempt to distance negativity from the current self.

4.1.3 Gender and age. There is evidence that temporal self-appraisal is not moderated by gender. Across 19 studies, there were no gender differences on temporal self-appraisal (Gryzman, Prabhakar, Anglin, & Hudson, 2013; Haddock, 2004; Ross & Wilson, 2002; Sokol & Serper, 2017; Ward & Wilson, 2015; Wilson & Ross, 2001; Wilson et al., 2012). The research on temporal self-appraisal has largely been conducted on undergraduate students (e.g. Wilson & Ross, 2001; Wilson et al.,

2012), but there is some data that speaks to differences in temporal self-appraisal across the life span. Demiray and Freund (2017) compared the temporal distance of past failures or successes between young (19-30 years), middle aged (31-60 years) and older adults (61- 84years). It was found that participants across age groups tended to feel closer to success memories and more distant from past failures. This provides evidence that the effects of temporal self-appraisal are not moderated by age.

4.1.4 Culture. Research has tended to examine patterns of temporal self-appraisal in Western cultures (e.g. Ross & Wilson, 2002; Wilson & Ross, 2001; Wilson et al., 2012). However, there is some evidence that the pattern proposed of temporal self-appraisal theory is not universal. Ross, Heine, Wilson and Sugimori (2005) compared patterns of temporal self-appraisals between Canadian and Japanese university students. Half of the participants were asked to recall a memory that elicited feelings of pride and the other half were asked to recall an embarrassing memory. The subjective and objective temporal distance was measured. It was found that consistent with previous research (Ross & Wilson, 2002), the Canadian participants reported that proud memories felt subjectively closer in time than embarrassing memories that were objectively equally distant. In contrast, the Japanese participants reported that embarrassing and proud events felt equally distant. This likely reflects the tendency in Eastern cultures to value and respect the past self more than Western cultures and believe they can benefit from reflecting on and learning from past experiences (for example, Briley, 2009; Wang & Conway, 2004). For such persons there is no need to distance oneself from negative memories to view the current self positively.

Shao, Yao, Ceci and Wang (2010) extended upon this by examining the role of culture in the appraisal of both past and future selves. European American and Chinese undergraduates were to describe the past, current and future selves by finishing 10 incomplete sentences beginning with 'I'. For both cultures the future self was described significantly more positively than either the current or past self. The difference between the past and current self was not significant. Consistent with the finding that in Eastern cultures the motivation to maintain positive self-regard is diminished or absent (e.g. Heine, Markus, Lehman, & Kitayana, 1999), the European American participants reported more positive events and self-description than the Chinese participants. One limitation of this study is that it did not examine the subjective temporal distance of past and future selves. Overall, the evidence would suggest that there is a tendency to engage in lower self-appraisals and that the subjective temporal distance between past positive and negative events is similar in Eastern cultures and not used for self-enhancement. However, both Western and Eastern cultures display in a tendency to perceive the current self on an upward trajectory into the future.

4.1.5 The role of life scripts. Remembering the past and imagining the future can be cognitively taxing and therefore people may use stereotype knowledge to lighten the cognitive load (Broemer, Grabowski, Gebauer, Ermel, & Diehl, 2008). This can take the form of life scripts, that is, culturally normative landmark events such as getting married, having children, etc. (Gryzman, Prabhakar, Anglin, & Hudson, 2015). It has been found that people tend to draw upon life scripts when both recalling the past and imagining the future (Gryzman et al., 2015) and for both themselves and others (Gryzman et al., 2013). The reliance on life scripts tends to be

more common for the distant past as people struggle to recall details (Broemer et al., 2008) and in the distant future, which reflects the difficulty in anticipating an ambiguous distant future (Gryzman et al., 2015). It has been found that there is no significant difference in the valence of life script and non-life script events (Gryzman et al., 2013, 2015). Therefore, while life scripts may be drawn upon when appraising the self over time, temporal self-appraisal cannot be attributed to life scripts alone.

4.2 Cognitive Factors in Temporal Comparisons

Temporal self-appraisal theory focuses on the self-enhancement motives behind temporal comparisons. However, the perception of temporal distance is a cognitive process. Cognitive factors can influence the perception of subjective temporal distance and in turn the appraisal of the self over time. The following section outlines two widely studied cognitive factors that influence the perception of temporal distance: construal level and phenomenal characteristics. While these two factors are not exhaustive of the cognitive factors that may be involved in the process of appraising oneself over time, they are arguable the two most dominant in this area of research. Furthermore, they provide possibilities for the manipulation of subjective temporal distance and improve our understanding of the conditions in which temporal self-appraisal theory is relevant.

4.2.1 Construal level theory. *Construal level theory* proposes that psychological distance changes the construal level of past or anticipated events (Trope & Liberman, 2003). Psychological distance refers to the perception of whether, when, where, and with whom an event occurs and therefore, includes the temporal distance of an event. Construal levels refer to the perception of what will occur and is a

representation of the event itself. The theory proposes that the greater the psychological distance, the more likely the event will be represented as a few abstract features, i.e. high-level construal, in contrast with events that are perceived as temporally close and are represented in more concrete details, i.e. low-level construal. This is regardless of valence as both positive and negative experiences are expected to be more prototypical, less variable and more extreme when perceived to be more distant (Liberman, Sagristano, & Trope, 2002).

There is substantial evidence to support construal level theory. A meta-analysis found a mean “moderate” effect size (Hedges’ $g = .475$) for the effect of psychological distance on construal level across 106 papers containing 267 experiments (Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015). The results suggested that this replicates across different populations, times, and places. The relationship between temporal distance and construal was found to be curvilinear, suggesting that researchers can increase the strength of manipulations by widening the gap between the near and distant conditions. For example, a study asking participants to compare next month versus next year will have larger effect sizes than a study that asks participants to compare tomorrow versus next month.

The effects of construal level extend to the self. The distant future self has been found to be more abstract, structured, superordinate, schematic, and consistent across situations than representations of the self in the near future (Wakslak, Nussbaum, Liberman, & Trope, 2008). Similarly, the adoption of a more abstract mindset activates an idealistic self (Kivetz & Tyler, 2007). The idealistic self is a mental representation that places values over practical consideration to express a

person's true sense of self. In contrast, a proximal time perspective shifts attention towards situational factors that are less central to a person's concept of their true self. This activates the pragmatic self; an action oriented, practical self (Kivetz & Tyler, 2007).

Construal level theory implies that construal level may influence the perception of temporal distance. In a series of studies, Kyung, Menon and Trope, (2010) examined this possibility and used a number of manipulations to induce participants to adopt an abstract or concrete mindset when recalling an event. It was found that regardless of whether an event occurred in the past hour, few days or few weeks, people feel closer to the event when recalling it in a concrete compared with an abstract mindset (Kyung et al., 2010). It is thought that details of the event are more accessible in a concrete mindset and therefore leads to a more recent temporal judgement. This study shows it is possible to manipulate subjective temporal distance by manipulating construal level.

Given the effects of construal level are present in self-representations and it is possible to use construal level to manipulate subjective temporal distance, it would seem a natural step to explore the intersection of construal level theory and temporal self-appraisal in understanding how people appraise the temporal self. According to construal level theory, it would be expected that as temporal distance increases, the self would be appraised more positively. This is based upon the findings that abstract attributes are temporally more distant than concrete attributes (Liberman et al., 2002) and abstract attributes are viewed more positively than concrete attributes (Stephan, Sedikides, Heller, & Shidlovski, 2015). In contrast, temporal self-appraisal theory

would suggest that people high in self-esteem would evaluate the temporally distant selves more negatively than temporally close selves the near-future self more favourably than the distant future self (Wilson & Ross, 2001; Wilson et al., 2012). Therefore, construal level theory and temporal self-appraisal offer different predictions for how people appraise temporal selves.

Lachowicz-Tabaczek and Bajcar (2017) examined the competing hypotheses of construal level theory and temporal self-appraisal theory in the relationship between current and future self-appraisals. Across a series of three studies, they found future self-appraisals varied depending upon the specificity of the evaluated attributes. When appraising the future self on general measures of the self (i.e., personality traits), self-esteem did not moderate the relationship between temporal distance and self-appraisal. Consistent with construal level theory, future selves became more positive as temporal distance increased regardless of self-esteem. In contrast, on specific dimensions of the self (for example, interpersonal skills, resourcefulness and financial situation), self-esteem moderated the relationship. Those with reported low self-esteem evaluated themselves more positively in the distant than in the near future, while those with high reported self-esteem appraised themselves similarly across the two temporal distances. This is consistent with temporal self-appraisal theory. The authors suggest that for general dimensions, it is likely that the effects of subjective temporal distance are better explained by construal level theory. However, for specific dimensions, self-enhancement processes are more dominant. Temporal self-appraisal research has tended to use specific dimensions of self (for a description refer to section 4.1.2.), which may explain the consistent evidence for the pattern of temporal self-appraisal proposed by the theory. Alternatively, given that personality traits are

thought to be relatively unchanging, it may be that beliefs around the malleability of attributes may explain the findings. Future research would benefit from examining the specificity of attributes while controlling for implicit theories of change (see Ward & Wilson, 2015).

4.2.2 Phenomenal characteristics. Phenomenal characteristics are the sensory, contextual, emotional, and cognitive information associated with the mental representation of past or future events (D'Argembeau & Van der Linden, 2004). Research indicates that phenomenal characteristics moderate subjective temporal distance. Temporally close events have been found to have greater emotional intensity, contain more sensory and contextual details, and are associated with a stronger feeling of re-experiencing or pre-experiencing than more temporally distant events (D'Argembeau & Van der Linden, 2004; Van Boven, Kane, McGraw, & Dale, 2010). Similarly, positive events from both the past and future are rated higher on sensory imagery, vividness, sense of reliving or pre-experiencing and temporal closeness than negative events (D'Argembeau & Van der Linden, 2004, 2008; Rasmussen & Berntsen, 2013). As a result, positive events feel less temporally distant than negative events (Rasmussen & Berntsen, 2013). It is likely that self-enhancement motives are at least partly responsible for this effect as pride memories were associated with more details, considered more important and activated more frequently than shame memories only for those high in self-esteem and only for memories related to the self (D'Argembeau & Van der Linden, 2008). Therefore, phenomenal characteristics may be another possible means of manipulating subjective temporal distance for self-enhancement.

One of the most widely studied phenomenal characteristics is the perspective a person adopts when remembering or imaging an event. Nigro and Neisser (1983) discovered that individuals recall visual memories from either a first or third-person perspective, commonly referred to as *vantage point* or *vantage perspective*. When adopting a first-person perspective, individuals perceive the memory from their own eyes. When adopting a third-person perspective, people perceive the memory from the point of view of an observer. It has been consistently found that people view the near past from a first-person perspective while viewing the distant past from a third-person, observer-like perspective (Broemer et al., 2008; Libby & Eibach, 2011; Pronin & Ross, 2006; Stanley et al., 2017; Wilson & Ross, 2003). Similarly, distant future events tend to be viewed from a third-person or observer perspective, while near future events tend to be viewed from a first-person perspective and are more vivid (Hamilton & Cole, 2017; Macrae et al., 2015). Therefore, as per other phenomenal characteristics, vantage perspective can alter subjective temporal distance from past and future events.

There is evidence that the adoption of one vantage perspective over another reflects self-enhancement motives. Sanitioso (2008) randomly allocated participants to read one of two fictitious articles about the nature of introversion: one suggesting that introversion is conducive to success, and the other suggesting that extraversion is conducive to success. Following the manipulation, all participants were asked to recall two past introverted behaviours. Those who were induced to believe that introversion was conducive to success, tended to recall past introverted behaviours from a first-person perspective and as more subjectively recent than those who were induced to believe that extraversion was related to success. This study provides

evidence that vantage perspective is a means of manipulating subjective temporal distance for self-enhancement.

4.3 Summary

The self is not isolated in the present moment but is temporally extended. Temporal selves can be used to self-enhance. This chapter has reviewed one of the main theories in this area: temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001). Temporal self-appraisal theory is based on the observation that people are motivated to perceive the self as on an upward trajectory, continually improving over time. While the perception of improvement may be based upon fact, it tends to be exaggerated or even illusory. Temporal self-appraisal theory proposes that past and future selves are connected to the current self on a continuum of temporal proximity. Past and future selves that are temporally proximal can be incorporated into current self-appraisals and therefore tend to be evaluated more positively than those selves that are more temporally distant. This chapter has highlighted that the nature of the attributes being appraised influences the extent to which people use time for self-enhancement. Specifically, the pattern of proposed temporal self-appraisal tends to occur for attributes that are specific and perceived as important and malleable. This chapter has provided evidence that temporal self-appraisal theory is widely applicable across age and gender but with some differences cross-culturally.

An important assumption of temporal self-appraisal theory is that there is a difference between the actual passage of time and the subjective feeling of time and it is the subjective perception of temporal distance that is important in how people evaluate past and future selves. Wilson and Ross have created two methods to

manipulate subjective temporal distance: verbally reframing a timepoint (Wilson & Ross, 2001) and using different anchors on a timeline (Wilson, 2000). While manipulations checks have not always reached significance, both manipulations have been found to result in participants rating their past or future self more positively when it was perceived as temporally close compared with when it was experienced as temporally distant. This chapter drew upon research into cognitive processes to provide further possibilities for manipulating subjective temporal distance. There is evidence to suggest that subjective temporal distance can be manipulated by altering the construal level and phenomenal characteristics of the event being recalled or imagined. Overall, this chapter has emphasised that: the self incorporates temporal components; the appraisal of self over time tends to be self-enhancing in non-clinical populations; and subjective temporal distance can be manipulated for self-enhancement.

Chapter Five: Integration

The preceding chapters have reviewed the phenomenology, epidemiology, impact, and etiological models of depressive and anxiety disorders. It is evident that depressive and anxiety disorders are highly prevalent and have a significant impact upon the individual and society. The self is important in the phenomenology, aetiology and maintenance of psychopathology, and in particular depressive and anxiety disorders (Kyrios et al., 2016). Throughout the review of this literature, several points have become clear concerning the nature of the relationship between the self and depression and anxiety. Firstly, the self-concept is central to the cognitive models of depression and anxiety (Beck & Alford, 2009; Clark & Beck, 2010). Secondly, while CBT is associated with improvements in self-concept (e.g., Gregory & Peters, 2017), it does not take into account the multidimensional nature of the self (Clark, 2016). The self is a complex, multidimensional construct (Kyrios et al., 2016). Given this, researchers have been interested in understanding how self-structure may inform psychopathology (Bhar & Kyrios, 2016). Thirdly, theories of self-structure, such as self-complexity (Linville, 1985), self-discrepancy theory (Higgins, 1987) and possible selves (Markus & Nurius, 1986), demonstrate that self-structure is disrupted in depression and anxiety and provide examples of how to target self-structure effectively in therapeutic settings.

Depression and anxiety have been associated with maladaptive patterns of self-enhancement and self-protection. There is evidence to suggest that disruptions in self-enhancement and self-protection may have different psychological outcomes. Specifically low levels of self-enhancement appear to be related to depression and

high levels of self-protection related to anxiety. The temporally extended self incorporates self-representations from different times, including past selves, representations of who we were, and future selves, our ideas of who we might become (Moore & Lemmon, 2009). There is evidence in non-clinical populations that the temporally extended self is used for self-enhancement. Temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001) proposes that people are able to manipulate their subjective experience of time for self-enhancement. That is, people tend to evaluate past and future selves in a way that helps them to feel good about themselves as they are now. Given the self-enhancement and self-protection processes are disrupted in depression and anxiety, it is likely that maladaptive patterns of temporal self-appraisal are present in depression and anxiety. However, research has not yet examined this. Similar to how theories of self-complexity, self-discrepancy and possible selves have been applied therapeutically (e.g., King, 2001; Shahar, 2013; Vieth et al., 2003), the temporal self and temporal self-appraisal theory may be integrated into existing treatment and improve treatment outcomes.

This thesis examines the overarching hypothesis that maladaptive patterns of temporal self-appraisal are present in individuals with a depressive and/or anxiety disorder. This thesis has two main aims. The first aim of this thesis was to investigate the trajectory of the self in individuals with depression and anxiety. The second aim was to examine the role of subjective temporal distance in the appraisal of self over time. These aims were explored in the four papers presented in the next section.

Chapter Six: A narrative review of temporal self-appraisal in depression and clinical implications

6.1 Preamble

While there has been considerable research to support temporal self-appraisal theory in non-clinical populations (e.g., Wilson & Ross, 2001; Wilson et al., 2012), there is evidence that temporal self-appraisal processes differ for individuals diagnosed with a mental disorder (Brown et al., 2011; Dinos et al., 2005). However, no study to date has explored temporal self-appraisal in persons diagnosed with a depressive or anxiety disorder. A narrative review was conducted to integrate related theories and research and provide a theory of the pattern of temporal self-appraisal in depression. While initially this paper was to include both depression and anxiety, on review of the literature there was insufficient research on related-areas to propose a pattern of temporal self-appraisal in anxiety. Therefore, it was excluded from the paper.

This literature review, titled '*A narrative review of temporal self-appraisal in depression and clinical implications*' is currently under review with the Journal of Social and Clinical Psychology. The Author Indication Form detailing the nature and extent of the candidate and co-authors' contributions to this paper is included in Appendix 1. The manuscript presented below is formatted to be consistent with the requirements of Journal of Social and Clinical Psychology. The complete citation is as follows:

Mathews, S., Williams, B., Nedeljkovic, M. (under review). A narrative review of temporal self-appraisal in depression and clinical implications. *Journal of Social and Clinical Psychology*

**A narrative review of temporal self-appraisal in depression and clinical
implications**

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Abstract

Temporal Self-Appraisal Theory proposes that people manipulate their subjective experience of time for self-enhancement and perceive the self to be on a continual upward trajectory. There is evidence to suggest temporal self-appraisal is altered in people with schizophrenia, Post-Traumatic Stress Disorder and Body Dysmorphic Disorder. Despite the obvious conceptual links between temporality, the self, and depressive symptoms, little research has focussed on temporal self-appraisal in depression. The current review integrates a broad range of evidence to provide an overall picture of temporal self-appraisal in depression and presents a theory of the pattern of temporal self-appraisal in depression. Specifically, it is proposed that individuals with depressed mood perceive the past self to be better than the current self and have difficulties incorporating positive past events into current self-concept. The review describes how subjective temporal distance may be manipulated to achieve positive clinical outcomes and proposes directions for future research in this area.

Keywords: Self, Temporal self-appraisal, Temporally-extended self, Depression, Mood

Depression is a high prevalence mental disorder and has a significant impact upon the individual and society (Slade, Johnston, Oakley Browne, Andrews, & Whiteford, 2009). Depression has a well-known temporal component. Depression tends to be associated with past events, with a theme of loss (Eysenck, Payne, & Santos, 2006). The tendency to ruminate over these past events is a key feature of depression, with evidence that rumination plays a causal role in the maintenance of symptoms (for a review see Ehring & Watkins, 2008). Furthermore, there is evidence to suggest that depression is associated with an altered perception of temporal distance (Rinaldi, Locati, Parolin, & Girelli, 2017).

The self is central to understanding psychopathology, including the aetiology, presentation, maintenance, and treatment of psychological disorders (Kyrios et al., 2016). Disturbances to self-concept are a central characteristic of depression. Depression has long been known to be associated with disruptions in perceptions of the self, the world and the future (Beck & Alford, 2009) and a range of subjective experiences and emotions (e.g., guilt, shame, hopelessness) that threaten self-coherence and self-continuity (for a review see Luyten & Fonagy, 2016).

Research has typically examined time and the self separately, however, recent understandings emphasise that the self is temporal in nature. The temporally extended self incorporates self-representations from different times, including past selves (representations of who we were) and future selves (our ideas of who we might become; Moore & Lemmon, 2009). Comparisons between past, present and future selves elicit emotions (e.g., Demiray & Freund, 2017) and for this reason, the temporally extended self may be of particular relevance to depression.

Temporal Self-Appraisal Theory

Temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001) is currently a dominant theory concerning the temporally-extended self. Temporal self-appraisal theory begins with the premise that people are motivated to maintain a positive view of themselves (for a review of self-enhancement see Alicke & Sedikides, 2009). Temporal comparisons between past, present, and future selves are one way to achieve this goal. People are inclined to perceive the self on an upward trajectory, continually improving over time (for a review of self-improvement see Sedikides & Hepper, 2009). Similar to downward social comparisons people employ to feel good about themselves, people can feel more satisfied with the current self by comparing it with an inferior past self in a *past* temporal comparison (Wilson & Ross, 2000). While the perception of improvement may be based in fact, it is often exaggerated or even illusory (Wilson & Ross, 2001). As with the general optimism bias (Sharot, 2011; Weinstein, 1980), people believe they will be better in the future than they are currently (Wilson, Buehler, Lawford, Schmidt, & Yong, 2012). An upward future temporal comparison, comparing the current self with a superior future self, helps individuals to feel more satisfied with their current self.

Temporal self-appraisal theory (Ross & Wilson, 2002; Wilson & Ross, 2001) extends upon this idea that how we appraise our current selves is influenced by the appraisal of past and future selves by proposing that the psychological experience of temporal distance from, or closeness to, these past and future selves influences current self-appraisal. Specifically:

Psychologically proximal selves are likely to have a larger impact on current self-view than more subjectively remote selves in either temporal direction.

Temporal self-appraisal theory suggests that people can shift their appraisals of former and future selves, and can alter their subjective perception of time, in an effort to maintain and enhance positive self-regard (Peetz & Wilson, 2008, p. 3).

Past representations of the self that feel subjectively distant are viewed more negatively than past selves that feel closer to the present (Wilson & Ross, 2001). However, the recent past self cannot be perceived as overly negative as this has implications for the current self. Since the recent past self is incorporated into the current self and because the current self cannot significantly change in a short period of time, if the self is negative in the recent past, the current self becomes more negative. Similarly, people are motivated to evaluate future selves more favourably when they feel closer in time as the near future has more direct implications for current self-appraisal than future selves that feel more remote. The recent future self can be incorporated into the current self and people are able to “bask in projected glory” (Wilson et al., 2012, p. 342). However, it should be noted that people are unlikely to be motivated to perceive the distant future as negative because any immediate benefit this has to the current self would be offset by the prospect of a negative future. Conversely, people can create a more positive current appraisal by putting more subjective temporal distance between negative past self-elements, or shortening the perceived distance to “recent” (past or future) positive self-elements. In summary, temporal self-appraisal theory proposes that people are motivated to perceive the self on an upward trajectory over time and to alter the subjective temporal distance between the current and past/future selves to enhance current self-appraisal.

The Current Review

Despite the obvious conceptual links between temporality, the self, and depressive symptoms, little research has focussed on the temporally extended self in depression and even less on temporal self-appraisal in depression. The overarching goal of this paper was to integrate theories and research to provide an overall picture of temporal self-appraisal in depression and theory of patterns of temporal self-appraisal in depression. Given this, a narrative approach was considered most suitable. A semi-systematic search was conducted to capture a broad range of evidence. This evidence was synthesised to suggest that depression is associated with maladaptive patterns of temporal self-appraisal. The review provides recommendations for clinical practice, including possible techniques for manipulating subjective temporal distance to improve the mood of clients experiencing depression. Directions for future research are highlighted, including the evaluation of the proposed techniques in clinical populations.

Method

Relevant literature was identified by searching the online databases Scopus (Elsevier, 2017), EBSCOhost (EBSCO Industries, 2017) and PsycINFO (American Psychological Association, 2017). Online searches were conducted initially in January 2016 and updated in October 2017. The following search terms were used: “temporal self-appraisal”, “temporally-extended self”, “self in time”, “temporal self-comparison”, “temporal self”, “future self”, “past self”, “temporal construal”, “temporal distance”, “temporal horizon”, and “temporal framing.” Searches resulted in 2410 articles. A flexible inclusion criterion was adopted whereby literature that added theoretical understanding or empirical knowledge to temporal self-appraisal in

non-clinical and clinical populations was considered. Only literature published in English was included. There was no limitation on publication date. Following the initial search, the reference lists of relevant studies and articles that cited the included studies were examined. Screening of abstracts resulted in 239 references; these were read in full, with relevant information selected and subsequently integrated to the narrative presented in this review.

Operationalisation and Manipulation of Temporal Self-Appraisal

Research has typically measured temporal self-appraisal by asking for self-reports on how people perceive their past, current, and future selves on various attributes or qualities; including popularity, social skills, friendliness (Ross & Wilson, 2002), self-discipline, open-mindedness, common sense (Wilson et al., 2012), physical attractiveness (Haddock, 2006), morality (Escobedo & Adolphs, 2010; Stanley et al., 2017), and academic achievement (Peetz, Wilson, & Strahan, 2009) to name a few. Initial research used the actual passage of time to examine temporal self-appraisal (e.g., Wilson & Ross, 2001), however, as our understanding of temporal self-appraisal has developed, research has attempted to manipulate participants' subjective experience of temporal distance. Wilson and Ross (2003; 2011) have used two methods to manipulate subjective temporal distance.

The first uses a timeline as a spatial metaphor for time (e.g. Ross & Wilson, 2003; Wilson et al., 2012). Participants rate the temporal distance to a target event on the timeline. Subjective temporal distance to the target event is manipulated by the choice of the timeline anchors (see Figure 1). Wilson and Ross demonstrated that an event could be made to seem more recent by using a timeline anchor that was very far

away (the recent condition in Wilson, 2000), while an event could be made to seem more distant using a timeline anchor that was very close (the distant condition in Wilson, 2000). For example, in her preliminary study, Wilson (2000, p. 19) used a timeline with the end points of “Birth” and “Today” for participants allocated to the *recent* condition. For those in the *distant* condition, the timeline anchors spanned a shorter range of “Age 15” and “Today.” All participants were asked to mark the point on the line that represented “halfway through their final year of high school”. The logic of this manipulation is that an event appears more recent relative to your date of birth compared to your 15th birthday. The use of a timeline has been employed to manipulate the subjective temporal distance of past (Wilson, 2000) and future time points (Wilson et al., 2012), with manipulation checks indicating the efficacy of the manipulation and resulting in the effects of temporal self-appraisal.

The second method uses a verbal manipulation. Wilson and Ross (2001) have shown that subjective temporal distance can be manipulated by framing the description of an event. In their sixth study, all participants were asked to think of the same target time point of the beginning of the term. For those allocated to the recent condition, the time point was framed as the “recent past,” while those in the distant condition were asked to “think all the way back to” the time point (Wilson & Ross, 2001, p. 580). While a manipulation check of the perceived temporal distance found no significant difference between the *distant* and *recent* past groups, participants did evaluate their past selves less favourably when it was framed as distant, inferring that the subjective sense of time was manipulated through verbal reframing.

Distant Past:



Near Past:

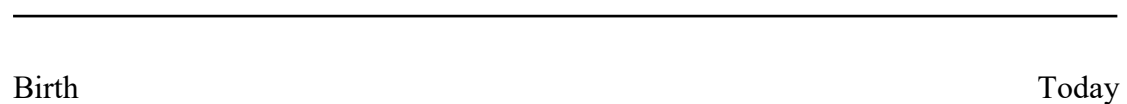


Figure 1. Example of a visual manipulation of subjective temporal distance.

Natural Moderators of Subjective Temporal Distance

While research has found methods of manipulating subjective temporal distance, there are naturally occurring factors that can influence a person's sense of subjective temporal distance. Nigro and Neisser (1983) discovered that individuals visually recall memories from either a first or third-person perspective, commonly referred to as vantage point or vantage perspective. When adopting a first-person perspective, individuals perceive the memory from their own eyes. When adopting a third-person perspective, people perceive the memory from the point of view of an observer. It has been consistently found that vantage point modulates temporal

distance, specifically that people view the near past/future from a first-person perspective while viewing the distant past/future from a third-person, observer-like perspective (Broemer, Grabowski, Gebauer, Ermel, & Diehl, 2008; Libby & Eibach, 2011; Pronin & Ross, 2006; Stanley et al., 2017; Wilson & Ross, 2003). The adoption of a first/third-person perspective may reflect self-enhancement motives. It was found that students who were induced to believe introversion was conducive to success, tended to recall past introverted behaviours from a first-person perspective and as more subjectively recent than those who were induced to believe that extraversion was related to success (Sanitioso, 2008). It can be inferred that people are motivated to incorporate positive aspects of their past self into current self-appraisals and do so by adopting a first person perspective to decrease subjective temporal distance.

There is evidence to suggest that the phenomenal characteristics of the recalled or anticipated event moderate subjective temporal distance. Phenomenal characteristics are thought to consist of the sensory, contextual and emotional details of the representation (D'Argembeau & Van der Linden, 2004). Temporally close events in both the past and the future contain more sensory and contextual details and a stronger feeling or re-experiencing or pre-experiencing than events that are temporally distant (D'Argembeau & Van der Linden, 2004). Furthermore, representations of both past and future positive events have been found to be associated with greater vividness and sense of re-experiencing or pre-experiencing (D'Argembeau & Van der Linden, 2004; Rasmussen & Berntsen, 2013). Taken together, it is possible that positive events have richer representations to reduce the perceived temporal distance from the present. If this is the case, the phenomenal

characteristics of past and future events could be manipulated to alter subjective temporal distance for self-enhancement.

Up to this point, this review has outlined temporal self-appraisal theory and presented evidence for this theory with non-clinical populations. The pattern proposed by temporal self-appraisal theory serves an important self-enhancement function that may maintain mood and wellbeing. Conversely, lack of a perceived upward trajectory may be associated with psychopathology.

Temporal Self-Appraisal in Psychopathology

There is some evidence that patterns of temporal self-appraisal are different for individuals diagnosed with a mental disorder, with different aspects of temporal self-appraisal shown to be affected in schizophrenia, Post-Traumatic Stress Disorder (PTSD) and Body Dysmorphic Disorder (BDD). For example, Dinos, Lyons, and Finlay (2005) conducted semi-structured interviews with adults diagnosed with schizophrenia and content analysed for patterns of temporal comparisons. It was found that the onset of schizophrenic symptoms created a reference point from which temporal comparisons were made (Dinos et al., 2005). The self prior to the onset of symptoms was appraised more positively than the current self. For example one participant stated that “Everything was very easy before I became ill” (Dinos et al., 2005, p. 2243). At the point of onset, self-appraisals decrease and then the upward trajectory resumes. That is, people tended to make comparisons with their past symptomatic self that helped them feel good about their current self, for example “When I first relapsed, I was in pieces. Since then I’m a lot better now” (Dinos et al., 2005, p. 2243). The authors noted that there were almost twice as many past

comparisons as future comparisons. It is suggested that this could be in response to the chronic nature of schizophrenia and the uncertainty about possible future relapses. However, participants made upward future comparisons in reference to other life domains such as work and relationships. People with schizophrenia may look forward to future events that are unrelated to their illness as a means of coping with current adversity.

Brown, Buckner, and Hirst (2011) discovered a similar theme when exploring temporal self-appraisals in individuals with a diagnosis of PTSD. Combat veterans, with and without PTSD, were asked to evaluate themselves on 10 attributes across three points in time: “as you are now and very recently (within the past two weeks); as you were back before your military service, at least 5 years prior to the military; and as you see yourself far into the future, at least 5 years from today” (Brown et al., 2011, p. 346). It was found that individuals with PTSD viewed the pre-trauma self more favourably than their current or future selves. This contrasted with individuals without PTSD who viewed their current self more favourably than their past self and their future self more favourably than their current self. Thus, the self was seen as improving over time. The authors argue that these findings highlight the importance of considering temporal maladaptive appraisals about the self in the maintenance of PTSD symptomatology.

The consistent finding between these studies is that the onset of symptomology creates a temporal landmark. A temporal landmark is any distinct event that stands out from everyday life. Peetz and Wilson (2013, 2014) examined temporal landmarks in non-clinical populations and found that people tend to use

temporal landmarks such as birthdays, New Year's Eve and other significant events to structure time. Their research found that temporal landmarks can help people to create separation between present and undesirable temporal selves. A different pattern can be seen in psychopathology. In schizophrenia (Dinos et al., 2005) and PTSD (Brown et al., 2011), the onset of mental illness creates temporal distance between the current self and the self prior to symptoms. Temporal self-appraisal helps explain how individuals view themselves in relation to their mental health over time.

There is also evidence to suggest that the past is perceived as the better than the present in psychopathology even when there is no clear onset or temporal landmark (Silver & Reavey, 2010). Eleven individuals diagnosed with BDD gave semi-structured interviews, including bringing and discussing photographs of themselves at different time periods, to understand how they perceived themselves over time (Silver & Reavey, 2010). Interviews showed a theme of discontinuity of the self over time, with participants referring to their past selves in third person. For example, a participant, when looking at a photograph of her younger self, commented: "I don't even know who that girl is. She looks nice, but that's not me" (Silver & Reavey, 2010, p. 1644). Participants expressed a desire to return to a time in the past that represented their ideal self. While indirectly this past self is the self before the onset of symptoms, it is not the symptom-free self they wish to return to per se, but the self in terms of appearance, purity, order and innocence. Participants described grieving and mourning for not only their past looks but their past self. The authors suggest that participants had constructed a fictional idealised past. When asked how they would like to be in the future, participants often referred to this idealised past self as their hope for the future.

In summary, there is evidence to suggest temporal self-appraisal is altered in schizophrenia, PTSD and BDD. In the case of schizophrenia, the onset of symptoms creates a temporal landmark, however, people are still able to self-enhance and perceive the self on an upward trajectory past this point. In PTSD, the trauma and onset of symptoms creates a temporal landmark. The self prior to trauma is perceived more positively than the current or future self but there is no evidence of an upward trajectory. Therefore, while the onset of mental illness may act as a temporal landmark, it also appears that deviations from typical temporal self-appraisal may reflect unhelpful cognitions characteristic of psychopathology. This is further supported by the finding that individuals diagnosed BDD, in which there were no clear temporal landmarks identified, wished to return to an idealised past self. While research has identified an altered self-trajectory in psychopathology, it is yet to manipulate subjective temporal distance. Examination of subjective temporal distance would solidify the argument for the role of maladaptive temporal self-appraisals in psychopathology and provide opportunity to modify these.

Temporal Self-Appraisal in Depression

Recent examinations of temporal self-appraisal in depression indicate a trajectory that places the current self in a negative light. Sokol and Serper (2017) found individuals with depressed mood perceived their current selves as deteriorating from their past selves of 10 years ago. Contrary to the notion that depressed individuals have negative expectations of the future (Beck & Alford, 2009), individuals with depressed mood were found to perceive their future self in 10 years time as improved from their current self but not significantly better than they were in

past, suggesting an idealisation of the past and a desire to recover a lost past self (Sokol & Serper, 2017). Sokol and Serper suggest that while individuals in a depressed mood may have hopeless expectations of the future, they are able to distinguish between hopelessness about future external outcomes and future personal improvement.

Depressive symptomology is associated with disturbances in the perception of subjective temporal distance. Greater depressive symptomology has been found to relate to feeling more temporally and psychologically distant from positive events (Janssen, Hearne, & Takarangi, 2015). This would indicate a failure of the normal integration of recent past successes into the current self. Janssen et al. (2015) found no association between depressive symptoms and psychological and temporal distance from negative events, which is consistent with the broader literature on Self-Discrepancy Theory (Higgins, 1989) in that depression is related to the failure to attain positive or desired outcomes. One mechanism that may create or maintain distance from past positive events in people with depression is the vantage perspective. There is evidence to suggest that the use of vantage perspective is maladaptive for those with depressed mood. Depressive symptomology was associated with the adoption of a third-person perspective to recall past positive events and thus it can be inferred that past positive aspects of the self are unable to be incorporated into current self-appraisals (Bergouignan et al., 2008).

Temporal Self-Appraisal in Depression-related Processes

To expand upon the research that examines temporal self-appraisal in depression directly, this review explored research on the role of temporal self-

appraisal in isolated processes that are implicated in depression, such as rumination and cognitive biases.

Ruminating on negative feelings has been found to be associated with a perceived congruency between past negativity and the present, thus resulting the perception of subjective recency of the negative feelings (McFarland, Beuhler, von Rüti, Nguyen, & Alvaro, 2007). In contrast, reflecting on negative feelings allowed individuals to distance themselves from the negativity and was associated with a growth trajectory typical of temporal self-appraisal.

There is a well-known association between depressive symptoms and cognitive biases (for a review see Gotlib & Joormann, 2010) and this appears to extend to temporal self-appraisal and the perception of subjective temporal distance. Longitudinal research has demonstrated a memory bias associated with depression that consists of retrospective overestimation of the frequency of positive past events compared with the actual frequency (Lotterman & Bonanno, 2014). This promotes unfavourable temporal self-appraisal, as a downward trajectory from the past to the present is perceived, regardless of their actual trajectory, which in turn increases distress.

Another well-known mood-related memory bias may influence the perception of subjective temporal distance. *The Mood Congruence Model* (Gebauer, Broemer, Haddock, & von Hecker, 2008) posits that mood congruence between the current and past selves should foster the feeling of subjective closeness while mood incongruence should elicit feelings of subjective distance. It has been found that individuals with

chronically low mood feel that a negative past self is more temporally recent than a positive past self due to the congruency with their current mood. In contrast, those with a chronically positive mood feel a positive past self to be more temporally recent than a negative past self in line with their current mood. Therefore, people with depression may perceive negative past selves as recent and relevant to the current self, while positive past selves are distant and distinct from the current self, increasing their level of distress.

In summary, the synthesis of the above research into temporal self-appraisal, depression and depression-related processes would suggest the presence of maladaptive patterns of temporal self-appraisal. Individuals with depressed mood have been found to overestimate the positivity of the past and perceive positive past events as temporally distant and difficult to incorporate to current self-concept. In contrast, rumination is associated with difficulty in placing negative feelings in the past and likely in distinguishing these feelings from the current self. People high in depressed mood perceive the past self as better than the current self and hope to return to this self again in the future. These findings on depression and temporal self-appraisal are consistent with the findings on temporal self-appraisal and BDD, in that, deviations from adaptive temporal self-appraisal is reflective of unhelpful cognitions characteristic of these disorders and supports the idea that temporal self-perception disturbance is a common process in psychological disorders.

Clinical Implications and Future Directions

The adoption of first or third person perspective may influence how clients perceive their trajectory of change during therapy. Libby, Eibach, and Gilovich

(2005) asked psychotherapy clients to recall their first treatment from either a first or third person perspective. It was found that participants who recalled their first day of psychotherapy from the third-person perspective perceived more change than those who were instructed to recall their first day from the first-person perspective.

Therefore, clinicians may periodically ask clients to reflect upon their progress from a third-person perspective to enhance the perception of change and in turn increased motivation and commitment to therapy.

As previously discussed, in non-clinical populations, positive events from both the past and future are rated higher on sensory imagery, vividness, sense of reliving or pre-experiencing and temporal closeness than negative events (D'Argembeau & Van der Linden, 2004; Rasmussen & Berntsen, 2013). Conversely, there is evidence to suggest that individuals with depressed mood tend to display maladaptive patterns of sense of reliving and adoption of vantage perspective (Bergouignan et al., 2008; Janssen et al., 2015). These patterns likely create/maintain distance from positive events and as such these positive aspects are unable to be incorporated into current self-appraisals. In a therapeutic setting, clients could be encouraged to disclose a high (low) amount of episodic detail and to adopt a first (third)-person perspective when retrieving memories to make positive (negative) events feel closer (more distant). For example, clinicians could elicit sensory details from positive memories but ask clients to recall negative memories from a third-person perspective and a more reflective stance. While several authors have made this suggestion (e.g. Bergouignan et al., 2008; Janssen et al., 2015; Sanitioso, 2008) it has yet to be empirically tested. It is recommended that future research evaluate the clinical efficacy of this intervention.

Temporal self-appraisal can be manipulated which suggest reciprocally that an intervention that manipulates temporal distance could be used to prevent a decrease in self-appraisal for individuals experiencing depression. An intervention could make past positive events feel temporally closer and therefore assimilated to the current self; and negative past events as temporally distant, contrasting with the current self (Gebauer et al., 2008). This, in turn, would increase positive affect and decrease negative affect (Demiray & Freund, 2017; McFarland & Buehler, 2012). This could be achieved through a simple verbal reframing or a visual timeline as per existing research (see Wilson & Ross, 2001 and Wilson et al., 2012 respectively). Future research could evaluate such manipulations in a clinical sample.

Depressive symptoms have long been known to be associated with an increase in the adoption of internal attribution for negative outcomes (Kuiper, 1978). Internal attributions have been found to be associated with feelings of temporal proximity while external attributions produced temporal distancing (Haddock, 2004). Taken together, these findings suggest that an internal attribution of a negative outcome may lead to the event feeling recent increasing the negative impact upon current self-concept and mood. Future research could explore this and possible associated clinical applications.

While there is an increasing amount of research into temporal self-appraisal with clinical populations such as schizophrenia (Dinos et al., 2005; Nieznanski, 2003; Raffard et al., 2016), PTSD (Brown et al., 2011) and BDD (Silver & Reavey, 2010), to the best of the authors' knowledge, there has been no study to date that has explored temporal self-appraisal with a population with a diagnosis of clinical

depression. Current research has tended to use self-report measures of depression and while levels of depression were varied (e.g., Lotterman & Bonanno, 2014), a clinical diagnosis of depression would provide support for existing research and enhance our understanding of temporal self-appraisal in more severe levels of depression.

Research into other mental disorders has suggested a role for temporal landmarks, with the onset of mental illness creating temporal distance between the current self and the self prior to onset (Brown et al., 2011; Dinos et al., 2005). It would be interesting to explore the role of temporal landmarks in depression, particularly as negative evaluations are so central to the symptomology. Traditional conceptualisations of depression distinguished between endogenous and exogenous depression (for a review see Maj, 2012). In exogenous depression, the trigger for depression could become a temporal landmark and therefore the self is perceived to be different from this point. In contrast, endogenous may not have a clear onset and people may understand the relationship between their self-concept and mental health differently. Future research may wish to pursue this avenue.

Conclusion

Independent lines of research into depression and temporal self-appraisal suggest patterns of temporal self-appraisal that are detrimental to current self-view. In particular, individuals with depressed mood have been found to overestimate the positivity of the past and find it difficult to incorporate positive past selves into current self-concept. The past self is perceived to be better than the current self but there is hope for the future self to return to the positive self of the past. There remains a considerable gap in the research on temporal self-appraisal in clinically diagnosed

depression, but the reciprocal relationship between appraisal and temporal distance, and in particular how temporal self-appraisal over time may be manipulated provides an interesting avenue for potential treatments for depression. This paper has suggested several interventions based in research findings, including manipulating subjective temporal distance to assist clients experiencing depression in incorporating past positive experiences into their current self-concept and to perceive improvement of the self over the course of therapy. Future research would benefit from evaluating these proposed applications and their therapeutic value.

Acknowledgements

The first author received support through an Australian Government Research Training Program Scholarship.

Conflict of Interest

None

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Chapter Seven: Patterns of temporal self-appraisal in psychopathology: Does symptom onset create a maladaptive temporal landmark in anxiety and depression?

7.1 Preamble

Given the paucity of research conducted into temporal self-appraisal in depression and anxiety, it was deemed first necessary to conduct a qualitative exploration. The findings of the narrative review informed the protocol for the qualitative study. The qualitative investigation, conducted in collaboration with Laura Abbey (MPsych candidate), enabled the exploration of the possible role of maladaptive temporal landmarks, which are typical of temporal self-appraisal in other forms of psychopathology.

The qualitative study, titled *'Patterns of temporal self-appraisal in psychopathology: Does symptom onset create a maladaptive temporal landmark in anxiety and depression?'* is currently under review with the Australian and New Zealand Journal of Psychiatry. The Author Indication Form detailing the nature and extent of the candidate and co-authors' contributions to this paper is included in Appendix 1. The manuscript, presented below, is formatted to be consistent with the requirements of the Australian and New Zealand Journal of Psychiatry. The complete citation is as follows:

Abbey, L., Mathews, S., Williams, B., & Nedeljkovic, M. (under review). Patterns of temporal self-appraisal in psychopathology: Does symptom onset create a maladaptive temporal landmark in anxiety and depression? *Australian and New Zealand Journal of Psychiatry*.

**Patterns of temporal self-appraisal in psychopathology: Does symptom onset
create a maladaptive temporal landmark in anxiety and depression?**

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Acknowledgements

The second author received support through an Australian Government Research Training Program Scholarship.

Conflict of Interest

None

Abstract

Objective: To investigate and compare patterns of temporal self-appraisal in anxiety and depression. Specifically, whether these parallel the self-enhancing perceptions of a continuous upward trajectory of self over time characteristic of non-clinical populations; or alternatively, are consistent with patterns found in other psychopathologies. Schizophrenia and posttraumatic stress disorder have previously been found to involve maladaptive temporal landmarks, which separate past selves preceding symptom onset from present and future selves, prompting comparisons detrimental to self-concept.

Method: A clinical sample of eight individuals diagnosed with an anxiety and/or depressive disorder participated in cross-sectional qualitative interviews exploring the intersection of their self-concepts and mental health perceptions across time. A directed content analysis was performed to identify themes in relation to participants' symptom profiles, revealing the patterns of temporal self-appraisal specific to anxiety and depression.

Results: Anxiety was typically viewed as “always” having been part of the self, allowing satisfaction with current identity and a hopeful outlook towards managing symptoms in future, based on previous progress in coping. In contrast, depression was generally described as having a sudden onset triggered by external stressors, disrupting sense of self and eliciting temporal comparisons detrimental to present self-view, as well as distress around the uncertainty of recovery.

Conclusion: Symptom onset appeared to create a maladaptive temporal landmark in depression but not anxiety. Ego-dystonic depression was interpreted to disrupt self-continuity over time, evoking dissatisfaction with current identity through unfavourable temporal comparisons. Meanwhile, ego-syntonic anxiety enabled self-

enhancing perceptions of personal growth, similar to the subjective upward trajectory of self typical of non-clinical populations. Implications for clinical interventions were considered; notably, that cultivating perspectives of improved coping over time may be beneficial to mental health.

Keywords

Self, time, temporal self-appraisal, anxiety, depression

Introduction

Self-concept in wellbeing and psychopathology

The self-concept is a complex and multidimensional mental representation, comprising collections of self-perceptions, beliefs, and evaluations, unified within a cohesive frame (Kyrios et al., 2016). It plays an important role in wellbeing, and disturbance to sense of self has been linked to psychopathology. Sense of identity involves a perception of the self through time, in an evolving narrative of one's life constructed from autobiographical experiences and predicted directions. Thus, self-appraisal includes evaluation of the temporally extended self, which incorporates representations of past and future selves, connected to the present self along a dimension of relative temporal proximity (Peetz and Wilson, 2008). Advancing understanding of how interruptions to the stability of self-concept over time impact psychological functioning could facilitate developments in the treatment of psychopathology (Kyrios et al., 2016).

Temporal self-appraisal theory

According to temporal self-appraisal theory, individuals can manipulate their subjective experience of time and evaluation of former and anticipated selves for the motive of self-enhancement (Peetz and Wilson, 2008); that is, the aim of maintaining the most favourable self-concept and positive affect possible (Alicke and Sedikides, 2009). In non-clinical populations, strong evidence supports a tendency to view the self as continually improving over time, even in the absence of actual advancement (Ross and Wilson, 2003). This perceived continuous upward trajectory of self is maintained by evaluating the current self more favourably than past selves, and future selves more favourably than the current self (Peetz and Wilson, 2008). This pattern is

modulated by subjective temporal distance, that is, the psychological experience of closeness to a particular time point, which although related to the actual passage of time, is malleable. Psychologically proximal selves are likely to be appraised more positively than remote selves in both temporal directions, given their greater implications for current self-view (Wilson and Ross, 2001; Wilson et al., 2012).

Temporal landmarks, defined as any distinct event that stands out from everyday life, such as personal or public events, life transitions, or calendar reference points, structure individuals' perceptions of time (Peetz and Wilson, 2013). When salient, they act as category boundaries between temporal selves, with those falling within the same category seen as similar, and those in separate categories contrasted. Individuals appear to use temporal landmarks to regulate connections to desired and undesired temporal selves, preferentially selecting intervening events, for example public holidays, between the present and future self when the latter is imagined to be negative rather than positive (Peetz and Wilson, 2014). This strategic yet unconscious tendency serves a self-protective function, by creating psychological separation from feared possible selves, thus shielding the current self from undesirable implications and facilitating favourable comparisons. This phenomenon is likely to occur in both temporal directions, in that individuals may also use landmarks as barriers between their current selves and troubling memories from the past, to reduce the impact of adverse life events. Creating a sense of psychological closure has been found to lessen emotional intensity related to negative experiences (Li et al., 2010). Conversely, difficulty manipulating subjective temporal distance for self-enhancement purposes is likely linked to increased psychological distress. Research on the relationship between

temporal self-appraisal and psychopathology has been limited, focusing mainly on psychosis and trauma.

Temporal self-appraisal in psychopathology

Research into temporal self-appraisal in clinical populations has revealed patterns inconsistent with self-enhancement, in that the onset of symptoms creates a maladaptive temporal landmark that threatens current self-view. Specifically, the self is perceived more favourably preceding symptom onset than in the present or future. Dinos, Lyons, and Finlay (2005) performed a content analysis on semi-structured interviews with individuals diagnosed with schizophrenia to explore temporal comparisons. The onset of psychotic symptoms created a new baseline for perceiving past selves, with different evaluations made before and after this point. The present self was viewed as inferior to the “healthy” self prior to symptom onset, yet improving relative to the more “ill” self immediately following this change. Future progress was predicted in occupational and social domains, however fear of relapse was common. While the superior valuations of remote compared to recent past selves contradicted typical subjective temporal distancing effects, participants’ patterns of temporal self-appraisal after schizophrenia onset indicate self-enhancing intent, as recent past selves were construed in ways that allowed more positive perceptions of present circumstances, as well as envisaging a better future. Relatedly, individuals with schizophrenia have displayed exaggerated optimism in imaging their future selves, in contrast to their self-defining memories revolving more around hospitalisation and stigmatisation of illness than past achievements (Raffard et al., 2016). This likely represents creation of an idealised potential future in the face of the adversity and disrupted sense of self characteristic of this chronic condition.

Traumatic events can be interpreted as distinctive landmarks in the lives of individuals experiencing posttraumatic stress disorder (PTSD), potentially becoming central to their posttraumatic identities and self-narratives. Brown, Buckner, and Hirst (2011) compared patterns of temporal self-appraisal in trauma-exposed combat veterans with or without diagnoses of PTSD. Individuals with PTSD viewed their pre-trauma selves more favourably than their present and anticipated selves, which did not differ in attribute ratings. This revealed a perceived decline in functioning since combat, and an expectation that this level would persist unchanged for at least 5 years. In contrast, those without PTSD considered themselves to be progressively improving over time, from pre-trauma, to current, to projected future selves, consistent with typical temporal self-appraisal patterns. These differential effects implicate dysfunctional trauma-related appraisals of temporal selves in the maintenance of PTSD. Additionally, evidence that more severe symptomatology is related to feeling psychologically closer to highly negative recalled events supports the idea that PTSD symptoms persist because the traumatic experience has become central to the individual's life story and sense of self (Janssen et al., 2015). Thus, in both schizophrenia and PTSD, symptom onset represents a maladaptive temporal landmark that impacts current self-appraisal by symbolically widening the temporal chasm between the present self and the idealised past self prior to mental illness. Similar patterns may occur in other psychological disorders, particularly those in which self-view is central to psychopathology, however this has not yet been investigated.

Temporal self-appraisal in anxiety and depression

Depression and anxiety disorders have received little attention in the temporal self-appraisal literature, despite their high prevalence (Slade et al., 2009) and characteristic disturbances to self-concept (Kyrios et al., 2016). Distorted negative cognitions regarding the self, world, and future, distressing emotions such as sadness, guilt, and hopelessness, and diminished self-efficacy are linked to the disintegrated sense of self experienced in depression. Anxiety involves hypervigilance to potential danger combined with an underestimation of personal coping abilities in particular domains (depending on the specific disorder), perpetuating dysfunctional views of the self as vulnerable, deficient, and incompetent. Typically, depression focuses on personal loss or failure, while anxiety focuses on threat and vulnerability (Eysenck et al., 2006).

Time plays a key role in these disorders. Depression is associated with negative events in the past, while anxiety is associated with negative events in the future (Eysenck et al., 2006). Repetitive negative thinking styles feature in both, in opposing temporal directions. Specifically, depression predominantly involves past-oriented rumination, while anxiety disorders are characterised by future-oriented worry (Ehring and Watkins, 2008). General predispositions towards time have been compared between the two through examination of subjective temporal distance from events 1 month ago and ahead (Rinaldi et al., 2017). The systematic tendency to perceive the future as psychologically closer than the past exhibited by the general population was found to be exaggerated in individuals with anxiety-related personality traits, whereas this temporal asymmetry drastically shrank in those with depression-related personality traits, who experienced past and future events as

equidistant from the present. The pessimistic outlook characteristic of depression, which involves lower positive, but not negative, future expectancies, may have induced distancing of the present self from hopeless prospects, counteracting the common bias and instead anchoring the self to the past. In contrast, anxious individuals' higher negative, but not lower positive, future expectancies likely prompted intensified anticipation of potential scenarios. Future-oriented thinking may be functional, because future events can be acted upon, whereas past events cannot. Representing the future as close may therefore prepare individuals to approach, avoid, or otherwise cope with upcoming events in a more concrete way.

Preliminary investigations into temporal self-appraisal in depression have indicated patterns detrimental to current self-view. Sokol and Serper (2017) found that individuals with depressed mood in a community sample evaluated their current selves less favourably than their former or projected selves 10 years ago or ahead, which they rated similarly. This group perceived deterioration from past to present in terms of their positive attributes, yet retained hope for future self-improvement back to a similar level to before, despite hopelessness about their life prospects in general. In contrast, euthymic individuals viewed themselves as continually advancing on a linear trajectory across time, consistent with self-enhancement bias. Lower levels of both perceived temporal growth and continuous identity, that is, degree of subjective unity of self over time, predicted symptom severity. Individuals experiencing depression were interpreted to feel disconnected from previous and anticipated selves, idealising a lost past self, which they desired to recapture in the future. Supporting this, greater depressive symptomatology has been found to relate to feeling more psychologically distant from previous positive events, reflecting difficulty identifying

with successes that could bring pride and happiness, which are instead credited to past self-concepts (Janssen et al., 2015). Moreover, longitudinal research has revealed a memory bias associated with depression that comprises retrospective overestimation of the frequency of recalled positive life events involving the self compared to their actual rate of occurrence (Lotterman and Bonanno, 2014). This prompts unfavourable comparisons between present and past selves, creating an impression of deterioration over time that increases distress. This trend occurs primarily in individuals low in trait self-enhancement, whereas high trait self-enhancers experience lower levels of depression, with symptomatology unrelated to memory discrepancies. While the above research has provided initial evidence linking depression to maladaptive comparisons of temporal selves, the potential involvement of temporal landmarks has not yet been investigated. Furthermore, to the authors' knowledge, no study to date has specifically examined temporal self-appraisal in anxiety disorders.

Research aims and design

The current research aimed to explore and compare patterns of temporal self-appraisal in anxiety and depression, addressing the gap in the literature relating to the former, and extending knowledge relevant to the latter. Specifically, the study investigated whether individuals diagnosed with anxiety or depression evaluate their temporal selves differently compared to the self-enhancing perceived continuous upward trajectory of self over time previously found in non-clinical populations (Ross and Wilson, 2003). Of particular interest was whether symptom onset creates a maladaptive temporal landmark that influences self-appraisal through temporal comparisons, with past selves prior to this point viewed more favourably than present

or future selves, as occurs in schizophrenia (Dinos et al., 2005) and PTSD (Brown et al., 2011).

These research questions were investigated through a cross-sectional qualitative exploration of the intersection of individuals' self-concepts and mental health perceptions across time in a clinical sample. An exploratory descriptive approach (Vaismoradi et al., 2013) using semi-structured interviews was chosen to elicit rich stories and meanings contextualised within the lives of individuals with anxiety and depression, reflecting their subjective experiences (Morse, 2008). A directed content analysis (Hsieh and Shannon, 2005) was conducted, informed by relevant concepts from the existing literature, including the potential impact of temporal landmarks (Peetz and Wilson, 2014).

Method

Participants

The sample comprised eight participants diagnosed with a current or lifetime anxiety or depressive disorder according to the Mini International Neuropsychiatric Interview, English Version 7.0.1 for DSM-5 (MINI; Sheehan et al., 1997). Specifically, inclusion was based on meeting diagnostic criteria for generalised anxiety disorder (GAD), social anxiety disorder (SAD), panic disorder (PD), major depressive disorder (MDD), or dysthymia. Table 1 shows participants' demographic information and diagnoses.

Table 1
Participant demographics and diagnoses according to the MINI

P	Gender	Age (years)	Current diagnoses	Lifetime diagnoses
1	Female	23	SAD, GAD, PD, MDD	
2	Male	31	Alcohol use disorder (mild)	PD, MDD, OCD*
3	Female	24	SAD, GAD	PD, MDD
4	Male	18	GAD	
5	Female	24	SAD	PD, MDD
6	Female	18	SAD, MDD	Anorexia nervosa*
7	Male	24	SAD, dysthymia, OCD	
8	Female	26	MDD, binge eating disorder	

Note. MINI = Mini International Neuropsychiatric Interview; P = participant number; SAD = social anxiety disorder; GAD = generalised anxiety disorder; PD = panic disorder; MDD = major depressive disorder; OCD = obsessive-compulsive disorder.
 *Participant reported prior diagnosis (MINI criteria for current diagnosis not met).

Six participants endorsed symptoms meeting criteria for diagnoses of both anxiety and depression, while Participant 4 did so for anxiety but not depression, and Participant 8 vice-versa. Those with both held varying perceptions of their primary diagnostic concerns. Participants 1, 2 and 3 predominantly identified with anxiety over depression, respectively reporting: “I get really anxious a lot of the time... I don’t really feel like I’m depressed”, “it’s mainly been anxiety but a couple of spells... where I’ve been depressed”, and “it’s more heavily anxiety, more so than depression”. In contrast, Participant 5 expressed greater concern about her depressive symptoms than anxiety and characterised her current mood in general as “sad and depressed”, while Participant 6 described “consistently feeling at least a bit down” with more prominent depressive than anxious symptomatology, and Participant 7 presented with observable symptoms of dysthymia including noticeably flat affect.

Fourteen volunteers were interviewed in total, however six were later excluded due to endorsing symptoms consistent with PTSD, psychotic disorders, or severe substance-related disorders. This was due to the previously established

involvement of temporal landmarks in PTSD (Brown et al., 2011), and the potential impact of psychotic symptoms or severe substance use on individuals' participation. Other comorbid diagnoses were not exclusion criteria.

Procedure/Materials

Recruitment involved advertisement through local mental health organisations, social media, and public advertising forums. Participants completed interviews involving diagnostic and qualitative components. The MINI (Sheehan et al., 1997) was used as a brief structured diagnostic interview to assess participants for anxiety or depressive disorders. Responses were coded by the first author and reviewed by the second author, both provisional psychologists, following which diagnoses were agreed upon for each participant. The semi-structured qualitative interview schedule (adapted from Dinos et al., 2005; see Table 2) consisted of open-ended questions relating to self-view, symptom onset and impacts, and expectations for the future.

Table 2

Qualitative interview schedule

Self	How would you describe yourself? How would others describe you? What do you like about yourself? What don't you like about yourself? Which areas do you value highly in life? How capable do you feel in these areas? In general are you satisfied with yourself? How would you like to be in the future? Do you think you will be the way you want? Where do you see yourself in the future?
Mental health	Tell me about your anxiety/depression. What problems do you experience as a consequence of your anxiety/depression? How long ago did your anxiety/depression first emerge? What do you think was the cause of your anxiety/depression? How do you feel now? What do you think about your anxiety/depression in the future? What do you expect to happen in the future? Do you think it will happen?

Interviews were conducted face-to-face or via telephone by the first author, under the supervision of the fourth author, a registered clinical psychologist. Each took approximately 1 hour and was recorded. Participants were compensated for their time with a low value department store voucher. The project was approved by the institutional ethics committee, in accordance with the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2015).

Data analysis

Qualitative interviews were transcribed verbatim by the first author, with six of the eight transcripts checked for accuracy by the second author. The data was interpreted through a systematic classification process of coding and identifying themes (Hsieh and Shannon, 2005), following steps outlined by Elo and Kyngäs

(2008) for deductive content analysis using an unconstrained categorisation matrix. After initial familiarisation with the transcripts, the first and second authors created an initial coding scheme guided by concepts from existing theory, which was revised and refined as analysis proceeded (Hsieh and Shannon, 2005). Transcripts were independently coded, then discussed, with agreement reached regarding discrepancies. A conceptual map was collaboratively created depicting the relationships between categories and subcategories. Relevant quotes were then extracted from each transcript and organised by category. The first author subsequently identified overarching themes running through the dataset related to participants' symptom profiles, revealing the patterns of temporal self-appraisal specific to anxiety and depression.

Results

The content analysis findings were categorised according to the temporal direction of self-appraisal, that is, evaluating past and future selves, creating comparisons with implications for the present self. Interpretation occurred within the context of participants' primary diagnostic concerns.

Past-oriented temporal comparisons: Beliefs about mental illness origins and implications for the current self

Table 3 displays key quotes reflecting each participant's understanding of their anxiety and depression as being either inherent to themselves, a change due to external provocation, or a combination of both

Table 3

Beliefs about anxiety and depression onset timing and causes

P	Always there	Triggered by an event/situation
1	It's something that I've always struggled with. I've always had a tendency to be a bit withdrawn or a bit stressed, but I think having those two big triggers really kicked it off.	Depression definitely emerged when I was 13... after a death in the family. When I moved out of home, that's when the anxiety started... I was 18.
2	I think it's genetic... I was born with it [anxiety and depression]. I think it kind of was a slow onset, like exponential. Even though it sort of like, registered at 12.	
3	I have always been a really shy person. It [anxiety] might have just been a build up, like a slow, progressive build up, and then at one point it peaked. Yeah I don't really know what's the cause of it.	When I had that big [panic] attack, I was at uni, and... those feelings of depression [emerged].
4		[Anxiety emerged] last year during VCE exams, I didn't cope properly... it was like too much on me.
5	I've been anxious for like my entire life.	The depression started at a particular event in the past. It was like, I guess, 2 years back from now... when my parents had a really bad fight, they were thinking of splitting.
6	Anxiety... that's just been something that has been with me my whole life. The anxiety... sort of built up over time due to my personality type I guess.	I feel like the depression did emerge... probably around when I was like 10 or 11. It was when I had an eating disorder also... Anxiety... was more prevalent from that point beyond. It's hard to pinpoint a specific thing that caused it. I guess... personality type, um, maybe some circumstances, like my parents, um, divorced... all like, bits and pieces have come together to kind of push it along.
7		[Anxiety and depression emerged] about 6 years ago. [Caused by] stressful environments.
8		The trigger [for depression] was a breakup. It was... 2 years and 9 months [ago]. It's definitely a big change.

Note. P = participant number.

Anxiety was generally considered an inherent predisposition, viewed as “always” having been part of the self. Five of the seven participants with anxiety diagnoses described having experienced lifelong anxiety. Participants 2, 3 and 6 identified parental mental illness, related their mental health issues to their genetics or personality type, and described their anxiety as having progressively increased over time, exacerbated by contextual influences such as family problems and university stress. For the latter two, this culminated in a peak in anxiety concurrent with the emergence of depression, as well as an eating disorder in Participant 6’s case. Participant 1 identified a historic tendency towards stress, with the transition of leaving home later sparking anxiety. Only Participants 4 and 7 described their anxiety as having a sudden onset due to external factors, with no predisposition. In the latter’s case this was simultaneous with depression’s emergence.

In contrast, depression was predominantly understood to be a reaction to external stressors. Six of the seven participants diagnosed with depression believed its onset to be a result of a specific trigger. Four recalled events involving interpersonal loss, including bereavement and parental or personal relationship breakdowns, while Participant 3 nominated circumstances of academic pressure, and Participant 7 did not disclose the nature of his triggering “stressful environments”. Only Participant 2 endorsed inherent depression (in addition to lifelong anxiety).

Participants who predominantly identified with anxiety endorsed feeling largely satisfied with themselves in the present; for example, Participant 4 affirmed, “I feel kind of happy with myself”. Their current self-evaluations were seemingly

bolstered by favourable past-oriented comparisons, as they perceived improvements in their psychological state and coping abilities from temporal selves that preceded particular calendar reference points. Participant 1 described her mental health as “definitely way better than it was like 6 months ago”, while Participant 4 reported “I started again this year, and I’m fine... doing much more with my life”. These may represent adaptive temporal landmarks that serve a self-enhancing function by separating the present self from troubling memories.

Conversely, participants whose key concern was depression expressed dissatisfaction with their present selves, especially in comparison to temporal selves prior to the onset of their depressive symptoms. For example, Participant 5 stated, “I’m mostly unsatisfied with how I am doing and my life”, recounting “I used to be [satisfied with myself], a few years back, but now I’m not... I used to be really different, and I really liked myself at that time”. Similarly, Participant 7 identified feeling “worse off than I was before”, and presently having “things I need to improve on”, implying a need to develop into a superior future self in order to feel satisfied. Depression onset appeared to create a maladaptive temporal landmark eliciting comparisons to previous selves detrimental to current self-view.

Future-oriented temporal comparisons: Expected mental illness trajectories and implications for the current self

Participants who predominantly identified with anxiety conveyed beliefs that their mental health issues would continue throughout their lives, with varying intensity across time. Given this, they adopted a management approach. Participant 1 stated, “It won’t ever completely go away” however “it’s manageable”. Participant 2

expressed the view that his mental health is “never really going to be perfect”, but believed “I’ll be able to manage it”. Participant 3 described herself as “always going to be a bit of a worrier” and aimed to “deal with it better”. Participant 4 anticipated that “there’ll be like a few times maybe” when his anxiety would recur during stressful periods, yet imagined that “the effect on me will still be the same, but what I do will be different... I’m not gonna let it control me”.

In contrast, participants with more depressive presentations held goals of recovery from symptoms, or of a past self. Participant 5 stated, “I would like to be the way that I was” and implied the need to “get rid of” her anxiety and depression. Participant 6 hoped to “see some sort of improvement in my, like, mental state”, as “I’m pretty sick of, um, feeling like this”. Participant 7 wanted to be “free from um, depressive and anxiety symptoms”. Participant 8’s aim for herself in the future was clear: “I definitely want to resolve the depression, and then move on with my life”.

Despite anticipating ongoing symptoms, predominantly anxious participants maintained a generally hopeful outlook regarding their future selves and psychological outcomes; for example, Participant 2 described himself as “very optimistic” about the future. Their confidence about refining their mental health management appeared to be based on their historical resilience being projected onto future challenges. Participant 1 related having “overcome some pretty shitty situations”, and despite feeling like “I don’t have everything down pat, like some days it’s still a bit of a struggle”, having confidence that “I’ve got a few techniques in place which work, that I can use to stop it getting really bad”. Participant 4 similarly articulated, “Now I know how to cope with it [anxiety]. So, I learnt from it”. These

temporal comparisons highlighting improvements in symptom management from past selves and predicting continued progress into the future combined to create a subjective upward trajectory of coping across time.

Participants more focused on depression conveyed greater uncertainty around reaching their aims of complete symptom elimination, and expressed accompanying distress. Participant 7 was notable for his pessimism in predicting, “I’ll probably keep experiencing it” and be “similar to where I’m at now” in future. While disclosing that she didn’t know whether her depression would resolve, Participant 8 stated, “I feel like crying”. Participant 5 articulated, “I’m really afraid... I don’t know how things are going to turn out”, and described, “I’m just trying to... not think that much about the future”. This reflected a common tendency amongst these participants to resort to avoidance or distraction in an apparent attempt to avoid the painful ambiguity surrounding the possibility of future recovery.

Discussion

Key findings

Distinct patterns of temporal self-appraisal with divergent implications for current self-concept were identified in anxiety and depression. Temporal self-appraisal in anxiety was found to parallel the pattern found in non-clinical populations (Ross and Wilson, 2003). Despite identifying with lifelong anxiety, participants perceived an upward trajectory of self across time that served a self-enhancing function. This was maintained through temporal comparisons highlighting improvements in coping from former selves, which were then projected forward in hopeful expectation of continually enhancing management of ongoing symptoms.

In contrast, depression was found to involve a pattern of temporal self-appraisal similar to those seen in schizophrenia (Dinos et al., 2005) and PTSD (Brown et al., 2011). Specifically, the onset of symptoms, perceived by participants to be triggered by external stressors, created a maladaptive temporal landmark separating preceding past selves from present and future selves, which were then viewed as inferior. Inconsistent with self-enhancement motives, this perspective elicited temporal comparisons detrimental to current self-concept. This pattern is consistent with previous research revealing the link between depressed mood and unfavourable evaluations of the present self in comparison to former and projected selves (Sokol and Serper, 2017).

These findings fit with existing knowledge of anxiety disorders and MDD; notably, the insidious development and chronic course of the former, and the episodic nature of the latter, with onset often precipitated by stressful life events (American Psychiatric Association, 2013). The fixation on bygone temporal landmarks seen here in depression, combined with cognitive avoidance of an uncertain future, contrasts the forward-looking preparation for potential threats through active development of coping strategies observed to accompany anxiety. This mirrors the differing temporal perspectives previously found in these disorders, with depression being past-oriented and anxiety being future-oriented in terms of associated negative events (Eysenck et al., 2006), repetitive negative thinking (Ehring and Watkins, 2008), and psychological closeness (Rinaldi et al., 2017).

Overarching themes identified as likely contributing factors to the distinct

patterns of temporal self-appraisal found in anxiety and depression included the ego-congruence of symptoms, meaning ascribed to events, and perceptions of personal growth. Self-incongruence, that is, the influence of unwanted, feared, or inconsistent aspects of the self, has previously been proposed to play a role in the etiology of emotional disturbance (Kyrios et al., 2016). Participants tended to view anxiety as ego-syntonic, and depression as ego-dystonic. The former was considered a lifelong part of the self, which participants could manage progressively better across time, allowing an empowering growth perspective. Meanwhile, the latter was inconsistent with self-concept, thus its onset appeared more distressing to participants, as it disrupted their sense of self. This contrast was encapsulated by Participant 5 describing the onset of depression as involving “a fateful series of events that changes your perception of life and yourself”, while viewing herself as “totally fine” prior to this, despite endorsing lifelong anxiety. Ego-syntonic anxiety seems to allow a subjective upward trajectory of self over time as occurs in non-clinical populations, whereas the onset of ego-dystonic depression creates a maladaptive temporal landmark disrupting the self-narrative of continuous improvement.

The meaning ascribed to events can play a role in the narrative construction of self over time (Silver and Reavey, 2010). Participants identified temporal landmarks in the course of both anxiety and depression, however these seemed to have more impact on self-concept in the latter. Adverse events appeared to have become central to the life stories of participants with predominantly depressive presentations, paralleling what occurs in PTSD (Brown et al., 2011). This was linked to self-deprecating temporal comparisons to an idealised, symptom-free past version of the self, and distressing uncertainty around recapturing it in future. Silver and Reavey

(2010) observed a similar phenomenon in individuals with body dysmorphic disorder, who defined their current selves in relation to a lost past self, which they both grieved and considered their ideal future self. Life events were interpreted to represent pivotal narrative moments that breached perceptions of self-continuity over time.

Contrastingly, participants with predominantly anxious presentations described challenging situations as leading to a peak in their existing anxiety, rather than a complete change to sense of self, and generally reported subsequent improvements in mental health and coping abilities. Perceptions of personal growth following negative life events, whether accurate or illusory, can function as a beneficial coping mechanism, by enhancing the current self and creating psychological distance from the event, thus alleviating associated emotional distress (McFarland and Alvaro, 2000). Taken together, these results are consistent with lower levels of both continuous identity and perceived temporal growth being associated with depression severity (Sokol and Serper, 2017). Thus, temporal landmarks may become maladaptive if they disrupt the subjective unity of self across time, whereas cultivating a perspective of improved coping over time may be beneficial to mental health outcomes.

Limitations and future research

Future research could extend the current study's insights into temporal self-appraisal in anxiety and depression by addressing certain limitations. The co-occurrence of anxiety and depression in six of the eight participants may have confounded examination of temporal comparisons unique to each disorder, thus investigating each separately could facilitate delineation of themes between the two.

However, high comorbidity is typical between anxiety and depressive disorders, so it is important that clinical research endeavours do not exclude comorbid cases (Brown et al., 2001).

This sample appeared relatively high functioning, particularly given participants' self-selection, thus it may not have been representative across the range of psychopathology severity. Interviewing samples experiencing greater functional impairment, such as inpatient populations, could clarify whether the identified temporal self-appraisal patterns are replicated in individuals with more severe anxious or depressive symptomatology.

Cultural contexts were not formally assessed, yet the majority of participants were of Australian descent, except for two who recounted relocating internationally. There is evidence that patterns of temporal self-appraisal are not universal; for example, discrepancies between past and present selves were not used for self-enhancement in a non-clinical sample of Japanese students (Ross et al., 2005). Future research may wish to explore possible cross-cultural differences in temporal self-appraisal in anxiety and depression.

Identifying themes traversing the qualitative, idiosyncratic stories of a relatively small number of participants represents an important initial step in building knowledge of temporal self-appraisal in anxiety and depression, which should be expanded upon in larger, quantitative studies to increase generalisability (Morse, 2008). Furthermore, longitudinal research could investigate the interrelationship between maladaptive temporal comparisons and the perpetuation of specific

psychopathologies, by tracking the development of self-construal patterns against the emergence of symptoms (Kyrios et al., 2016), and identifying factors predictive of recovery versus relapse. Additionally, exploring self-stories surrounding the typical onset order of anxiety disorders preceding MDD could enrich etiological models of emotional disorders based on the temporal progression from anxiety to depression (Brown et al., 2001).

Clinical implications

The current study provides a valuable extension to knowledge of temporal self-appraisal in psychopathology by revealing patterns specific to anxiety and depression. Anxiety was found to involve a self-enhancing perceived upward trajectory of self across time, similar to non-clinical populations (Ross and Wilson, 2003), while in depression, symptom onset created a maladaptive temporal landmark detrimental to present self-concept, as occurs in schizophrenia (Dinos et al., 2005) and PTSD (Brown et al., 2011).

Understanding how temporal self-appraisal influences the perpetuation of anxious and depressive symptomatology could lead to more effective clinical interventions. These findings indicate several potential targets for treatment that could promote adaptive self-enhancement. Firstly, the onset of ego-incongruent symptoms appeared to contribute to emotional disturbance by disrupting the continuity of self over time (Kyrios et al., 2016). This could be addressed by encouraging mindful acceptance of symptoms and defusion from narratives supporting a negatively evaluated conceptualised self (Harris, 2009), as well as fostering a sense of unity between temporal selves to incorporate fragmented parts of the temporally extended

self (Sokol and Serper, 2017). Secondly, a future-orientation appeared more functional (Rinaldi et al., 2017) than preoccupation with past temporal landmarks as central to an individual's life story, which tended to engulf identity (Silver and Reavey, 2010). Hence, psychological distancing through adoption of a broader temporal perspective could facilitate emotional coping with adverse events, reducing distress by highlighting their impermanence (Bruehlman-Senecal and Ayduk, 2015). Thirdly, developing self-narratives that emphasise personal growth beyond challenging life experiences could serve an adaptive function in response to temporal landmarks (McFarland and Alvaro, 2000). Cultivating a perspective of improving coping with psychopathology symptoms over time could support such self-enhancement efforts. Treatment effectiveness hinges on the ability to change dysfunctional self-concepts, otherwise only temporary symptomatic alleviation is likely (Kyrios et al., 2016). Thus, developing adaptive patterns of temporal self-appraisal is potentially a key change process in interventions for anxiety and depression.

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Chapter Eight: Temporal self-appraisal in depression and anxiety: A comparison between a clinical and non-clinical sample

8.1 Preamble

Following the qualitative study, the trajectory of the self was further examined through a longitudinal quantitative study. Participants with a depressive and/or anxiety disorders and individuals who did not meet criteria for any psychological disorder were asked to evaluate their current selves and how they expected themselves to be in four weeks time. Four weeks later, they were asked to evaluate their current self and their self of four weeks prior. This enabled comparisons between current and retrospective, and current and anticipatory self-evaluations.

The quantitative study, titled '*Temporal self-appraisal in depression and anxiety: A comparison between a clinical and non-clinical sample*' is currently under review with Clinical Psychology & Psychotherapy. The Author Indication Form detailing the nature and extent of the candidate and co-authors' contributions to this paper is included in Appendix 1. The manuscript, presented below, is formatted to be consistent with the requirements of Clinical Psychology & Psychotherapy. The complete citation is as follows:

Mathews, S., Williams, B., & Nedeljkovic, M. (under review). Temporal self-appraisal in depression and anxiety: A comparison between a clinical and non-clinical sample. *Clinical Psychology & Psychotherapy*.

**Temporal self-appraisal in depression and anxiety:
A comparison between a clinical and non-clinical sample**

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Acknowledgements

The first author received support through an Australian Government Research Training Program Scholarship.

Conflict of Interest

None

Abstract

Temporal self-appraisal theory proposes people perceive themselves as improving over time as a means of self-enhancement. The current longitudinal study examined patterns of temporal self-appraisal in individuals meeting criteria for a depressive and/or an anxiety disorder compared with healthy controls. Thirty-four participants who met criteria for a depressive and/or anxiety disorder and 109 healthy controls were asked to appraise themselves as they currently were and how they expected to be in four weeks time. Four weeks later, 20 participants who met criteria for a depressive and/or anxiety disorder and 62 healthy controls appraised themselves as they currently were and how they were four weeks ago (58% and 56% retention respectively). Similar to healthy controls, participants with a depressive and/or anxiety disorder perceived the self on an upward trajectory over time. This occurred in the absence of actual improvement, reflecting self-enhancing motives. Participants with a depressive and/or anxiety disorder had lower overall self-appraisals with evidence to suggest a stronger relationship between self-appraisal and depressive symptoms than anxiety symptoms. This highlights the need for therapy to target self-appraisals in anxiety and especially depression. Patterns of temporal self-appraisal may have a protective function in depression and anxiety that could be maximised in treatment.

Keywords: Self, Ego, Time, Depression, Anxiety, Affect, Mood

1 Introduction

The self-concept incorporates past, present and future representations of the self (Lazaridis, 2013). Temporal self-appraisal theory (Wilson & Ross, 2001) proposes that people strategically appraise these different representations of the self over time to self-enhance. People tend to evaluate past and future selves in a way that helps them to feel good about themselves as they are now, protecting against negative mood. Specifically, the self is perceived as on an upward trajectory, continually improving over time (Ross & Wilson, 2003). People tend to view themselves as better than their former selves (Wilson & Ross, 2001) and believe they will continue to improve into the future (Wilson, Buehler, Lawford, Schmidt, & Yong, 2012).

Research has examined temporal self-appraisal on both desirable and undesirable traits. There has tended to be no significant effect of the valence of attributes on self-appraisal and this has used as a justification for combining self-appraisal on both positive and negatively framed attributes into a single self-appraisal score (Wilson & Ross, 2001). However, there is no apriori reason that it is a unitary construct. In fact, there has been recent debate as to whether measures on similar constructs such as the Core Self-Evaluations Scale (Judge, Erez, Bono, & Thoresen, 2003) and the Rosenberg Self-Esteem Scale (Rosenberg, 1965) are unitary; with strong evidence to suggest positively and negatively worded items represent two unique but related factors (e.g., Arias & Arias, 2017; Gnambs, Scharl, & Schroeders, 2018).

While people can improve over time, evidence suggests a significant component of the perceived and anticipated improvement is illusory. Wilson and Ross

(2001) employed a longitudinal design to allow for comparisons between current and retrospective evaluations of the self. Twenty-eight university students rated their current self on seven traits. Two months later they rated their current selves and re-evaluated their past selves of two months prior on the same traits. It was found that participants derogated their past selves to enhance their current selves. The retrospective ratings were lower than the contemporaneous ratings two months prior, indicating that it was a *perceived* improvement rather than actual improvement. This tendency may serve an important self-enhancement function that may maintain mood and wellbeing.

1.1 Temporal self-appraisal and psychopathology

There is some evidence that temporal self-appraisal processes differ for individuals diagnosed with a mental illness. In schizophrenia (Dinos, Lyons, & Finlay, 2005) and Post-Traumatic Stress Disorder (PTSD; Brown et al., 2011) the onset of mental illness acts as a maladaptive “temporal landmark” (see Peetz & Wilson, 2013, 2014), creating temporal distance between the current self and the self prior to symptoms, with the self prior to the onset of symptoms being perceived more positively than current or future selves. Body Dysmorphic Disorder (BDD) generally lacks a clear onset, and yet individuals with BDD still tend to idealise their past selves and express a desire to return to how they were in the past (Silver & Reavey, 2010). Therefore, psychopathology may create temporal landmarks by which people make comparisons and it appears that deviations from typical temporal self-appraisal may reflect unhelpful cognitions.

No study to date has explored temporal self-appraisal in a population with a diagnosis of a depressive or anxiety disorder. This is surprising given the high prevalence and impact of depression and anxiety (Slade et al., 2009) and the significance of the self in the pathology, maintenance and treatment of these disorders (Kyrios et al., 2016). However, research using self-report measures of depression suggests that temporal self-appraisal differs for those with higher levels of depressed mood. Sokol and Serper (2017) examined temporal self-appraisal in individuals with severely depressed mood and with normal, non-depressed mood as classified by the Depression subscale of the Depression Anxiety Stress Scale-21 (Lovibond & Lovibond, 1995). Participants rated their current self, their self 10 years ago and how they expected to be in 10 years time. Consistent with previous research, those in the non-depressed group perceived themselves as improving over time from past, to present and into the future. As expected, those in the depressed group perceived their current selves as deteriorating from their past selves. However, contrary to the consistent finding that depressed individuals have negative expectations of the future (Beck & Alford, 2009), the depressed group tended to perceive their future self as improved from their current self. Sokol and Serper postulated that while depressed individuals may have hopeless expectations, they distinguish between hopelessness about future external outcomes and future personal improvement.

Anxiety has been found to be negatively associated with self-enhancement (Alicke & Sedikides, 2009). Previously examined conditions of schizophrenia, PTSD, BDD, and depressed mood in particular, have commonalities with anxiety and can present with anxious features. Taken together, it is likely individuals with anxiety disorders have similar patterns of temporal self-appraisal and perceive the past self as

better than the current self. In terms of future self-appraisal, a central tenet of cognitive models of anxiety is that the self is perceived as vulnerable to future danger and threat (Clark & Beck, 2010), with worrying about the future a common feature (Davey & Meeten, 2016). However, given that those with depressed mood distinguished between hopelessness of the future and perceptions of their future self, it may be that people experiencing anxiety distinguish between worry over negative future events and the self in the future.

1.2 The current study

The current study addresses a significant gap by exploring patterns of temporal self-appraisal in individuals meeting criteria for depressive or anxiety disorders. Specifically, the study compared patterns of temporal self-appraisal of individuals meeting criteria for a depressive or anxiety disorder and individuals who do not currently meet criteria for a psychological disorder. Depression and anxiety were studied together, recognising that these two conditions have high levels of comorbidity (Hirschfeld, 2001; Kaufman & Charney, 2000). Based upon previous research into self-reported depressed mood and temporal self-appraisal (Sokol & Serper, 2017), it was expected that those with a depressive and/or anxiety disorder would perceive the current self as deteriorating from the past self, but appraise the future self more positively than the current self. It was expected that this would be reflective of the perception of deterioration or improvement and not reflective of actual reported deterioration or improvement. This study explored the possibility that depressive and anxiety symptoms relate differently to aspects of temporal self-appraisal. Given the questionability of the assumption that temporal self-appraisal is a unitary construct, this study differentiates temporal self-appraisal by valence and

explored the valence of attributes on temporal self-appraisal and possible relationship with depression/anxiety.

2 Materials and Methods

2.1 Design/Procedure.

The study adopted a longitudinal design, with measurements taken at two time points. At Time 1, participants completed a diagnostic interview, either face-to-face or via telephone, and an online survey. Four weeks later (Time 2), participants completed a follow-up online survey. This design allowed for comparisons between current and retrospective, and current and anticipatory self-evaluations. The project was approved by the Swinburne University of Technology Human Research Ethics Committee, in accordance with the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2015). Materials were presented in the order described below.

2.2 Materials

2.2.1 Time 1.

Three provisional psychologists in their 6th year of training and a psychology honours student administered the Mini International Neuropsychiatric Interview, Version 7.0.1 (MINI 7.0.1; Sheehan, 2016) to participants under the supervision of a clinical psychologist. The MINI 7.0.1, a brief structured diagnostic interview for the major psychiatric disorders in DSM-5, was used to assign participants to the control or clinical group (mental health condition).

Participants reported their age and gender. Unless otherwise stated, the following scales did not contain any reverse coded items. Subscale and scale totals were summed; with higher scores reflecting higher levels of the phenomenon.

2.2.1.1 Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988; PANAS) comprises two 10 item subscales: positive and negative affect. Participants rated the extent to which they were feeling each affect in the present moment on a five-point scale (1 = *very slightly or not at all* to 5 = *extremely*).

2.2.1.2 The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) measured participants' overall satisfaction with their lives. Participants rated the extent to which they agreed with each statement on a seven-point scale (1 = *strongly disagree* to 7 = *strongly agree*).

2.2.1.3 Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995) comprises three 14 item subscales: depression, anxiety and stress. Participants rated on a 4-point scale how much the statement applied to them over the past week (0 = *never* to 3 = *almost always*).

2.2.1.4 Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a measure of trait worry. Participants rated the 16 items on a 5-point scale based upon how typical each statement was of them (1 = *not typical of me* to 5 = *very typical of me*). Five negatively worded items were reverse coded prior to summing scores.

2.2.1.5 Current Self-Appraisal. This task was adapted from Wilson and Ross (2001) and Wilson, Buehler, Lawford, Schmidt, and Yong (2012).

Participants were asked to rate the extent to which they currently see themselves, relative to their peers, on five positive (self-confident, socially skilled, fun, easy going and independent) and five negative attributes (dishonest, rude, dull/boring, narrow minded and immature). A sliding scale ranging from 0 = *much worse than most* to 100 = *much better than most* was used. Positive and negative attributes scores were summed separately.

2.2.1.6 Future Self-Appraisal. This is task was the same as the current self-appraisal task, except that participants were asked to rate their expected future self of four weeks hence.

2.2.2 Time 2.

Participants completed the PANAS, SWLS, DASS, PSWQ and Current Self-Appraisal as per Time 1.

2.2.2.1 Past Self-Appraisal. This was identical to the current self-appraisal task, except that participants retrospectively rated their past self of four weeks prior.

2.3 Participants.

Participants were first year undergraduate students and members of the general public who contacted the researchers in response to advertisements through social media and public advertising forums. Student participants received

course credit for participation, while other participants received a small-value department store voucher for completing each time point.

Twenty-three people were excluded for meeting criteria for a psychotic disorder, PTSD or Severe Substance Use Disorder, or presenting with high suicidality. In the case of a psychotic disorder and PTSD, these participants were excluded to avoid conflating results. Participants with Severe Substance Use Disorder or high suicidality were excluded to protect participant safety.

The final sample at Time 1 comprised 143 participants (34 men), aged 18 to 71 years ($M = 31.13$, $SD = 11.16$). The control group comprised 109 participants who did not meet criteria for any psychological disorder (24 men, aged 18-71 years, $M = 32.95$, $SD = 11.66$). The clinical group comprised 34 participants who met criteria for a depressive, an anxiety disorder or both (10 men, aged 18-49 years, $M = 25.29$, $SD = 6.71$). Participants in the clinical group had significantly lower wellbeing and higher symptomology than those in the control group, corroborating results of the diagnostic interview (see supplementary materials).

Eighty-two participants (57% retention, 25 men), aged 18 to 71 years ($M = 31.38$, $SD = 10.94$), were retained at Time 2. Fifty-six per cent of the control group were retained (19 men, aged 18-71 years, $M = 33.34$, $SD = 11.26$) and 58% of the clinical group were retained (6 men, aged 18-49 years, $M = 25.30$, $SD = 7.16$). There was no significant difference between those who completed only Time 1 and those who completed both timepoints. Participants' reported wellbeing and symptoms did

not significantly change between Time 1 and 2 indicating the group classification was still appropriate at Time 2 (see supplementary materials).

3 Results

Descriptive statistics are given in the supplementary materials. The results are presented as follows. The first section describes analyses testing the hypothesis that those in the clinical group would exhibit different patterns of temporal self-appraisal than those in the control group and that any differences over time are reflective of the perception of change rather than actual change. The next section outlines the explorations of the relationship between symptoms and self-appraisal. Finally, the results exploring differences between positively and negatively framed attributes are presented.

3.1 Temporal Self-Appraisal

To test the hypothesis that the trajectory of the self over time would differ between mental health condition, four mixed-design analyses of variance were conducted: a 2 (Current and Future Self-Appraisal on Positive Attributes) by 2 (control/clinical group); a 2 (Current and Future Self-Appraisal on Negative Attributes) by 2 (control/clinical group); a 2 (Current and Past Self-Appraisal on Positive Attributes) by 2 (control/clinical group); and a 2 (Current and Past Self-Appraisal on Negative Attributes) by 2 (control/clinical group). The Greenhouse-Geisser correction was used for all within-subjects analyses. As displayed in Table 1, across the four ANOVAs, there was a significant main effect of temporal direction, with participants reporting higher positive and lower negative ratings at Time 2. There

was a significant main effect of mental health condition across the four analyses, with the clinical group having lower overall self-appraisal. However, contrary to expectations, there was no significant interaction between temporal direction and mental health condition. As can be seen in Figures 1 and 2, the trajectory of the self over time is similar for the control and clinical groups; both groups perceived themselves to be improving over time. There was no significant difference between current self-appraisal at Time 1 and Time 2 on both positive attributes ($t(81) = .73$, $p = .46$) and negative attributes ($t(81) = 1.90$, $p = .06$) consistent with the hypothesis that difference in self-appraisal cannot be attributed to actual improvement.

Table 1
Mixed ANOVAs Comparing Self-Appraisal over Time by Mental Health Condition

		<i>F</i>	<i>p</i>	<i>partial</i> η^2
Future Self-Appraisal by Current Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	36.36 ^a	<.001	.21
	Main effect of Mental Health Condition	47.61 ^a	<.001	.25
	Interaction	1.62 ^a	.21	-
Future Self-Appraisal by Current Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	39.05 ^a	<.001	.22
	Main effect of Mental Health Condition	7.48 ^a	.01	.05
	Interaction	0.72 ^a	.40	-
Past Self-Appraisal by Current Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	9.30 ^b	.003	.10
	Main effect of Mental Health Condition	37.67 ^b	<.001	.32
	Interaction	0.40 ^b	.53	-
Past Self-Appraisal by Current Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	0.05 ^b	.83	-
	Main effect of Mental Health Condition	17.31 ^b	<.001	.18
	Interaction	1.65 ^b	.20	-

Note. ^a = $df1=1, df2=141$

^b = $df1=1, df2=80$

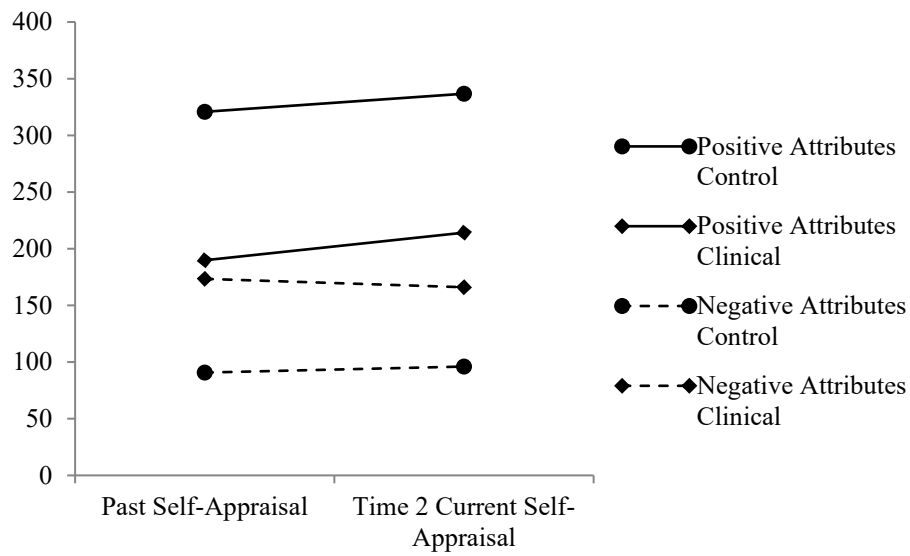


Figure 1. Mean Past and Current Self-Appraisal at Time 2 by Mental Health Condition.

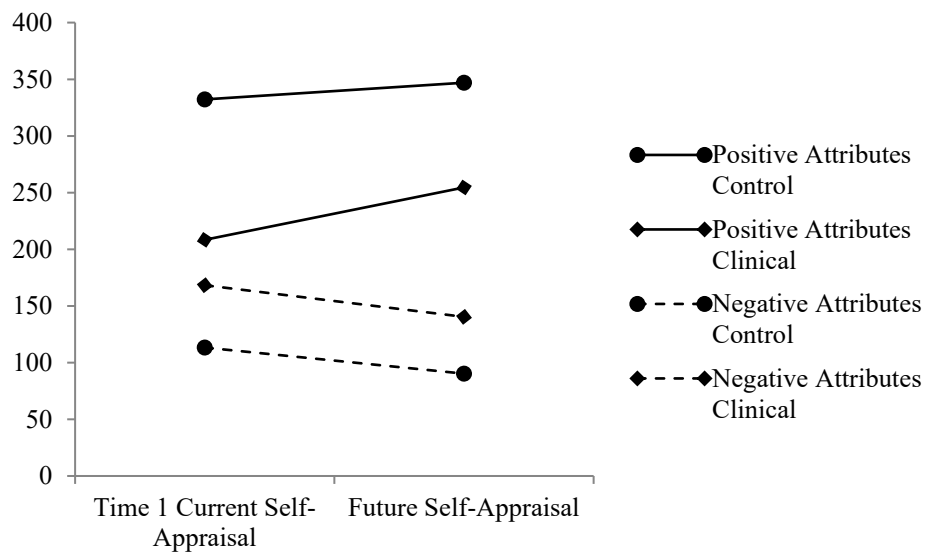


Figure 2. Mean Future and Time 1 Current Self-Appraisal by Mental Health Condition.

3.2 Self-Appraisal and Depression and Anxiety Symptoms

To explore the relationship between relative depressive and anxiety symptoms and participants' self-appraisals, eight standard regressions were performed; one for each temporality of self-appraisal across both positive and negative attributes. The results of the regression models, presented in Table 2, indicate all models significantly predicted self-appraisal.

Table 2
Regression Models, with Depression and Anxiety Symptoms as the Independent Variables

Dependent variable	<i>F</i>	<i>p</i>	<i>R</i> ²
Time 1			
Positive Current Self-Appraisal	26.13 ^a	<.001	.27
Negative Current Self-Appraisal	11.55 ^a	<.001	.14
Positive Future Self-Appraisal	15.16 ^a	<.001	.18
Negative Future Self-Appraisal	12.84 ^a	<.001	.16
Time 2			
Positive Current Self-Appraisal	9.48 ^b	<.001	.19
Negative Current Self-Appraisal	4.24 ^b	.02	.10
Positive Past Self-Appraisal	11.81 ^b	<.001	.23
Negative Past Self-Appraisal	4.46 ^b	.02	.10

Note. Time 1 *n* = 143, Time 2 *n* = 82

^a = *df*₁=2, *df*₂=140

^b = *df*₁=2, *df*₂=79

The regression parameters presented in Table 3 show that the depression parameter was larger than the anxiety parameter for all models. However, only the depression parameter reached significance and then only in some models. Depression significantly contributed to the models for both positive and negative self-appraisals at Time 1 and Positive Current Self-Appraisal at Time 2 but did not reach significance for the models for other self-appraisals at Time 2. This may be due to the smaller sample at Time 2.

3.3 Valence of Attributes

Four within subjects ANOVAs were performed comparing participants' responses on the positive attributes and negative attributes, which were first recoded so scores were in the same direction as the positive attributes, for: Time 1 Current Self-Appraisal, Future Self-Appraisal, Time 2 Current Self-Appraisal and Past Self-Appraisal. The results displayed in Table 4 show a significant effect of valence, with participants responding more strongly to negative attributes than positive attributes for each of the self-appraisals.

Table 3
Regression Statistics, with Depression and Anxiety Symptoms as the Independent Variables

Dependent Variable		<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Time 1						
Positive Current Self-Appraisal	Constant	357.33	9.91		36.07	<.001
	Depression	-24.05	8.63	-.32	-2.79	.01
	Anxiety	-18.91	9.58	-.23	-1.97	.05
Negative Current Self-Appraisal	Constant	86.21	9.61		8.97	<.001
	Depression	30.41	8.37	.46	3.64	<.001
	Anxiety	-8.22	9.29	-.11	-.89	.38
Positive Future Self-Appraisal	Constant	373.97	11.29		33.14	<.001
	Depression	-.26.43	9.83	-.33	-2.69	.01
	Anxiety	-9.7	10.91	-.11	-.89	.38
Negative Future Self-Appraisal	Constant	6.81	.54		12.54	<.001
	Depression	1.74	.47	.46	3.67	<.001
	Anxiety	-.37	.53	-.09	-.70	.49
Time 2						
Positive Current Self-Appraisal	Constant	354.50	15.15		23.39	<.001
	Depression	-.22.02	8.73	-.38	-2.52	.01
	Anxiety	-4.82	9.82	-.07	-.49	.62
Negative Current Self-Appraisal	Constant	85.10	13.19		6.45	<.001
	Depression	12.37	7.60	.26	1.62	.11
	Anxiety	3.46	8.54	.07	.41	.69
Positive Past Self-Appraisal	Constant	345.92	15.53		22.28	<.001
	Depression	-.17.44	8.94	-.29	-1.95	.06
	Anxiety	-15.29	10.06	-.23	-1.52	.13
Negative Past Self-Appraisal	Constant	81.65	13.21		6.18	<.001
	Depression	11.55	7.61	.24	1.52	.13
	Anxiety	5.04	8.56	.09	.59	.56

Note. Time 1 *n* = 143

Time 2 *n* = 82

Table 4
Within-subject ANOVAs comparing Self-appraisal on Positive and Negative Attributes

	<i>M(SD)</i> <i>for</i> <i>Positive</i> <i>Attributes</i>	<i>M(SD)</i> <i>for</i> <i>Recoded</i> <i>Negative</i> <i>Attributes</i>	<i>N</i>	<i>F</i>	<i>p</i>	<i>partial</i> η^2
Time 1						
Current Self-Appraisal	303.81 (85.71)	387.72 (76.57)	143	118.28 ^a	<.001	.45
Future Self-Appraisal	329.50 (91.89)	410.01 (74.30)	143	105.76 ^a	<.001	.43
Time 2						
Current Self-Appraisal	306.82 (97.73)	386.91 (80.36)	82	61.62 ^b	<.001	.43
Past Self-Appraisal	288.82 (102.48)	389.12 (80.73)	82	77.08 ^b	<.001	.49

Note. ^a = *df*₁=1, *df*₂=142

^b = *df*₁=1, *df*₂=81

To explore whether this valence effect interacted with mental health condition, four mixed ANOVAs were conducted: a 2 (valence of current self-appraisal at Time 1) by 2 (control/clinical group) ; a 2 (valence of future self-appraisal) by 2 (control/clinical group); a 2 (valence of past self-appraisal) by 2 (control/clinical group); and a 2 (valence of current self-appraisal at Time 2) by 2 (control/clinical group). The Greenhouse-Geisser correction was used for all within subjects analyses. ANOVA results are displayed in Table 5, and mean self-appraisal by valence of attributes and mental health condition presented in Table 6.

Table 5

Mixed-Design ANOVAs comparing Self-Appraisal on Positive and Negative Attributes by Mental Health Condition

		<i>F</i>	<i>p</i>	<i>partial</i> η^2
Time 1				
Valence of Current Self-Appraisal by Mental Health Condition	Main effect of Valence	135.55 ^a	<.001	.49
	Main effect of Mental Health Condition	40.60 ^a	<.001	.22
	Interaction	14.06 ^a	<.001	.09
Valence of Future Self-Appraisal by Mental Health Condition	Main effect of Valence	117.00 ^a	<.001	.45
	Main effect of Mental Health Condition	26.75 ^a	<.001	.16
	Interaction	11.17 ^a	<.001	.07
Time 2				
Valence of Current Self-Appraisal by Mental Health Condition	Main effect of Valence	65.20 ^b	<.001	.45
	Main effect of Mental Health Condition	33.44 ^b	<.001	.30
	Interaction	5.15 ^b	<.001	.06
Valence of Past Self-Appraisal by Mental Health Condition	Main effect of Valence	73.85 ^b	<.001	.48
	Main effect of Mental Health Condition	46.02 ^b	<.001	.37
	Interaction	3.40 ^b	.07	-

Note. ^a = *df*₁=1, *df*₂=141

^b = *df*₁=1, *df*₂=80

As shown in Table 5, there was a significant interaction between valence and mental health for Current Self-Appraisal at Time 1, and both Future Self-Appraisal and Current Self-Appraisal at Time 2: those in the clinical group responding more

strongly to negatively phrased attributes compared with participants in the control group. While the interaction between valence and mental health did not reach significance for Past Self-Appraisal, the same pattern of means was observed in that the clinical group responded more strongly to negatively phrased attributes compared ($\Delta = 136.80$) with participants in the control group ($\Delta = 88.53$).

Table 6

Means of Positive and Recoded Negative Attributes by Time, Temporal Frame and Mental Health Condition

Self-Appraisal	Valence	Control	Clinical
Time 1			
Current Self-Appraisal	Positive Attributes	329.15 (6.98)	222.59 (12.50)
	Negative Attributes	397.60 (7.16)	356.06 (12.82)
		<i>n</i> = 109	<i>n</i> = 34
Future Self-Appraisal	Positive Attributes	351.94 (7.94)	257.56 (14.21)
	Negative Attributes	418.34 (7.00)	383.32 (12.53)
		<i>n</i> = 109	<i>n</i> = 34
Time 2			
Current Self-Appraisal	Positive Attributes	336.71 (10.50)	214.15 (18.48)
	Negative Attributes	403.98 (9.51)	334.00 (16.75)
		<i>n</i> = 62	<i>n</i> = 20
Past Self-Appraisal	Positive Attributes	320.76 (10.92)	189.80 (19.22)
	Negative Attributes	409.29 (9.25)	326.60 (16.29)
		<i>n</i> = 62	<i>n</i> = 20

Note. Std. Error in parenthesis.

4 Discussion

The current study identified patterns of temporal self-appraisal in individuals meeting criteria for a depressive and/or anxiety disorder compared with those not meeting criteria for any psychological disorder. Consistent with previous research (Wilson & Ross, 2001; Wilson et al., 2012), those in the control group perceived the self as improving over time. As hypothesised, those in the clinical group expected the self to be better in the future. This suggests that individuals with depression/anxiety distinguish between hopelessness/worry about the future and perceptions of the future self. Contrary to expectations, those in the clinical group perceived improvement of the current self relative to the past self. There was no difference between appraisals of the current self between the two study time points, suggesting that the perception of improvement is not reflective of actual improvement. The clinical group reported overall lower self-appraisal, with this relationship stronger for depressive compared with anxious symptoms.

Surprisingly, the current study found participants with a depressive and/or anxiety disorder perceived improvement from the past to the current self. This could be understood as reflective of the time periods employed. The current study asked participants to appraise their past self of four weeks ago, at which point they were experiencing depressive and/or anxiety symptoms. This differs from previous research, which explicitly referred to a time *prior to the onset of symptoms* or a considerable time past (e.g., 10 years), which might predate symptom onset (Brown et al., 2011; Dinos et al., 2005; Silver & Reavey, 2010; Sokol & Serper, 2017). It is likely the onset of symptoms creates a maladaptive temporal landmark that people use to frame unfavourable comparisons between past, non-symptomatic selves and the

current self. However, our study shows when comparing the past symptomatic self and the current self, people perceive improvement. Future research could study whether symptom onset in depressive and anxiety disorders creates a maladaptive temporal landmark and how this affects the perception of self and its trajectory over time.

Participants with a depressive and/or anxiety disorder reported more negative self-appraisal. Upon examination, it was found that only depressive symptoms were significantly associated. This likely reflects differences between depression and anxiety in the perception of the self. People with an anxiety disorder perceive the self as vulnerable and weak (Clark & Beck, 2010), while self-criticism and a negative, inferior view of the self are core features of depressive disorders (Beck & Alford, 2009). In the current study, participants were asked to rate themselves relative to their peers and this may have activated the view of the self as inferior in those experiencing higher levels of depressive symptoms and resulted in lower self-appraisal.

There was a significant effect of the valence of attributes. There may be two distinct factors of positive and negative self-appraisal. These could reflect the difference between self-enhancement and self-protection. The self-enhancement system regulates the basic need of feeling good and viewing ourselves positively, while self-protective processes are elicited when feedback threatens the self to below tolerance point (Alicke & Sedikides, 2009). It is possible that self-appraisal on positive attributes reflects self-enhancement motives while self-appraisal on negative attributes reflects self-protection motives, with the participants in this study engaging more in self-protection. The finding that the clinical group had stronger effects of

valence lends support to this possibility, as depression and anxiety have known associations with negativity bias and sensitivity to threat (Beck & Alford, 2009; Clark & Beck, 2010). Future research should explore the possibility of two factors of self-appraisal representing self-enhancement and self-protection, while controlling for attribute content (Pahl & Eiser, 2005).

A limitation of the current study is that the clinical sample reported only mild to moderate severity for depression and anxiety on the DASS (Lovibond & Lovibond, 1995) and was self-selected in volunteering for participation. This suggests that participants were relatively high functioning and may not be representative of a broad range of severity. Future research should recruit participants experiencing more severe symptoms and greater functional impairment to examine whether patterns of temporal self-appraisal are consistent with the present findings.

5 Conclusion

The current study provides evidence that people with a diagnosis of a depressive and/or anxiety disorder display a similar pattern of temporal self-appraisal as controls. The self did not actually improve over time but was retrospectively perceived to have improved and was anticipated it would continue to improve. However, participants with a depressive and/or anxiety disorder reported lower overall levels of self-appraisal, with this relationship stronger for depressive compared with anxious symptoms. This highlights the importance of targeting self-appraisals in treatment for anxiety and in particular depression. Patterns of temporal self-appraisal may have a protective function in depression and anxiety that could be harnessed in treatment. Future research should explore whether this trajectory is

maintained in the context of more severe symptoms and whether change in such trajectory may be predictive of severe symptoms, increased hopelessness and/or suicidal tendencies.

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Supplementary Material

The questionnaire data was analysed using the Statistical Package for the Social Sciences (SPSS) version 24.0. Data was screened for missing values, outliers and normality. The pattern of missing data was examined for Time 1 and indicated that they were missing completely at random (Little's MCAR test: $\chi^2 (2036) = 1353.48$, $p = 1.00$). Eight participants omitted 30 items or more were subsequently removed from the sample. Three participants omitted one item each and one participant omitted two items. These items were replaced with the participants' scale mean. The pattern of missing data was examined for Time 2 and indicated that they were missing completely at random (Little's MCAR test: $\chi^2 (802) = 269.24$, $p = 1.00$). Three participants omitted 30 items or more were subsequently removed from the sample. The pattern of missing data was examined across Times 1 and 2 and indicated that data was missing completely at random (Little's MCAR test: $\chi^2 (106) = 105.00$, $p = .51$), suggesting that despite the attrition between the two time points, there was no significant difference between those who completed the both timepoints and those who completed only Time 1.

Cases with values greater than $z \pm 3.29$ were considered to be outliers. One outlier was present for Future Self-Appraisal and as recommended by Tabachnick and Fidell (2014), this score was winorized.

Variables with a skewness ratio of ± 3.29 were considered significantly skewed. The following variables were significantly positively skewed: Age, Negative Affect at Times 1 and 2, all three subscales of the DASS at both Times 1 and 2 and

Future Self-Appraisal on Negative Attributes. Square root transformation improved the skewness of Time 1 DASS Stress, all three subscales of the DASS at Time 2 and Future Self-Appraisal on Negative Attributes. Logarithmic transformation improved the skewness of Age, Time 1 DASS Depression and Anxiety. The skewness of Time 1 Negative Affect was improved by the transformation $-1/\text{Time 1 Negative Affect}$ and the skewness of Time 2 Negative Affect was improved by the transformation $-/\text{Square Root of Time 2 Negative Affect}$. These transformed variables were used in the analysis unless otherwise stated. Time 1 Satisfaction with Life and Future Self-Appraisal on Negative Attributes recoded in the positive direction were significantly negatively skewed but were both improved by the transformation of $-\text{Square Root (Maximum - Variable)}$ and therefore the transformed variables were used in the analysis unless otherwise stated.

Descriptive Statistics and Correlations

The reliabilities for each scale was calculated, with all scales found to have adequate internal consistency (Cronbach's $\alpha > .7$), with the exception of Current Self-Appraisal of Negative Attributes at Time 1 (Cronbach's $\alpha = .69$). The means, standard deviations and ranges of the study variables for all participants are shown in Table 1. The correlations between study variables are displayed in Table 2. Examinations of scatterplots did not suggest any non-linear relationships between the study variables

Table 1
Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>R</i>
<i>Time 1</i>			
Positive Affect	29.92	9.11	10-50
Negative Affect	14.96	6.56	10-40
Satisfaction with Life	24.51	6.57	5-35
Depression	5.68	8.48	0-36
Anxiety	5.31	7.32	0-31
Stress	9.01	8.77	0-36
Worry	46.70	12.30	21-75
Positive Current Self-Appraisal	303.81	85.71	48-478
Negative Current Self-Appraisal	112.28	76.57	0-320
Positive Future Self-Appraisal	329.50	91.89	45-500
Negative Future Self-Appraisal	89.99	74.30	0-308
<i>Time 2</i>			
Positive Affect	31.65	8.12	14-50
Negative Affect	15.56	6.88	10-36
Satisfaction with Life	24.94	6.46	5-35
Depression	6.06	8.46	0-33
Anxiety	5.09	7.36	0-29
Stress	9.32	9.32	0-35
Worry	45.89	14.28	21-77
Positive Current Self-Appraisal	306.82	97.72	0-486
Negative Current Self-Appraisal	113.09	80.34	0-297
Positive Past Self-Appraisal	288.82	102.48	0-500
Negative Past Self-Appraisal	110.88	80.73	0-299

Note: Means and standard deviations are for non-transformed variables.

Time 1 n = 143

Time 2 n = 82

Table 2

Correlations between Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1. T1 Positive Affect	-																						
2. T1 Negative Affect	.30*	-																					
3. T1 Satisfaction with Life	.53*	-.32*	-																				
4. T1 Depression	-.53*	.62*	-.50*	-																			
5. T1 Anxiety	-.40*	.62*	-.38*	.78*	-																		
6. T1 Stress	-.40*	.57*	-.37*	.76*	.79*	-																	
7. T1 Worry	-.38*	.36*	-.29*	.52*	.56*	.61*	-																
8. T1 Positive Current Self-Appraisal	.52*	-.31*	.41*	-.50*	-.48*	-.41*	-.45*	-															
9. T1 Negative Current Self-Appraisal	-.42*	.32*	-.33*	.37*	.25*	.36*	.19*	-.36*	-														
10. Positive Future Self-Appraisal	.48*	-.19*	.35*	-.42*	-.37*	-.31*	.41*	.85*	-.32*	-													
11. Negative Future Self-Appraisal	-.44*	.26*	-.32*	.39*	.25*	.36*	.26*	-.35*	.87*	-.39*	-												
12. T2 Positive Affect	.67*	-.23*	.32*	-.38*	-.24*	-.27*	-.28*	.58*	-.42*	.55*	-.49*	-											
13. T2 Negative Affect	-.31*	.72*	-.28*	.59*	.61*	.51*	.25*	-.35*	.34*	-.21	.25*	-.19	-										
14. T2 Satisfaction with Life	.54*	-.35*	.80*	-.42*	-.27*	-.29*	-.23*	.45*	-.29*	.38*	-.35*	.47*	-.33*	-									
15. T2 Depression	-.39*	.46*	-.36*	.73*	.58*	.65*	.47*	-.46*	.21	-.34*	.22	-.35*	.58*	-.47*	-								
16. T2 Anxiety	-.32*	.57*	-.33*	.74*	.82*	.73*	.50*	-.42*	.30*	-.29*	.23*	-.16	.68*	-.30*	.75*	-							
17. T2 Stress	-.32*	.47*	-.18	.63*	.68*	.81*	.58*	-.37*	.33*	-.25*	.27*	-.27*	.61*	-.26*	.77*	.79*	-						
18. T2 Worry	-.34*	.46*	-.30*	.60*	.60*	.65*	.78*	-.51*	.21	-.37*	.25*	-.34*	.43*	-.36*	.57*	.57*	.64*	-					
19. T2 Positive Current Self-Appraisal	.49*	-.39*	.32*	-.47*	-.46*	-.45*	-.37*	.80*	-.47*	.72*	-.54*	.63*	-.34*	.43*	-.44*	-.36*	-.38*	-.49*	-				
20. T2 Negative Current Self-Appraisal	-.39*	.23*	-.16	.30*	.25*	.37*	.31*	-.42*	.66*	-.37*	.69*	-.59*	.26*	-.26*	.31*	.26*	.37*	.34*	-.48*	-			
21. Positive Past Self-Appraisal	.39*	-.40*	.31*	-.50*	-.50*	-.48*	-.37*	.77*	-.33*	.63*	-.37*	.50*	-.40*	.35*	-.46	-.44*	-.40*	-.53*	.87*	-.37*	-		
22. Negative Past Self-Appraisal	-.39*	.25*	-.25*	.35*	.28*	.36*	.35*	-.44*	.61*	-.39*	.66*	-.56*	.26*	-.31*	.31*	.27*	.31*	.37*	-.42*	.89*	-.38*	-	

Note: For correlations between Time 1 variables $n=143$, for all other correlations $n=82$, * = $p < .05$,

Symptom Comparisons between Mental Health Conditions over time

A mixed multivariate analysis of variance was performed on seven dependent variables, the wellbeing and symptom variables from Time 1 and Time 2: Positive Affect, Negative Affect, Satisfaction with Life, Depression, Anxiety, Stress and Worry. The between-subjects variable was Mental Health Condition (Control and Clinical). Given the difference in sample sizes (Control $n = 109$, Clinical $n = 34$) the Pillai's Trace criterion was examined given its robustness to violations of assumptions. Non-transformed variables were used in the analysis. The means and standard deviations of wellbeing and symptom variables by Mental Health Condition are in shown in Table 3.

Table 3
Descriptive Statistics by Mental Health Condition

	Control	Clinical
<i>Time 1</i>	<i>n = 109</i>	<i>n = 34</i>
Positive Affect	32.11 (8.20)	22.91 (8.40)
Negative Affect	13.26 (4.89)	20.41 (8.17)
Satisfaction with Life	26.09 (5.66)	19.44 (6.80)
Depression	2.81 (5.55)	14.88 (9.70)
Anxiety	2.87 (4.32)	13.12 (9.34)
Stress	5.85 (5.95)	19.15 (8.74)
Worry	43.17 (10.62)	58.03 (10.45)
<i>Time 2</i>	<i>n = 62</i>	<i>n = 20</i>
Positive Affect	33.47 (7.46)	26.00 (7.62)
Negative Affect	14.08 (5.80)	20.15 (8.01)
Satisfaction with Life	26.35 (5.43)	20.55 (7.49)
Depression	3.60 (6.05)	13.70 (10.31)
Anxiety	2.71 (4.75)	12.45 (9.11)
Stress	6.45 (6.49)	18.20 (11.20)
Worry	41.08 (10.82)	60.80 (13.58)

Note: Standard deviations are in parenthesis.

Means and standard deviations are for non-transformed variables.

As expected, there was a significant main effect of Mental Health condition (Pillai's $V = .52$, $F(7, 74) = 11.21$, $p < .001$, $partial \eta^2 = .52$). Mental Health Condition had a significant effect on Positive Affect ($F(1, 80) = 19.08$, $p < .001$, $partial \eta^2 = .19$), Negative Affect ($F(1, 80) = 22.09$, $p < .001$, $partial \eta^2 = .22$), Satisfaction with Life

($F(1, 80) = 17.29, p < .001, \text{partial } \eta^2 = .18$), Depression ($F(1, 80) = 45.90, p < .001, \text{partial } \eta^2 = .37$), Anxiety ($F(1, 80) = 43.27, p < .001, \text{partial } \eta^2 = .35$), Stress ($F(1, 80) = 54.33, p < .001, \text{partial } \eta^2 = .40$) and Worry ($F(1, 80) = 41.54, p < .001, \text{partial } \eta^2 = .34$). Therefore, it can be concluded that participants in the Clinical Condition had significantly lower wellbeing and higher symptomology than those in the Control Condition, thus supporting the results from the diagnostic interview.

There was no significant main effect of time (Pillai's $V = .10, F(7, 74) = 1.20, p = .31$), suggesting that overall, participants' reported wellbeing and symptoms did not change over the course of the study. There was a significant main interaction between time and mental health condition (Pillai's $V = .17, F(7, 74) = 2.18, p = .04, \text{partial } \eta^2 = .17$). This interaction was significant for worry ($F(1, 80) = 7.26, p < .009, \text{partial } \eta^2 = .08$) but none of the other dependent variables (Positive Affect $F(1, 80) = .52, p = .47$; Negative Affect $F(1, 80) = .59, p = .44$; Satisfaction with Life $F(1, 80) = .71, p = .40$; Depression $F(1, 80) = 1.44, p = .23$; Anxiety ($F(1, 80) = .21, p = .65$; Stress ($F(1, 80) = 1.53, p = .22$). Examination of the means suggested that participants in the control condition decreased in worry over the course of the study while those in the clinical condition increased in worry.

Chapter Nine: The replication of two common manipulations of subjective temporal distance in temporal self-appraisal

9.1 Preamble

If it is possible to manipulate subjective temporal distance in individuals with depression or anxiety, then these manipulations may present feasible methods for improving self-appraisals in this population. Based upon the findings of the narrative review, two widely used manipulations of temporal distance were identified: a visual and a verbal manipulation. The replication of these manipulations was considered necessary and timely due to questions regarding the conditions under which they may be effective and in light of the current climate regarding the replication of psychological research. This chapter presents two conceptual replications with non-clinical samples: Study 1 replicated the visual manipulation and Study 2 replicated the verbal manipulation.

The replication paper, titled '*The replication of two common manipulations of subjective temporal distance in temporal self-appraisal*' is currently under review with Journal of Experimental Social Psychology. The Author Indication Form detailing the nature and extent of the candidate and co-authors' contributions to this paper is included in Appendix 1. The manuscript, presented below, is formatted to be consistent with the requirements of the Journal of Experimental Social Psychology. The complete citation is as follows:

Mathews, S., Williams, B., & Nedeljkovic, M. (under review). The replication of two common manipulations of subjective temporal distance in temporal self-appraisal. *Journal of Experimental Social Psychology*.

**The replication of two common manipulations of subjective temporal distance in
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Acknowledgements

The first author received support through an Australian Government Research Training Program Scholarship.

Conflict of Interest

None

Abstract

Temporal self-appraisal theory proposes that the subjective temporal distance from past and future selves influences current self-appraisal, and that subjective temporal distance is manipulated for self-enhancement. The current research conducted conceptual replications of two common manipulations of subjective temporal distance and examined their effect on temporal self-appraisal. Study 1 adopted a between-subjects design and attempted to manipulate subjective temporal distance using visual anchors on a timeline. Study 2 adopted a longitudinal design and attempted to manipulate subjective temporal distance by verbally framing a timepoint as recent or distant. Results showed that the timeline manipulation was effective in altering the subjective temporal distance of a future timepoint but not a past timepoint. The verbal framing manipulation did not significantly influence the perception of subjective temporal distance from past or future timepoints. Results suggest that the strength of the effect of the manipulations may depend on both the objective temporal distance and direction (past vs. future) and that the manipulations may be more effective for timepoints framed as events. It is recommended that future research examine these possibilities to improve the efficacy of these manipulations.

Keywords: Self, time, temporal self-appraisal, temporal comparison, temporal distance

The self is temporal in nature and incorporates past, present and future representations of the self (Moore & Lemmon, 2009). Temporal self-appraisal theory (Wilson & Ross, 2001) proposes that people strategically appraise these different representations to self-enhance. The self is perceived as on an upward trajectory, continually improving over time (Ross & Wilson, 2003). People tend to view themselves as better than their former selves (Wilson & Ross, 2001) and believe they will continue to improve into the future (Wilson, Buehler, Lawford, Schmidt, & Yong, 2012). The perception of improvement over time helps people to feel good about themselves as they are in the present.

Past and future representations of the self are connected to the present self along a “dimension of relative temporal proximity” (Peetz & Wilson, 2008, p. 3). Temporal self-appraisal theory (Wilson & Ross, 2001) proposes that the psychological experience of temporal distance from, or closeness to, past and future selves influences current self-appraisal and that temporal distance can, and is, manipulated for self-enhancement. Past representations of the self that feel subjectively distant are viewed more negatively than past selves that feel closer to the present (Wilson & Ross, 2001). Inversely, negative life events tend to feel more distant, as if occurring long ago, than events that show the self in a more positive light. This is because temporally close former selves can be more easily incorporated into current self-appraisals and help the individual to feel good about themselves as they are now. As with past self-appraisals, temporally proximal future selves have a larger effect on current self-appraisal than future selves that are more temporally distant (Wilson et al., 2012). Given this, people are motivated to evaluate future selves more positively when they feel subjectively closer in time as it has more direct

implications for current self-appraisal. However, in contrast to the past, people are unlikely to be motivated to perceive the distant future as negative because any benefit this has for the current self is offset by the prospect of a negative future.

Research has tended to measure temporal self-appraisal by asking for self-reports of how people perceive their past, current and future selves on a number of attributes or qualities and comparing these appraisals between these different timepoints (e.g. Ross & Wilson, 2002; Wilson et al., 2012). Initial research used the actual passage of time to examine temporal self-appraisal (e.g., Wilson & Ross, 2001). However, temporal self-appraisal is thought to be reflective of the subjective experience of temporal distance and as such, researchers have since attempted to manipulate participants' subjective experience of temporal distance. Wilson and Ross have used two methods to manipulate subjective temporal distance. Each of these will now be explained in turn.

The first method involves a spatial metaphor for time, specifically a timeline. Wilson (2000) developed the timeline manipulation. In her preliminary study, university students were instructed to mark a target event, a good or bad incident in high school, on a timeline. Participants were randomly assigned into one of two conditions: recent past or distant past. In the recent past condition, participants were presented with a timeline having the end points of 'Birth' and 'Today.' In the distant past condition, participants were presented with a timeline of the same length but with the end points of 'Age 15' and 'Today.' The logic of this manipulation is that an event should appear more recent relative to your date of birth compared with your 15th birthday. This manipulation was found to be effective, with respondents marking the

target event closer to today in the recent past condition in comparison with the distant past condition. Moreover, results were consistent with temporal self-appraisal theory. She found further evidence to support the efficacy of the timeline manipulation across two studies. Wilson and colleagues have since gone on to use a timeline manipulation to explore temporal self-appraisal in number of studies, with evidence of the efficacy of the manipulation for past timepoints (Peetz, Gunn, & Wilson, 2010, Study 3) and future timepoints (Peetz, Wilson, & Strahan, 2009, Study 2; Wilson et al., 2012, Studies 1, 2 & 4). Furthermore, other researchers have found a timeline to be effective in manipulating the subjective temporal distance of past events (Cheung & Olson, 2013; Haynes et al., 2007).

The second method involves manipulating the verbal representation of a time period. That is, the description of a timepoint can be verbally framed to appear temporally near or far. This manipulation was first employed by Wilson and Ross (2001). In their sixth study, university students were divided into two conditions: recent past and distant past. All participants were asked to think of the beginning of the term, however, in the recent past condition, the beginning of term was framed as the “recent past” while in the distant past condition, participants were asked to “think all the way back to the beginning of term” (Wilson & Ross, 2001, p. 580). While the manipulation check did not reach significance, participants did evaluate their past selves less favourably when it was framed as distant, implying that the subjective sense of time was successfully manipulated through verbal reframing. The authors suggest that given the manipulation check was at the end of the questionnaire, the effects may have dissipated. Similarly, across their three studies, Ward and Wilson (2015) manipulated subjective temporal distance of a past event through verbal

framing. For the first two studies, the manipulation check was not significant but the authors proceeded with the main analyses, with results implying the manipulation was effective. The verbal framing manipulation has also been employed to manipulate the subjective temporal distance of future events (Kurtz, 2008). While Kurtz did not report the results of the manipulation check, the main analyses would suggest that the manipulation was effective.

While both manipulations have been helpful in examining temporal self-appraisal, there remain a number of issues and questions regarding their efficacy. Firstly, there are a number of studies that have employed both a timeline and verbal framing manipulation (Eibach, Libby, & Gilovich, 2003, Study 5; Fessel, 2011, Studies 1 & 2; Pennington & Roese, 2003, Study 2; Sanna, Chang, Carter, & Small, 2006, Studies 2 & 3). This creates ambiguity regarding the unique contribution of each manipulation in altering the subjective temporal distance of a timepoint. Secondly, there is a lack of reporting of the results of these manipulations. Of the 22 studies that employed a timeline, verbal framing manipulation, or both manipulations, four did not report the significance of the manipulation check (Eibach et al., 2003; Fessel, 2011, Studies 1 & 2; Kurtz, 2008) and only seven reported the effect size of the manipulation (Sanna et al., 2006, Studies 2 & 3; Ward & Wilson, 2015, Studies 1, 2 & 3; Wilson et al., 2012, Studies 1, 2 & 4). The reported effect sizes range from small to large effects. Thirdly, there is an inconsistency with the verbal framing manipulation whereby the manipulation check is not significant but the main analyses imply that subjective temporal distance was successfully manipulated. Finally, there is evidence of the timeline manipulation not effectively altering subjective temporal distance. In their third study, Peetz et al. (2009) found that a timeline manipulation

was unsuccessful in altering the subjective temporal distance of a test in two weeks time. They suggest that this may have been due to the objective closeness of the event. However, some studies, albeit studies that used both a timeline and verbal reframing manipulation, were able to manipulate the subjective temporal distance of events later on the same day (Fessel, 2011; Sanna et al., 2006, Studies 2 & 3). Taken together, it is clear that questions remain around the strength of the effect of these manipulations, the mechanisms by which they operate and the conditions under which they are effective.

Given these questions and the current climate regarding the replication of psychological research (Aarts et al., 2015), the replication of both of these manipulations was considered warranted. Therefore, the overall aim of the current research was to conduct conceptual replications of these two common manipulations of subjective temporal distance and examine their effect on temporal self-appraisal. In Study 1, we employed a between-subjects design and used a timeline to manipulate subjective temporal distance of past or future timepoint. In Study 2, we employed a longitudinal design and used a verbal manipulation of both a past and future timepoint.

Study 1: Replication of a timeline manipulation

Study 1 aimed to replicate the manipulation of subjective temporal distance by use of timeline and to examine the effects this manipulation had on temporal self-appraisal.

Method

Participants and Design. Four hundred and thirty eight first year undergraduate students, studying on campus or online in Australia, participated in the study for course credit (79 men, 359 women; age range =18 and 69 years, $M = 34.40$, $SD = 11.22$). The study had a 2 (temporal direction: past or future) x 2 (temporal distance: near or distant) between-subjects design. A power analysis was conducted to determine a minimum adequate sample. Using Cohen's (1992) characterisation we estimated sample size for a “medium” effect in a four level one-way ANOVA with 80% and alpha = .05 to be 45 participants per group. Therefore, the current study had sufficient power to detect a medium effect size.

Procedure and Materials. Data was collected via an online survey, using Qualtrics software from December 2015 to May 2016. The project was approved by the institutional Human Research Ethics Committee, in accordance with the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2015). The current study was conducted as part of a larger research project. As part of the larger study, additional measures were presented in the following order, prior to the current study's measures: Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988); Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985); and Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999).

Current Self-Appraisal. This task was adapted from Wilson and Ross (2001) and Wilson, Buehler, Lawford, Schmidt, and Yong (2012). Participants

were asked to rate how they currently see themselves, relative to their peers, on five positive (self-confident, socially skilled, fun, easy going, and independent) and five negative attributes (dishonest, rude, dull/boring, narrow minded and immature). An 11-point rating scale was used (0 = *much worse than most* to 10 = *much better than most*). Positive and negative attributes scores were summed separately.

Importance of Attributes. As part of the larger study, participants were asked to rate the importance of the same ten attributes on a 5-point rating scale from 1 (*very unimportant*) to 5 (*very important*). This was adapted from the work of Wilson and Ross (2001, Study 6).

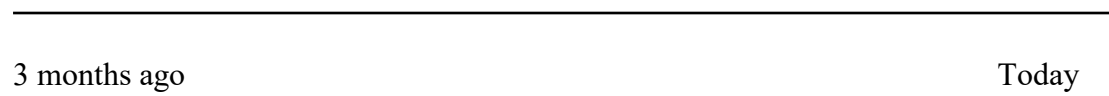
Manipulation of Temporal Distance. Similar to the work of Wilson (2000) and Wilson et al. (2012), a timeline was used to manipulate subjective temporal distance. Participants were randomly allocated to one of four experimental conditions: distant past, near past, near future, and distant future (see Figure 1). In the first two conditions, participants were asked to indicate, using a slider scale, the point on a timeline at which they feel was two months ago. However, in the first condition, the timeline ranged from three years ago to today (near past) while in the second condition, the timeline ranged from three months ago to today (distant past). In the third and fourth conditions, participants were asked to indicate, using a slider scale, the point on a timeline at which they feel is two months away. However, in the third condition the timeline ranged from today to three months away (distant future), while in the fourth condition, the timeline

ranged from today to three years away (near future). The line ranged from 0-36 for all conditions.

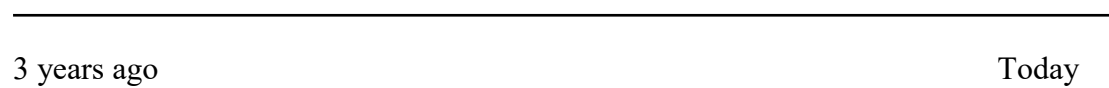
Temporal Self-Appraisal. Participants in the past conditions were asked to rate, relative to their peers, how they viewed their past self of two months ago on the same ten attributes as their current self-appraisal, using the same 11-point rating scale. Participants in the future conditions were asked to rate, relative to their peers, how they expected their future self of two months away to be on the same 10 attributes as their current self-appraisal, on the same 11-point rating scale. Positive and negative attributes scores were summed separately for both past and future self-appraisals.

Manipulation Check. To check the effectiveness of the manipulation, participants in the two past conditions were informed of the subjective nature of time; specifically “sometimes points in time in the past feel very far away, while other times feel very close, almost like yesterday”. They were then asked to rate on an 11-point scale how far ago 2 months subjectively feels (0 = *almost like yesterday* to 10 = *very distant past*). For the two future conditions, participants were similarly informed of the subjective nature of time; specifically “sometimes points in time in the future feel very far away, while other times feel very close, almost like tomorrow”. They were then asked to rate on an 11-point scale how far away 2 months subjectively feels (0 = *almost like tomorrow* to 10 = *very distant future*).

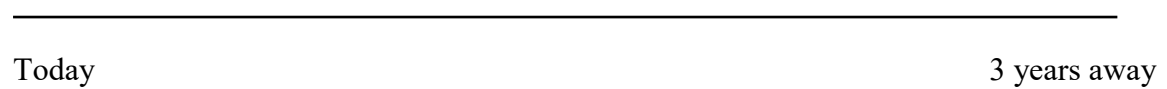
Distant Past:



Near Past:



Near Future:



Distant Future:



Figure 1. Timeline manipulation

Post-Manipulation Measures. As part of the larger study, participants were again asked to rate the importance of the attributes and complete the Positive and Negative Affect Schedule (Watson et al., 1988) and Satisfaction with Life Scale (Diener et al., 1985).

Results

Manipulation Checks. Participants marked *two months ago* spatially closer to *today* in the near past condition ($M = 6.62, SD = 6.97$) compared with those in the distant past condition ($M = 22.49, SD = 6.04$), $t(215) = 17.89, p < .001$, Cohen's $d = 2.43$). However, participants in the near past condition did not subjectively feel that 2 months ago was significantly closer ($M = 5.95, SD = 2.98$) than those in the distant past condition ($M = 5.44, SD = 2.81$), $t(215) = 1.28, p = .10$.

Participants in the near future condition marked 2 months away spatially closer to today ($M = 4.59, SD = 5.17$) compared with the distant future condition ($M = 22.75, SD = 4.07$), $t(204.93) = 28.95, p < .001$, Cohen's $d = 3.90$). Participants in the near future condition subjectively felt that 2 months away was significantly closer ($M = 4.43, SD = 2.43$) than those in the distant future condition ($M = 5.12, SD = 2.52$), $t(219) = 2.06, p = .02$, Cohen's $d = .28$).

Temporal Self-Appraisal. To test for the effects of temporal self-appraisal, four mixed analyses of variance were conducted: a 2 (near/distant past condition) by 2 (current and past self-appraisal on positive attributes); a 2 (near/distant past condition) by 2 (current and past self-appraisal on negative attributes); a 2 (near/distant future condition) by 2 (current and future self-appraisal on positive attributes); and 2 (near/distant future condition) by 2 (current and future self-appraisal on negative attributes). The Greenhouse-Geisser correction was used for all analyses. Mean self-appraisals for each condition are presented in Table 1.

Table 1
*Means of Self Appraisals on Positive and Negative Attributes
 by Time and Temporal Frame*

Self-Appraisal	<i>M (SD)</i>	<i>R</i>	<i>n</i>
Positive Attributes			
Distant Past	35.57 (8.39)	8-55	106
Near Past	36.04 (8.49)	18-55	111
Current	36.33 (7.44)	15-55	438
Near Future	38.53 (7.60)	19-53	109
Distant Future	40.04 (7.58)	19-55	112
Negative Attributes			
Distant Past	16.89 (7.76)	5-33	106
Near Past	17.59 (8.24)	5-43	111
Current	18.48 (7.06)	5-41	438
Near Future	15.77 (7.37)	5-33	109
Distant Future	13.82 (7.27)	5-30	112

ANOVA results are displayed in Table 2. There were no significant interactions between subjective temporal distance and temporal direction across the analyses. Contrary to expectations, there was no significant main effect of temporal direction, with no significant difference between current and past self-appraisal on positive attributes. As predicted there was a significant main effect of temporal direction between current and past self-appraisal on negative attributes. The direction of this main effect was opposite to predicted with participants evaluating their current self as significantly higher on negative attributes than their past self. However, the effect size was small. As predicted there was a significant main effect between current and future self-appraisal on positive and negative attributes with participants evaluating their future self as higher on positive attributes and lower on negative

attributes than their current self, with large effect sizes. Contrary to expectations there was no significant effect of subjective temporal distance condition for past self-appraisal on positive and negative attributes and for future self-appraisal on positive attributes. As expected, there was a significant main effect between the near future and distant future conditions. The direction of this relationship was unexpected with participants in the Distant Future condition evaluating themselves less negatively than participants in the Near Future condition. However, the effect size was small.

Table 2
Mixed ANOVAs Comparing Self-Appraisal over Time

Model	Effect	<i>F</i>	<i>p</i>	<i>partial</i> η^2
Near/Distant Past Condition by Current/ Past Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	1.96 ^a	.16	-
	Main effect of Temporal Distance	.19 ^a	.67	-
	Interaction	.01 ^a	.92	-
Near/Distant Past Condition by Current/Past Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	6.94 ^a	.009	.03
	Main effect of Temporal Distance	.53 ^a	.47	-
	Interaction	<.01 ^a	.97	-
Near/Distant Future Condition by Current/Future Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	685.81 ^b	<.001	.28
	Main effect of Temporal Distance	2.29 ^b	.13	-
	Interaction	.03 ^b	.87	-
Near/Distant Future Condition by Current/Future Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	109.4 ^b	<.001	.33
	Main effect of Temporal Distance	4.52 ^b	.04	.02
	Interaction	.01 ^b	.90	-

Note. ^a = *df*1=1, *df*2 = 215

^b = *df*1=1, *df*2= 219

Discussion

Study 1 aimed to replicate previous findings of the timeline manipulation of subjective temporal distance and its influence on temporal self-appraisal. Subjective temporal distance was manipulated using a timeline and participants were randomly allocated to one of four experimental conditions: distant past, near past, near future and distant future. The manipulation was effective for the future conditions but not the past conditions. However, previous research has found that groups who have undergone such manipulations show the expected differences in temporal self-appraisal despite lack of explicit difference in subjective temporal distance (Wilson & Ross, 2001) and therefore, analyses were conducted across all conditions. Overall, the results of the study were unexpected. With one exception, there was no effect of subjective temporal distance on appraisal of self. However, there was evidence to suggest a general trend of participants perceiving self-improvement over time.

Study 2: Replication of a verbal framing manipulation

Study 2 aimed to replicate the verbal framing manipulation and examine its effects upon patterns of temporal self-appraisal.

Method

Design/Procedure. The study adopted a longitudinal design, with measurements taken at two time points. At Time 1, participants completed an online survey. Four weeks later at Time 2, participants completed a follow-up online survey.

This design allowed for comparisons between current and retrospective, and current and anticipatory self-evaluations. The study had a 2 (Temporal Direction: past/future or current) by 2 (Temporal Distance: near or distant) between-subjects design. A power analysis was conducted to determine a minimum adequate sample. Using Cohen's (1992) characterisation we estimated sample size for a "medium" effect and a "large" effect in a four level one-way ANOVA with 80% and alpha = .05 to be 45 and 18 participants per group respectively. Therefore, the current study had sufficient power to detect a medium to large effect size. The project was approved by the institutional Ethics Committee. Data was collected from August 2016 to May 2017 as part of a larger research project. Only the materials relevant to the current study are presented below. Of importance, the manipulation check was presented immediately following the appraisal of the past or future self.

Materials.

Time 1.

Diagnostic Interview. As part of the larger study, three provisional psychologists in their 6th year of training and a psychology honours student administered the Mini International Neuropsychiatric Interview, Version 7.0.1 (MINI 7.0.1; Sheehan, 2016) to participants under the supervision of a clinical psychologist. The MINI 7.0.1, a brief structured diagnostic interview for the major psychiatric disorders in DSM-5.

As part of the larger study, additional measures were presented in the following order, prior to the current study's measures: Positive and Negative Affect Schedule (Watson et al., 1988); Satisfaction with Life Scale (Diener et al., 1985); Depression Anxiety and Stress Scales (Lovibond & Lovibond, 1995); The Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990); Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999); Balanced Time Perspective Scale (Webster, 2011); The Five Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006); and the Self as Context Scale (Zettle et al., 2018).

Current Self-Appraisal. This task was identical to that of Study 1, with the exception that a sliding scale was used ranging from 0 = *much worse than most* to 100 = *much better than most* was used.

Manipulation of Temporal Distance and Future Self-Appraisal.

Participants were randomly allocated to one of two experimental conditions: near future and distant future. In the near future condition, participants were given the instructions: "Now, take a moment to think of a point in time in the near future, four weeks from now, at the end of this study. What do you think you'll be like then?" While in the distant future condition, participants were instructed: "Now, take a moment to think of a point in time in the distant future, four weeks from now, at the end of this study. What do you think you'll be like then?" Participants were asked to rate, relative to their peers, the extent to which they expected their future self of four weeks away to be on the same 10 attributes as their current self-

appraisal, on the same scale. Positive and negative attributes scores were summed separately.

Manipulation Check. Participants were informed of the subjective nature of time; specifically “Sometimes points in time in the future feel very far away, while other times feel very close, almost like tomorrow”. They were then asked to rate on a sliding scale ranging from 0-100 how far away 4 weeks subjectively feels (0 = *almost like tomorrow* to 100 = *very distant future*).

Time 2.

As part of the larger study, the additional measures presented at Time 1 were again presented at Time 2.

Current Self-Appraisal. Participants were asked to complete the Current Self-Appraisal task as per Time 1.

Manipulation of Temporal Distance and Past Self-Appraisal. Participants were randomly allocated to one of two experimental conditions: distant past and near past. In the distant past condition, participants were instructed: “Now, take a moment to think back to another point in time. Think all the way back to the beginning of this study four weeks ago. What were you like way back then?” In the near past condition, participants were given the instructions: “Now, take a moment to think of a point in time in the recent past, four weeks ago, at the beginning of this study. What were you like then?” Participants were asked to rate, relative to their peers, the extent to which they expected their future self of

two months away to be on the same 10 attributes as their current self-appraisal, on the same scale. Positive and negative attributes scores were summed separately.

Manipulation Check. Participants were informed of the subjective nature of time; specifically “sometimes points in time in the past feel very far away, while other times feel very close, almost like yesterday”. They were then asked to rate on a sliding scale ranging from 0-100 how far ago 2 months subjectively feels (0 = *almost like yesterday* to 100 = *very distant past*).

Participants. Participants were first year undergraduate students, studying on campus or online and members of the public who contacted the researchers in response to advertisements through social media (Facebook) and Gumtree. Participants received course credit for participation or a \$15AUD Coles Myer voucher respectively for completing Time 1 and then again following completion of Time 2. The sample at Time 1 consisted of 109 participants, with 24 men and 85 women. The ages of participants ranged between 18 and 71 years ($M = 32.95$, $SD = 11.66$). The sample at Time 2 consisted of 62 participants, with 19 men and 43 women. The ages of participants ranged from 18 to 71 years ($M = 33.34$, $SD = 11.26$).

Results

Manipulation Checks. There was no significant difference between the perception of temporal distance between those in the near future condition compared with those in the distant future condition, $t(107) = 1.57$, $p = .12$; nor between the

perception of temporal distance between those in the near past condition compared with those in the distant past condition $t(60) = 1.89, p = .06$.

Temporal Self-Appraisal. To test for the effects of temporal self-appraisal, four mixed analyses of variance were conducted: a 2 (near/distant past condition) by 2 (current and past self-appraisal on positive attributes); a 2 (near/distant past condition) by 2 (current and past self-appraisal on negative attributes); a 2 (near/distant future condition) by 2 (current and future self-appraisal on positive attributes); and 2 (near/distant future condition) by 2 (current and future self-appraisal on negative attributes). The Greenhouse-Geisser correction was used for all analyses. Mean self-appraisals for each condition are presented in Table 3.

Table 3

Means of Self-Appraisals of Positive and Attributes by Time and Temporal Frame

	Positive Attributes	Negative Attributes	<i>n</i>
Time 1			
Current	329.15 (72.21)	102.40 (78.35)	109
Near Future	349.55 (69.81)	82.19 (70.63)	53
Distant Future	354.20 (92.63)	81.17 (81.44)	56
Time 2			
Distant Past	335.36 (99.29)	102.00 (71.73)	28
Near Past	308.74 (71.02)	81.41 (75.38)	34
Current	336.71 (81.48)	96.02 (78.63)	62

Note. Standard deviations in parenthesis

ANOVA results are displayed in Table 4. There were no significant interactions between subjective temporal distance and temporal direction across the analyses.

Contrary to expectations there was no significant effect of subjective temporal distance condition for past self-appraisal on positive and negative attributes and for future self-appraisal on positive attributes and negative attributes. There was a significant main effect of temporal direction, with participants evaluating their future self as higher on positive attributes and lower on negative attributes than their current self, and evaluating their past self as lower on positive attributes than their current self. Contrary to expectations, there was no significant main effect of temporal direction between current and past self-appraisal on negative attributes.

Table 4
Mixed ANOVAs Comparing Self-Appraisal over Time

Model	Effect	<i>F</i>	<i>p</i>	<i>partial</i> η^2
Time 1				
Near/Distant Future Condition by Current/Future Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	24.82 ^a	<.001	.19
	Main effect of Temporal Distance	.12 ^a	.73	-
	Interaction	<.01 ^a	.95	-
Near/Distant Future Condition by Current/Future Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	29.32 ^a	<.001	.22
	Main effect of Temporal Distance	<.01 ^a	.99	-
	Interaction	.09 ^a	.77	-
Time 2				
Near/Distant Past Condition by Current/ Past Self-Appraisal on Positive Attributes	Main effect of Temporal Direction	5.74 ^b	.02	.09
	Main effect of Temporal Distance	2.75 ^b	.10	-
	Interaction	.83 ^b	.37	-
Near/Distant Past Condition by Current/Past Self-Appraisal on Negative Attributes	Main effect of Temporal Direction	.93 ^b	.34	-
	Main effect of Temporal Distance	.78 ^b	.38	-
	Interaction	.61 ^b	.44	-

Note. ^a = *df*₁=1, *df*₂ = 107

^b = *df*₁=1, *df*₂= 60

Discussion

Study 2 aimed to replicate the effect of the verbal manipulation on subjective temporal distance and its influence on temporal self-appraisal. Subjective temporal distance was manipulated by verbal framing of a timepoint. At Time 1, participants were randomly allocated to one of two experimental conditions: near future or distant future. Four weeks later, at Time 2, participants were randomly allocated to one of two experimental conditions: distant past or near past. Analyses indicated that the manipulations did not influence the explicit perception of subjective temporal distance. Given that previous research has found evidence of temporal self-appraisal despite evidence for the manipulation (Wilson & Ross, 2001) analyses were still conducted. Overall, the results of the study did not support the pattern proposed by temporal self-appraisal theory. There was no significant effect of subjective temporal distance on appraisal of self. There was however evidence of a general trend of the perception self-improvement over time.

General Discussion

The current research comprised conceptual replications of two common manipulations of subjective temporal distance and examined their effects on temporal self-appraisal. The replication of these manipulations is important and timely given the questions around their efficacy, in particular the conditions under which they may be effective. Study 1 replicated a timeline manipulation of subjective temporal distance, while Study 2 replicated a verbal framing manipulation. The results showed

that the timeline manipulation was effective for the future conditions but not the past conditions. The verbal framing manipulations did not significantly influence the perception of subjective temporal distance. Wilson and Ross (2001) had a similar finding for their verbal framing manipulation and suggested that the effects may have dissipated because the manipulation check was at the end of the questionnaire. The placement of the manipulation check immediately following the manipulation in our study contradicts this suggestion. With only one exception, there were no effects of subjective temporal distance on appraisal of self. This is inconsistent with temporal self-appraisal theory. However, both studies provided evidence of a general trend of the perception self-improvement over time.

The current results suggest a timeline manipulation may be more effective in altering subjective temporal distance than a verbal framing manipulation. This is consistent with past research. Manipulation checks have provided evidence for the effectiveness of the timeline manipulation (Cheung & Olson, 2013; Haynes et al., 2007; Peetz et al., 2009, 2010; Wilson, 2000; Wilson et al., 2012), whereas manipulation checks for the verbal framing manipulation did not reach significance or were not reported (Kurtz, 2008; Ward & Wilson, 2015; Wilson & Ross, 2001). It may be that the active nature of the timeline manipulation increases participant engagement and in turn, the manipulation results in significant effects. The timeline manipulation involves the participant actively marking a point on a timeline. In contrast, the verbal framing manipulation is passive in nature. It is possible that participants may only scan the instructions and not take the manipulation on board. It would be of interest for future research to examine the efficacy of the verbal framing manipulation by reading speed. It may be that the manipulation is effective for those

who spend time considering the instructions compared with those who quickly read over the instructions. Furthermore, future research should conduct a direct comparison of both manipulations to examine the possibility that a timeline manipulation is more effective.

The current research suggests that the timeline manipulation has a bigger effect than the verbal framing manipulation; nevertheless, the results only provide evidence for the efficacy of a timeline manipulation in manipulating the subjective temporal distance of a future timepoint. This is surprising given previous evidence for the efficacy of this manipulation in altering the subjective temporal distance of past events (Cheung & Olson, 2013; Eibach et al., 2003, Study 5; Haynes et al., 2007; Peetz et al., 2010, Study 3; Wilson, 2000, Preliminary Study, Study 1, Study 2). However, none of these studies reported effect sizes. It is possible that different effect sizes are present for manipulating past and future subjective temporal distance. Previous research has found a timeline manipulation to produce medium to large effect sizes for future timepoints (Sanna et al., 2006; Wilson et al., 2012). Study 1 had sufficient power to detect medium effect sizes and therefore was able to detect these previously found effects. However, previous research has only found small effect sizes for the manipulation of the subjective temporal distance of past timepoints using a verbal framing manipulation (Ward & Wilson, 2015). This may reflect the different manipulation or it could be that the effect for past timepoints is smaller than that of future timepoints. If that were the case, Study 1 did not have sufficient power to detect these differences. The possibility of different effects for past and future timepoints makes theoretical sense. The future, yet to occur, allows for more poetic licence (Peetz & Wilson, 2008) and therefore, it is possibly easier to overlook

objective temporal distance and for subjective temporal distance to be manipulated. Future research should examine this possibility.

The length of objective time between the present and point of comparison may be another important consideration. Peetz et al. (2009) found a timeline manipulation was not successful in altering the subjective temporal distance of a future timepoint of two weeks away. The authors suggested that it may have been too short a time period to be able to experimentally alter participants' perception of temporal distance. It may be that there are different time periods for the past and the future that act as a minimum standard for the manipulation to be effective. For example, the results of Study 1 may reflect that two months is sufficient to effectively manipulate the subjective temporal distance of the future but the manipulation of the subjective temporal distance of the past may require a timepoint that is objectively more distant. In Study 2 the period of four weeks may have been insufficient to manipulate the subjective temporal distance of both a past and future timepoint using a verbal framing manipulation but comparisons between longer objective time points may produce significant effects.

Similarly, objective time may help to explain the result of Study 1 that participants in the Distant Future condition evaluated themselves less negatively than participants in the Near Future condition. This is in direct contrast with temporal self-appraisal theory, which suggests temporally proximal selves would be evaluated more favourably than temporally distant selves. There is evidence that this result is not an anomaly, with Kantan and Teigen (2008) finding that people reported the self to be more improved in two years compared with six months. It may be that while

participants in the Distant Future condition perceived the timepoint as more distant than those in the Near Future condition, it was still considered relatively close to the present to have benefits for the current self and therefore was evaluated more favourably. Therefore, there may be an interaction between subjective and objective time that influences both the manipulation of subjective temporal distance and the appraisal of self over time. Future research would benefit from exploring this interaction and understanding the objective time period for which the manipulations are effective.

The current studies differed from previous research by the use of timepoints rather than events. For example, we referred to two months ago rather than an event such as the last term of high school (Wilson, 2000) or a calendar point such as January (Wilson et al., 2012). Events have been found to be important in temporal self-appraisal. Peetz and Wilson (2013) found evidence that temporal landmarks such as birthdays and other calendar events help to structure our perception of time (Peetz & Wilson, 2013). It may be easier to manipulate subjective temporal distance of events compared with timepoints because the objective time is not salient and therefore easier to overcome. In fact, it is possible that the manipulation of subjective temporal distance and the associated effects of temporal self-appraisal may be unique to events. There is precedence for this in the broader literature, with differences between event-based and time-based prospective memory a prime example (Park et al., 1997). It is recommended that future research directly compare the manipulation of the subjective temporal distance of events and timepoints and their associated effects on temporal self-appraisal.

There are two important limitations of the current research that should be addressed in future studies. Firstly, both studies only had sufficient power to detect medium effect sizes. While this was sufficient to detect the effect of the timeline manipulation for future timepoints, it may not have been sufficient for past timepoints or the verbal framing manipulation. As such, future research may wish to examine the manipulation of subjective temporal distance with a larger sample. Secondly, there were differences between the two studies that make comparisons between the two manipulations difficult. Future research should compare the manipulations within the same sample, using the same time periods and in both temporal directions.

Conclusion

The current research aimed to replicate two common manipulations of subjective temporal distance, namely a timeline and a verbal framing manipulation. The replication of these two manipulations was considered important due to the remaining questions around the strength of the effect of these manipulations, the mechanisms by which they operate and the conditions under which they are effective. While the current research can by no means provide definitive answers to these questions, it does provide further understanding and directions for future research. The current research suggests that there may be different effect sizes for the manipulation of subjective temporal distance between the two manipulations, between the manipulation of past and future timepoints and that the effect is dependent upon objective time. It is recommended that future research examine these points and understand the limits for which the manipulations are effective and to what extent. The difference between the two manipulations suggests that the active engagement

involved in the timeline manipulation may act as a mechanism behind the effectiveness of the manipulation. Future research is required that directly compares the two manipulations and their respective levels of engagement. The current studies utilised timepoints rather than events. Given the lack of overall support for both manipulations, it is possible that the manipulation of subjective temporal distance is only effective for events. It is recommended that future research directly compare the manipulation of subjective temporal distance of timepoints and events. These recommendations would help to improve the manipulations and the selection of the most appropriate manipulation for different purposes.

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Chapter Ten: Discussion of Findings and Conclusions

10.1 Introduction

This thesis examined patterns of temporal self-appraisal in depression and anxiety, and in doing so, addressed a significant and important gap in the literature. The synthesis of concepts and findings from related literature, presented in Chapter 6, lead to the hypothesis that maladaptive patterns of temporal self-appraisal are present in individuals with a depressive and/or anxiety disorder. This thesis utilised multiple methods to evaluate this hypothesis, and to address two general research aims: (1) to establish the trajectory of the self in individuals with depression and anxiety and (2) to examine the role of subjective temporal distance in the appraisal of self over time. This chapter summarises, integrates and critically discusses the results of the empirical studies comprising this dissertation. Findings pertaining to the trajectory of the self will be discussed, with particular attention paid to the role of maladaptive temporal landmarks. The manipulation of subjective temporal distance will be understood in the context of manipulating the subjective temporal distance of time points compared with events. The theoretical and treatment implications of the findings will be presented. The methodology of the studies will be critically evaluated, limitations examined, and integrated with findings to suggest future directions to advance knowledge and treatment of maladaptive appraisal of the self over time in depressive and anxiety disorders.

10.2 Overview of Findings

10.2.1 The trajectory of the self in depression and anxiety. The first aim of this thesis was to examine the trajectory of the self in individuals with depression and/or anxiety. There was no study to date that had examined temporal self-appraisal in individuals with a diagnosis of a depressive and/or anxiety disorder. Chapter 6 presented a synthesis of empirical evidence in related-constructs to propose a pattern of temporal self-appraisal in depression. Previous research has found that rumination, a key feature of depression, is associated with difficulty in placing negative feelings in the past and distancing these feelings from the current self (McFarland et al., 2007). Conversely, individuals with depressed mood tend to overestimate the positivity of the past (Lotterman & Bonanno, 2014) and perceive positive past events as very temporally distant making it difficult to incorporate positive elements into current self-concept (Janssen et al., 2015). People high in depressed mood were found to perceive the past self as better than the current self and hoped to return to this self again in the future (Sokol & Serper, 2017). Extrapolating from this evidence, it was proposed that individuals with a depressive disorder would perceive the current self as deteriorating from the past self, but would be able to distinguish between the hopelessness about future external outcomes and future personal improvement and appraise the future self more positively than the current self.

It was my intention to develop a similar framework for temporal self-appraisal in anxiety, however a body of research like that of depression was lacking. Instead, it was reasoned that - given anxiety has been found to be negatively associated with self-enhancement (Alicke & Sedikides, 2009) and the commonalities between depression and anxiety - individuals with anxiety disorders would have similar

patterns of temporal self-appraisal and perceive the past self as better than the current self. Regarding future self-appraisal, a central tenet of cognitive models of anxiety is that the self is perceived as vulnerable to future danger and threat (Clark & Beck, 2010), with worrying about the future a common feature (Davey & Meeten, 2016). However, given that those with depressed mood distinguished between hopelessness of the future and perceptions of their future self, it is possible that people experiencing anxiety distinguish between worry over negative future events and the self in the future. Therefore, it was expected that individuals with anxiety appraise the future self more positively than the current self.

To test the proposed trajectory of the self in depression and anxiety, both a quantitative and qualitative study were conducted. Chapter 8 presented the quantitative study in which participants who met criteria for a depressive and/or anxiety disorder were asked to evaluate their current selves and how they expected themselves to be in four weeks time. Four weeks later, they were asked to evaluate their current self and their self of four weeks prior. This enabled comparisons between current and retrospective, and current and anticipatory self-evaluations. As per the proposed trajectory, individuals with a depressive and/or anxiety disorder expected the self to be better in the future. This suggests that individuals with depression/anxiety distinguish between hopelessness/worry about the future and perceptions of the future self. However, contrary to expectations, participants perceived the current self as having improved from the past self. This was in the absence of actual improvement and therefore reflects self-enhancement motives. This is surprising given the well-established disruptions in self-enhancement processes in

both depression (for a review see Alloy et al., 2011) and anxiety (e.g., Gordon et al., 2013; Kashdan & Savostyanova, 2011; Vincze, 2010).

The surprising results may reflect the time period employed. Participants were asked to appraise their past self of four weeks ago, at which point they were experiencing depressive and/or anxiety symptoms. This contrasts with previous research which explicitly referred to a time *prior* to the onset of symptoms or a substantial time ago, for example 10 years ago, at which point it could be assumed that the person was not experiencing symptoms (Brown et al., 2011; Dinos et al., 2005; Silver & Reavey, 2010; Sokol & Serper, 2017). Comparisons may differ between the self prior to and after the onset of symptoms. There is evidence that temporal landmarks can have a maladaptive function in psychopathology. In both schizophrenia (Dinos et al., 2005) and PTSD (Brown et al., 2011), the onset of mental illness was found to act as a temporal landmark and create temporal distance between the current self and the self prior to symptoms. The self prior to symptoms was perceived more positively than the self after this point. This may be the case with depression and anxiety, with the self prior to symptoms perceived as better than the self after symptoms but after that point, the self continues on an upward trajectory.

In the qualitative study (Chapter 7), eight individuals diagnosed with a depressive and/or anxiety disorder participated in semi-structured interviews exploring the interaction of their self-concepts and mental health perceptions over time. This allows for the exploration of the role that the onset of symptoms plays in these disorders. The results indicate that symptom onset does indeed appear to create a maladaptive temporal landmark in depression but not anxiety. Participant 5's

description of herself within the context of depression epitomised the maladaptive comparisons with the self prior to the onset of symptoms: “I’m mostly unsatisfied with how I am doing and my life”, recounting “I used to be [satisfied with myself], a few years back, but now I’m not... I used to be really different, and I really liked myself at that time”. In contrast, the onset of anxiety symptoms did not create a temporal landmark but rather anxiety was perceived as having “always” been a part of the self.

A likely reason for the role of temporal landmarks differing in depression and anxiety is the ego-congruence of symptoms. Self-incongruence - the unwanted, feared, or inconsistent aspects of the self - has been proposed to play a role in emotional disorders (Kyrios et al., 2016). Participants in the qualitative study of Chapter 7 generally reported their anxiety as ego-syntonic and depression as ego-dystonic. The former was considered an inherent part of the self, which participants could learn how to manage better over time and, at times, could even be helpful and motivating. The latter was inconsistent with self-concept and consequently, the onset of symptoms disrupted participants’ sense of self and was distressing to participants. The ego-syntonic nature of anxiety symptoms allowed for the perception of a continual upward trajectory of the self over time, while the onset of ego-dystonic depression created a maladaptive temporal landmark and disrupted the upward self-trajectory.

This thesis provides evidence that individuals with a depressive and/or anxiety disorder have lower self-appraisals than those without a psychological disorder. Specifically, the quantitative study found individuals with a depressive and/or anxiety

disorder had lower overall self-appraisals than healthy controls, with evidence to suggest a stronger relationship between self-appraisal and depressive symptoms than anxiety symptoms. This interpretation is further supported by the results of the qualitative study, in which participants who predominantly endorsed symptoms of anxiety reported feeling satisfied with themselves in the present, while those who predominantly identified with depressive symptoms felt dissatisfied with the present self. This likely reflects differences between depression and anxiety in the perception of the self. In depression, the self is perceived as deficient, inadequate and unworthy, with people attributing unpleasant experiences to defects in themselves (Beck, 1967; Beck & Alford, 2009). Depression vulnerabilities are specific to critical sources of self-worth and attached to central values. These values were likely captured in the attributes measured in the quantitative study and were salient for participants during the semi-structured interviews. In anxiety, the self is perceived as weak, helpless and vulnerable to danger (Clark & Beck, 2010). It is possible that these perceptions were not reflected in the attributes measured in the quantitative study. However, the results of the qualitative study would suggest that a more likely explanation is the negative self-appraisals associated with anxiety were not activated during the quantitative or qualitative studies. In anxiety, self-concept fluctuates in response to the degree of perceived risk or threat. That is, lowered self-confidence and higher levels of self-criticism are activated only in anxiety-inducing situations. Therefore, the stronger relationship between self-appraisal and depressive symptoms likely reflects the pervasive nature of the disturbances in the self in cases of depression compared with the context-specific vulnerability in anxiety.

Cognitive biases may have also contributed to the stronger relationship between self-appraisal and depressive symptoms. Depression, but not anxiety, is associated with explicit memory bias for negative self-related information (Mathews & MacLeod, 2005). By measuring explicit self-appraisal, the experimental method could have activated or accessed this bias. In contrast, anxiety is associated with implicit memory bias for threat-relevant information (Coles & Heimberg, 2002). It may be that implicit measures of temporal self-appraisal (Peetz, Jordan, & Wilson, 2014) would better capture this bias and show a stronger relationship between negative self-appraisals and anxious symptoms. Future experiments will need to consider these issues carefully, particularly as the correlation between many implicit constructs and their explicit counterparts has been found to be small.

While individuals with a depressive and/or anxiety disorder had lower overall appraisals, they still perceived an upward trajectory of self. There is evidence a steeper perceived upward trajectory of past, present and anticipated life satisfaction is associated with distress and dysfunction (Busseri, Choma, & Sadava, 2012; Busseri & Peck, 2015; Busseri, Choma, & Sadava, 2009). Busseri and colleagues suggest that an upward trajectory of life satisfaction may be representative of wishful thinking rather than an adaptive form of self-enhancement. It is possible that the current findings are likewise representative of wishful thinking. However, evidence from the qualitative study would suggest that the perception of an upward trajectory of the self as coping over time served a self-enhancing function. This was achieved through temporal comparisons highlighting improvements in coping from past selves. For example, Participant 3 compared her current mental state favourably to that of a past self, recounting, “at the start... I was quite bad”, and having come in “leaps and bounds”

since two years ago. She reported, “I just try to deal with it better.” Similarly, Participant 5 described how “I’ve been much less depressed, in the last few months... it’s much more manageable now.” Participants anticipated their coping ability would continue to improve, drawing on past successes to feel confident in their ability to manage their mental health in the future. For example, Participant 1 related having “overcome some pretty shitty situations”, and despite feeling like “I don’t have everything down pat, like some days it’s still a bit of a struggle”, having confidence that “I’ve got a few techniques in place which work, that I can use to stop it getting really bad”. Participant 4 similarly articulated, “Now I know how to cope with it [anxiety]. So, I learnt from it”. Therefore, engaging in temporal comparisons that highlight improvement in symptom management from past to present to future allows for the perception of a subjective upward trajectory of coping across time.

Taken together, evidence from the qualitative and quantitative study provides a picture of the perceived trajectory of the self over time in depression and anxiety. Figure 10.1 provides a visual representation of this pattern. There are a number of points to note. First, individuals with a depressive and/or anxiety disorder have lower self-appraisals than those without a psychological disorder in the past, present and future, and that this relationship is stronger for depressive than anxiety symptoms. Second, the onset of depressive symptoms appears to create a maladaptive temporal landmark. The self prior to the onset of depressive symptoms is perceived more positively than after onset, however, improvement is perceived from the past *symptomatic self* to the current self. Given that anxiety is seen as having “always” been there and inherent to the self, the onset of anxiety symptoms does not create a temporal landmark and the trajectory is undisrupted. Third, the upward trajectory of

the self in depression and/or anxiety appears to reflect the upward trajectory of coping over time, with people feeling more confident to manage their mental health as time progresses. Fourth, while anxiety is characterised by worry and depression is associated with hopelessness about the future (e.g., Ehring & Watkins, 2008), the studies presented in this thesis indicate that individuals appear to differentiate between future external outcomes and future personal improvement. This is consistent with previous research in depressed mood (Sokol & Serper, 2017) and schizophrenia (Dinos et al., 2005).

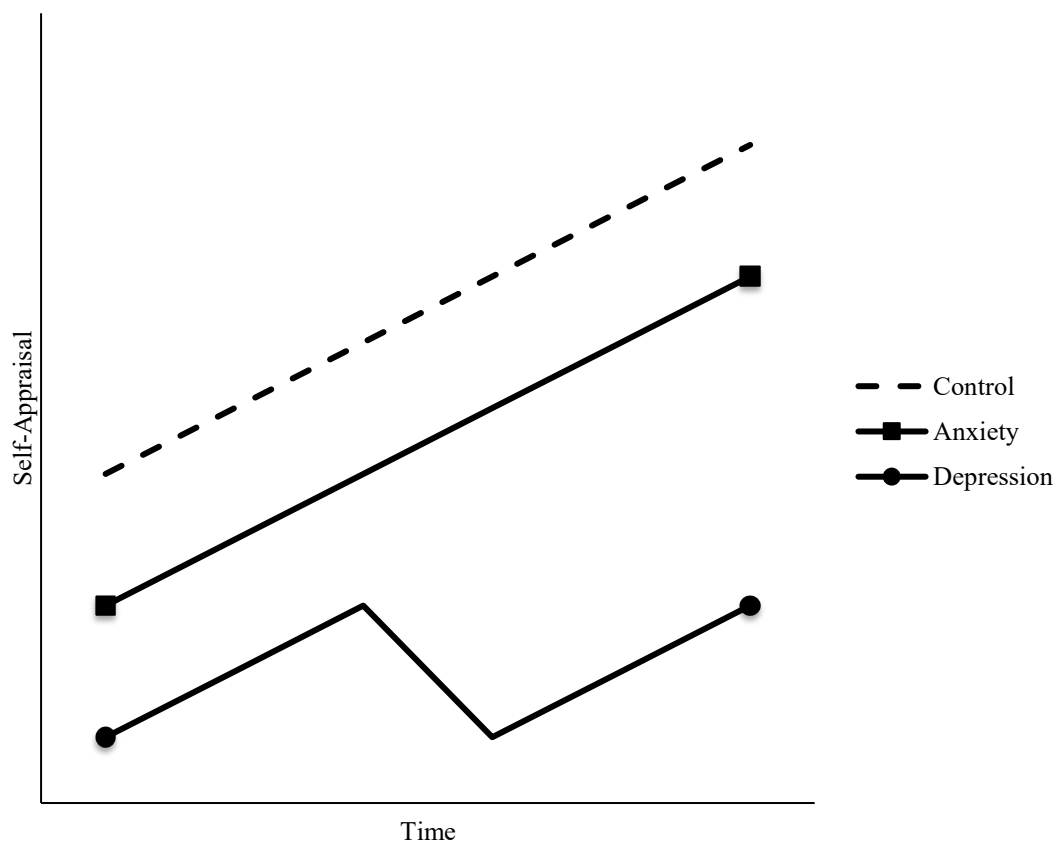


Figure 10.1. The trajectory of the self over time by mental health.

Note. Not to scale.

10.2.2 The manipulation of subjective temporal distance. The second aim of this thesis was to examine the role of subjective temporal distance in the appraisal of self over time. An important tenet of temporal self-appraisal theory is that there is a difference between the actual passage of time and the subjective feeling of time. It is the subjective perception of temporal distance that is more important in how people evaluate past and future selves. Wilson and Ross have created two methods to manipulate subjective temporal distance: verbally reframing a timepoint (Wilson & Ross, 2001) and using different anchors on a timeline (Wilson, 2000). However, there were a number of unresolved issues with both of these manipulations; namely: previous studies concurrently employing both manipulations, lack of reporting of effect sizes, inconsistency between manipulation checks and main analyses, and null results. Therefore, it was considered important to replicate these manipulations in non-clinical populations to address questions around their efficacy and the conditions under which they are effective. Further understanding of the manipulation of subjective temporal distance in non-clinical populations could inform how these manipulations may improve self-appraisals in individuals with depression and/or anxiety.

Chapter 9 presented conceptual replications of these two common manipulations of subjective temporal distance in non-clinical populations and examined their effects on temporal self-appraisal. It was found that the timeline manipulation was effective for manipulating the subjective temporal distance of a future but not a past timepoint (Study 1). Manipulation checks indicated that the verbal framing manipulation did not significantly influence the perception of subjective temporal distance of a past or future timepoint (Study 2). With only one

exception, there were no effects of subjective temporal distance on appraisal of self; however, both studies provided evidence of a general trend of the perception self-improvement over time.

The surprising results of the replication studies suggest the two manipulations have different effect sizes, between the manipulation of past and future timepoints and that the effect is dependent upon objective time. Furthermore, the current studies differed from previous research by the use of timepoints rather than events. For example, we referred to two months ago rather than an event such as the last term of high school (Wilson, 2000) or a calendar point such as January (Wilson et al., 2012). Research on temporal landmarks indicates that events are important in the perception of time (Peetz & Wilson, 2013). This has been evident in this dissertation, with temporal landmarks found to play a critical role in the temporal self-appraisals of those with a depressive disorder. It may be easier to manipulate subjective temporal distance of events compared with timepoints because the objective time is not salient and therefore easier to overcome. In fact, it is possible that the manipulation of subjective temporal distance and the associated effects of temporal self-appraisal may be unique to events.

10.3 Theoretical Implications

The findings of this thesis confirm and extend our understanding of depression, anxiety and the self. Cognitive models propose that depression and anxiety are characterised by negative self-perceptions (Beck 1967; Clark & Beck, 2010). Consistent with these models, the current research found individuals with a depressive and/or anxiety disorder had more negative self-appraisals than those

without a psychological disorder. While both depression and anxiety are characterised by negative self-perceptions, cognitive models emphasise differences in how individuals with depression and anxiety perceive the self. Depression is associated with perceptions of the self as deficient, inadequate and defective. These negative self-perceptions are attached to central values. In contrast, anxiety is characterised by perceptions of the self as helpless, weak, and vulnerable. These negative self-perceptions are only activated when the self is under threat. This thesis provides support for these key differences. Both quantitative and qualitative analyses found a stronger relationship between self-appraisal and depressive symptoms than anxiety symptoms. This is thought to reflect the pervasive nature of disturbances in the self in depression compared with the context-specific vulnerability in anxiety.

A major criticism of early cognitive theory is that it tended to overemphasise the content and valence of self-concept (Clark, 2016). More recently, research has explored the role of the multidimensional self in psychopathology (Campbell et al., 2003) and how self-structure may inform treatment (Huflejt-Lukasik et al., 2015; Showers et al., 2004). Three of the most dominant models in the literature – self-complexity (Linville, 1985), self-discrepancy (Higgins, 1987), and possible selves (Markus & Nurius, 1986) – have highlighted the important function of self-structure in the maintenance of depression and anxiety. The current results support the conceptualisation of the self as multidimensional and the role of self-structure in understanding the relationship between depression, anxiety and self. It extends upon previous multidimensional models of self by demonstrating that individuals with depression and/or anxiety have different appraisals for past, present and future selves.

This thesis has provided insight into the trajectory of the self over time in depression and anxiety. Evidence from the empirical studies suggested that the onset of depressive symptoms creates a maladaptive temporal landmark. The self prior to the onset of depressive symptoms is perceived more positively than after onset. However, after this point the upward trajectory resumes, with improvement perceived from the past symptomatic self to the current self. In contrast, the onset of anxiety symptoms does not create a temporal landmark or interrupt the upward trajectory of the self over time. This may be due to the ego-syntonic nature of anxiety and the ego-dystonic nature of depression. In both depression and anxiety, the self is anticipated to improve in the future. This conclusion appears to be inconsistent with cognitive models of depression and anxiety, which posit that depression is associated with hopeless expectations of the future and anxiety associated with worry over future threats. The current research highlights a nuance in how individuals perceive the future and the future self. The results suggest that individuals can differentiate between future external outcomes and future personal improvement. That is, while the future may be perceived as hopeless or fraught with danger, the self is still expected to improve. The upward trajectory of the self in depression and/or anxiety may reflect the upward trajectory of coping over time, with people gaining confidence in their ability to manage their mental health as time progresses.

This thesis has offered evidence that individuals with a depressive and /or anxiety disorder naturally engage in temporal comparisons for self-enhancement. However, replications of two possible methods of manipulating subjective temporal distance in non-clinical samples were not successful. This highlights the importance of considering the objective temporal distance and temporal direction (past vs. future)

when attempting to manipulate subjective temporal distance. Furthermore, it suggests that the manipulation of subjective temporal distance and the associated effects of temporal self-appraisal may be unique to events. This thesis has furthered our understanding of the manipulation of subjective temporal distance in non-clinical populations and highlighted considerations for future research. This is important because if we are able to perfect the manipulation of subjective temporal distance, then we may be able to harness the positive benefits of naturally occurring temporal comparisons in individuals with a depressive and/or anxiety disorder.

10.4 Clinical Implications

The research described in this thesis suggests a number of important targets in the treatment of depression and anxiety. First, consistent with previous research, individuals with depression and/or anxiety were found to have lower overall self-appraisals than individuals without a psychological disorder. It is critical that treatment address these negative self-appraisals. Second, the onset of depressive symptoms appeared to create a maladaptive temporal landmark. Individuals made unhelpful comparisons between the self prior to symptoms and the current self. Interventions should target these unhelpful comparisons. Third, individuals with a depressive and/or anxiety disorder were found to naturally engage in helpful temporal comparisons, particularly in relation to the upward trajectory of coping. Treatment could elicit these helpful comparisons. Fourth, anxiety was perceived as ego-syntonic and depression as ego-dystonic. This has implications for help-seeking behaviours, engagement in treatment and treatment goals. Each of these points will now be discussed in turn.

10.4.1 Targeting negative self-appraisals. Consistent with cognitive models of psychopathology, the current research found individuals with a depressive and/or anxiety disorder had lower overall self-appraisals than those without a psychological disorder. There was evidence to suggest a stronger relationship between self-appraisal and depressive symptoms than anxiety symptoms. Given this, self-appraisals should be targeted in the treatment of anxiety and depression in particular. CBT has consistently been found to be effective in treating depressive and anxiety disorders (Butler et al., 2006) and is a recommended first-line treatment (National Institute for Health and Care Excellence [NICE], 2009, 2011). Furthermore, CBT is associated with improvements in self-concept (e.g., Gregory & Peters, 2017). Therefore, CBT techniques may be helpful in addressing negative self-appraisals in individuals with depression and anxiety. For example, cognitive restructuring could help clients to become aware of their maladaptive cognitions and to challenge negative self-appraisals (Beck & Alford, 2009; Clark & Beck, 2010). Exposure and response prevention therapy may help individuals with anxiety to modify faulty threat and safety appraisals by providing experience and information that disconfirms anxious beliefs and provides evidence of the self as competent (Clark & Beck, 2010). Similarly, behavioural activation can help individuals with depression gain a sense of competence and gather evidence contrary to their perception of the self as deficient.

10.4.2 Targeting unhelpful temporal comparisons. The results of this dissertation suggest that the onset of depressive symptoms creates a maladaptive temporal landmark. The self prior to the onset of depressive symptoms is perceived more positively than the current self. Acceptance-Commitment Therapy (ACT), a

third-wave CBT approach, may be effective in addressing unhelpful temporal comparisons between the self prior to symptoms and the current self. ACT differentiates between the *observing self* and the *conceptualised self* (Harris, 2009). The conceptualised self is the story we tell ourselves about who we are. This includes descriptions and evaluations of the roles we play, our relationships, likes and dislikes, strengths and weaknesses and hopes for the future. If held lightly, this story helps to give us a sense of who we are and our values. However, if we become overly attached to our conceptualised self, we begin to see ourselves as defined by our self-descriptions. This can create emotional difficulties. The observing self is the aspect of ourselves that is aware of what we are thinking, feeling doing or sensing at any given moment. The observing self allows for defusion from our conceptualised self and encourages self-acceptance.

The findings of this thesis indicate that the onset of depressive symptoms creates a maladaptive temporal landmark and that this temporal landmark is central to the individual's life story. According to ACT, the depressed individual would be understood to have fused with their conceptualised self. That is, the person places extreme importance on the onset of symptoms and is overly attached to their conceptualisation of the self prior to symptoms. This could be addressed in treatment by encouraging defusion from narratives that reinforce a negative conceptualised self, fostering the observing self and supporting mindful acceptance of the self and symptoms (Harris, 2009). Additionally, the adoption of a broader temporal perspective may help to create psychological distance from negative life events and reduce the associated distress by highlighting their impermanence (Bruehlman - Senecal & Ayduk, 2015).

10.4.3 Eliciting helpful temporal comparisons. This thesis indicates that individuals with a depressive and/or anxiety disorder perceive an upward trajectory of the self as coping over time. Temporal comparisons can highlight perceived improvement in coping from the past and the anticipation of improved coping ability in the future. This can serve a self-enhancement function. Given the potential benefits, treatment could attempt to elicit helpful temporal comparisons. In the current research, these comparisons were revealed through semi-structured interviews. Clinicians could ask similar questions as those outlined in the interview schedule (see Chapter 7), for example “What do you think about your anxiety/depression in the future?” Not only could this result in helpful temporal comparisons but also help the clinician to understand how the client views themselves and their mental health.

This thesis aimed to explore possible methods for manipulating subjective temporal distance. Conceptual replications of a verbal framing and a timeline manipulation were not successful. However, the current research has furthered our understanding of the conditions required for the successful manipulation of subjective temporal distance. As is, future research is required to examine whether these two manipulations may be effectively employed in clinical practice.

10.4.4. Implications of the ego-congruence of symptoms for treatment.

The current research project suggests that anxiety is perceived as ego-syntonic and depression as ego-dystonic. Anxiety was perceived as an inherent part of the self, which participants could learn how to manage better over time or at times even be considered helpful and motivating. Depression was perceived as inconsistent with

self-concept. As a result, the onset of symptoms disrupted participants' sense of self and was distressing to participants. While the pattern of temporal self-appraisal in anxiety seems more adaptive than that of depression, ego-syntonic anxiety symptoms may be detrimental to help-seeking and motivation to change. Given that anxiety is seen as a part of the self that has always been there, individuals may be less likely to seek treatment. For those that attend treatment, the ego-syntonic nature of anxiety may influence treatment goals. Participants in the qualitative study who predominantly identified with anxiety tended to have goals of symptom management. It may be that they are less hopeful for a full recovery given that anxiety is ingrained in their sense of self. Encouraging defusion from the conceptualised self and exploring values may help individuals to envision a life without anxiety (Harris, 2009). The adaptive function of worry may be a barrier to change (Wells, 2004). People may find it difficult to let go of a part of themselves that has positive, as well as negative, aspects. Motivational interviewing (Miller & Rose, 2009) may be helpful in acknowledging ambivalence on the part of the client.

In contrast, the distressing ego-dystonic depressive symptoms are likely to prompt individuals to seek treatment. Participants in the qualitative study who predominantly identified with depression tended to have goals of recovery. However, there was uncertainty of whether this goal would be achieved. Clinicians should emotionally hold hope for the client (Flaskas, 2007). On the other side of this, clinicians should be cautious of experiential avoidance. Clients may resist against difficult emotions and their desire to return to the self prior to symptoms may reflect an attempt to no longer experience them. In these cases, clinicians could encourage

mindful acceptance, opening up and making room for painful emotions (Harris, 2009). This may also help to manage expectations of treatment.

10.5 Limitations and Future Directions

It is important to acknowledge how some specific limitations of each study may limit the inferences that can be drawn and guide future research. As noted throughout previous chapters, the findings of this research cannot be generalised to individuals who are not represented by the sample characteristics. The clinical samples appeared to be relatively high-functioning. Participants were self-selected in volunteering for participation and in the case of the quantitative study, reported only mild to moderate severity for depression and anxiety on the DASS (Lovibond & Lovibond, 1995). This suggests the clinical samples recruited for these studies may not have been representative of a broad range of symptom severity. Future research could examine temporal self-appraisal in individuals experiencing more severe symptoms and exhibiting greater functional impairment.

The current studies did not perform in-depth assessment of the cultural background of participants. Participants were required to reside in Australia and have a proficient level of English. While the multicultural nature of the Australian population (e.g., Moran, 2011) means this is not a certain indication of cultural background, it would suggest that the sample was predominantly from a Western background. Cultural background could have some influence on temporal self-appraisal. There is evidence that patterns of temporal self-appraisal are not universal. For example, in one study of a non-clinical sample of Japanese students, there was a tendency to perceive the subjective temporal distance between past positive and

negative events as similar and discrepancies between past and current selves were not used for self-enhancement (Ross et al., 2005). Although this does not provide a clear basis to develop culture-specific hypotheses about temporal self-appraisal, it does raise the possibility that patterns of temporal self-appraisal for individuals with anxiety and depression are different in non-Western cultures. It is important that future research explores this possibility and research into temporal self-appraisal more broadly accounts for the influence of culture.

This thesis replicated two common methods of manipulating subjective temporal distance. However, there were several limitations to these studies that should be addressed in future research. First, both studies only had sufficient power to detect medium effect sizes. While this was sufficient for the timeline manipulation for future timepoints, it may not have been sufficient to detect the effects of past timepoints or the verbal framing manipulation. Future research should examine the manipulation of subjective temporal distance with a larger sample. Second, there were differences between the two studies that make comparisons between the two manipulations unfeasible. Future research could compare the manipulations within the same sample, using the same time periods and in both temporal directions. Third, the current studies differed from previous research by the use of fixed timepoints rather than events. The results suggest that the effects of the manipulation of subjective temporal distance may be unique to events. Future research is required to test this hypothesis.

The current research furthered understanding of the manipulation of subjective temporal distance in non-clinical populations. It is important to examine the manipulation of subjective temporal distance in clinical populations. In addition to the

two common manipulations examined in this dissertation, Chapter 6 outlined another possible manipulation. Several authors (e.g., Bergouignan et al., 2008; Janssen et al., 2015; Sanitioso, 2008) have suggested that clients could be encouraged to disclose a high (low) amount of episodic detail and to adopt a first (third)-person perspective when retrieving memories to make positive (negative) events feel closer (more distant). For example, clinicians could elicit sensory details from positive memories but ask clients to recall negative memories from a third-person perspective and a more reflective stance. If effective, this would be a very simple intervention to implement, but it has yet to be empirically tested. It is recommended that future research examine a range of methods for manipulating subjective temporal distance in clinical samples. In particular, given the maladaptive temporal landmark created by the onset of depressive symptoms, it would be of interest to examine whether it is possible to manipulate the subjective temporal distance of the onset of symptoms and whether this subsequently impacts upon mood.

Despite the inclusion of a longitudinal study in this thesis, it is premature to infer causal relationships between temporal self-appraisal and depression and anxiety. It could be that lower overall self-appraisals predispose an individual to develop a depressive and/or anxiety disorder. Conversely, depressive and anxiety symptoms could result in lower self-appraisals. Experimental designs that incorporate mood inductions could help to establish the direction of the relationship. Similarly, large-scale longitudinal studies using dynamic structural equation models could be employed to tease out dependencies between components. Specifically, a sample could be followed over time to examine whether self-appraisals predict the onset of depression and/or anxiety. This would also enable comparisons between current and

retrospective evaluations of the self prior to the onset of symptoms and help establish whether self-appraisals were higher prior to symptoms or whether it is a case of memory bias (Lotterman & Bonanno, 2014).

10.6 Conclusion

This thesis contributes to the important body of research on the self in depression and anxiety by providing a picture of the perceived trajectory of the self over time. Individuals with a depressive and/or anxiety disorder were found to have lower appraisals of the past, present and future self than those without a psychological disorder. Symptom onset created a maladaptive temporal landmark in depression but not anxiety. The self prior to the onset of depressive symptoms was perceived more positively than after onset, however, improvement was perceived from the past symptomatic self to the current self. Given that anxiety was perceived as inherent to the self, the onset of anxiety symptoms did not create a temporal landmark or interrupt the self-trajectory. The upward trajectory of the self in depression and anxiety may be indicative of an upward trajectory of coping ability. People felt more confident to manage their mental health over time. These findings have implications for treatment of anxiety and depression. It is recommended that treatment target negative self-appraisals and unhelpful comparisons between the self prior to symptoms and the current self; support the perception of a trajectory of coping and foster helpful temporal comparisons; and consider the implications of the ego-syntonic and ego-dystonic nature of anxiety and depression respectively. This thesis has furthered our understanding of the manipulation of subjective temporal distance in non-clinical populations and highlighted directions for future research, which in turn,

can inform how these manipulations could be integrated into the treatment of depression and anxiety.

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Appendix 1. Author Indication Forms



Swinburne Research

Authorship Indication Form For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

A narrative review of temporal self-appraisal in depression and clinical implications

First Author

Name: Stephanie Mathews Signature: 

Percentage of contribution: 80 % Date: 31/10/2018

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Conducted an extensive review of the literature, designed research questions and conceptualisation of the paper and prepared manuscript

Second Author

Name: Ben Williams Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper': *co-supervision of project, guidance & feedback on review protocol, paper coding, & draft of manuscript, editing of manuscript.*

Third Author

Name: Maja Nedeljkovic Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper':

Co-supervised the project, provided guidance & feedback on drafts

Fourth Author

Name: _____ Signature: _____

Percentage of contribution: _____ % Date: ___/___/___

Brief description of your contribution to the 'paper':

Principal Coordinating Supervisor: Name: Ben Williams Signature: 

Date: 03/12/2018

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



Swinburne Research

Authorship Indication Form For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:
PATTERNS OF TEMPORAL SELF-APPRAISAL IN PSYCHOPATHOLOGY:
 DOES SYMPTOM ONSET CREATE A MALADAPTIVE TEMPORAL LANDMARK
 IN ANXIETY AND DEPRESSION?

First Author

Name: LAURA ABBEYSignature: Percentage of contribution: 60%Date: 22/10/2018

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Reviewed literature and designed research questions, conducted qualitative interviews and collaborated with the second author in completing a deductive content analysis. Prepared manuscript.

Second Author

Name: STEPHANIE MATHEWSSignature: Percentage of contribution: 30%Date: 31/10/2018

Brief description of your contribution to the 'paper':

Assisted with the conceptualisation of the paper, developing research questions and data collection protocol. In collaboration with the first author, conducted a deductive content analysis. Critically reviewed manuscript.

Third Author

Name: BENEDICT WILLIAMSSignature: Percentage of contribution: 5%Date: 03/12/2018


Brief description of your contribution to the 'paper': Assisted in design (thesis co-supervisor), contribution to manuscript development & editing

Fourth Author

Name: MAJA NEDELJKOVICSignature: Percentage of contribution: 5%Date: 03/12/2018

Brief description of your contribution to the 'paper':

Co-supervised the project, provided guidance & feedback on drafts.

Principal Coordinating Supervisor: Name: BENEDICT WILLIAMS Signature: Date: 03/12/2018

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



Swinburne Research

Authorship Indication Form

For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

Temporal self-appraisal in depression and anxiety: A comparison between a clinical and non-clinical sample

First Author

Name: Stephanie Mathews Signature: 

Percentage of contribution: 80 % Date: 31/10/2018

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Reviewed literature, designed research questions, collected and analysed data, prepared manuscript.

Second Author

Name: Ben Williams Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper':

co-supervisor of the project, feedback on drafts, discussion of surrounding theory
Assistance/advice on data analysis.

Third Author

Name: Maja Nedeljkovic Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper':

Super Co-supervised the project, provided guidance & feedback on drafts.

Fourth Author

Name: _____ Signature: _____

Percentage of contribution: _____ % Date: ___/___/___

Brief description of your contribution to the 'paper':

Principal Coordinating Supervisor: Name: Ben Williams Signature: 

Date: 03/12/2018

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.



Swinburne Research

Authorship Indication Form For PhD (including associated papers) candidates

NOTE

This Authorship Indication form is a statement detailing the percentage of the contribution of each author in each associated 'paper'. This form must be signed by each co-author and the Principal Coordinating Supervisor. This form must be added to the publication of your final thesis as an appendix. Please fill out a separate form for each associated paper to be included in your thesis.

DECLARATION

We hereby declare our contribution to the publication of the 'paper' entitled:

The replication of two common manipulations of subjective temporal distance in temporal self-appraisal

First Author

Name: Stephanie Mathews Signature: 

Percentage of contribution: 80 % Date: 31/10/2018

Brief description of contribution to the 'paper' and your central responsibilities/role on project:

Reviewed literature, designed research questions, collected and analysed data, prepared manuscript.

Second Author

Name: Ben Williams Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper': cosupervisor of project - contribution to design & analysis, development & editing of manuscript

Third Author

Name: Maja Nedeljkovic Signature: 

Percentage of contribution: 10 % Date: 03/12/2018

Brief description of your contribution to the 'paper':

Co-supervised the project, provided feedback on drafts.

Fourth Author

Name: _____ Signature: _____

Percentage of contribution: ____ % Date: __/__/____

Brief description of your contribution to the 'paper':

Principal Coordinating Supervisor: Name: Ben Williams Signature: 

Date: 03/12/2018

In the case of more than four authors please attach another sheet with the names, signatures and contribution of the authors.

Appendix 2. Summary of Journals

The *Journal of Social and Clinical Psychology* is devoted to the application of theory and research from social psychology toward the better understanding of human adaptation and adjustment, including both the alleviation of psychological problems and distress (e.g., psychopathology) and the enhancement of psychological wellbeing among the psychologically healthy. Topics of interest include (but are not limited to) traditionally defined psychopathology (e.g., depression), common emotional and behavioural problems in living (e.g., conflicts in close relationships), the enhancement of subjective wellbeing, and the processes of psychological change in everyday life (e.g., self-regulation) and professional settings (e.g., psychotherapy and counselling).

Journal Impact Factor = 1.304

The *Australian and New Zealand Journal of Psychiatry* is a monthly journal publishing original articles, which describe research or report opinions of interest to psychiatrists. These contributions may be presented as original research, reviews, perspectives, commentaries and letters to the editor. The Journal is the leading psychiatry journal of the Asia-Pacific region.

Journal Impact Factor = 5.084

Clinical Psychology & Psychotherapy aims to keep clinical psychologists and psychotherapists up to date with new developments in their fields. The Journal will provide an integrative impetus both between theory and practice and between different orientations within clinical psychology and psychotherapy. *Clinical Psychology & Psychotherapy* will be a forum in which practitioners can present their wealth of expertise and innovations in order to make these available to a wider audience. Equally, the Journal will contain reports from researchers who want to address a larger clinical audience with clinically relevant issues and clinically valid research. The journal is primarily focused on clinical studies of clinical populations and therefore no longer normally accepts student-based studies. This is a journal for those who want to inform and be informed about the challenging field of clinical psychology and psychotherapy.

Journal Impact Factor = 2.508

The *Journal of Experimental Social Psychology (JESP)* aims to publish articles that extend or create conceptual advances in social psychology. As the title of the journal indicates, we are focused on publishing primary reports of research in social psychology that use experimental or quasi-experimental methods, although not every study in an article needs to be experimental. We also would like to encourage submissions explaining methodological or statistical considerations that are relevant to the kind of research published here, and that are usable by the typical person who carries out and evaluates social psychology research. Finally, we encourage authors to submit reports of replication studies in experimental social psychology that meet the high standards at JESP.

Journal Impact Factor: 2.870

Appendix 3. Ethics Approval Letters

SHR Project 2015/289 - Ethics clearance

Astrid Nordmann

Fri 20/11/2015 1:20 PM

To: Benedict Williams <bwilliams@swin.edu.au>

Cc: RES Ethics <resethics@swin.edu.au>; Maja Nedeljkovic <mnedeljkovic@swin.edu.au>; Stephanie Mathews <smathews@swin.edu.au>;

To: Dr Benedict Williams, FHAD

Dear Dr Williams,

SHR Project 2015/289 – The relationship between time perspective, temporal self-appraisal and wellbeing

Dr Benedict Williams, Ms Stephanie Mathews (Student), Dr Maja Nedeljkovic - FHAD

Approved duration: 21-11-2015 to 21-06-2016 [adjusted]

I refer to the ethical review of the above project by a Subcommittee (SHESC2) of Swinburne's Human Research Ethics Committee (SUHREC). Your responses to the review as emailed on 20 November 2015 were put to the Subcommittee delegate for consideration.

I am pleased to advise that, as submitted to date, ethics clearance has been given for the above project to proceed in line with standard on-going ethics clearance conditions outlined below.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on

participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. [Information](#) on project monitoring and variations/additions, self-audits and progress reports can be found on the Research Intranet pages.
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance, citing the Swinburne project number. A copy of this email should be retained as part of project record-keeping.

Best wishes for the project.

Yours sincerely,
Astrid Nordmann
SHESC2 Secretary



Dr Astrid Nordmann | Research Ethics Officer
Swinburne Research | Swinburne University of Technology
Ph +61 3 9214 3845 | anordmann@swin.edu.au
Level 1, Swinburne Place South
24 Wakefield St, Hawthorn VIC 3122, Australia
www.swinburne.edu.au

SHR Project 2016/066 - Ethics clearance

Astrid Nordmann

Fri 22/04/2016 2:32 PM

To: Maja Nedeljkovic <mnedeljkovic@swin.edu.au>

Cc: RES Ethics <resethics@swin.edu.au>; Stephanie Mathews <smathews@swin.edu.au>; Benedict Williams <bwilliams@swin.edu.au>; LAURA ABBEY <4961633@student.swin.edu.au>; DANIEL SOLOMON <4945417@student.swin.edu.au>; necheverria@student.swin.edu.au <necheverria@student.swin.edu.au>; NICOLE ECHEVERRIA <2081407@student.swin.edu.au>;

To: Dr Maja Nedeljkovic, FHAD

Dear Maja,

SHR Project 2016/066 – Seeing oneself across time and the association to anxiety and depression

Dr Maja Nedeljkovic, Ms Stephanie Mathews (Student), Ms Laura Abbey (Student), Mr Daniel Solomon (Student), Ms Nicole Echeverria (Student), Dr Benedict Williams - FHAD
Approved duration: 22-04-2016 to 22-02-2019 [adjusted]

I refer to the ethical review of the above project protocol by Swinburne's Human Research Ethics Committee (SUHREC). Your response to the review, as emailed today, accords with the Committee review.

I am pleased to advise that, as submitted to date, the project may proceed in line with standard on-going ethics clearance conditions outlined below.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the *National Statement on Ethical Conduct in Human Research* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.

- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project. Information on project monitoring and variations/additions, self-audits and progress reports can be found on the Research Intranet [pages](#).
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact the Research Ethics Office if you have any queries about on-going ethics clearance, citing the Swinburne project number. A copy of this email should be retained as part of project record-keeping.

Best wishes for the project.

Yours sincerely

Astrid Nordmann
Acting Secretary, SUHREC



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Appendix 4. Advertisements

Advertisement for Control Group:

PROJECT TITLE: Seeing oneself across time and the association to anxiety and depression

INVESTIGATOR (S): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

SUPERVISORS: Dr Ben Williams and Dr Maja Nedeljkovic, Swinburne University of Technology

We are conducting a research project to investigate how the way one sees themselves across time (past, present and future) is associated with an individual's feelings. In particular, we are interested in whether the way people think about themselves across time will differ among individuals with/without an anxiety or depressive disorder.

Participants will complete four parts to this study, which can be divided into two parts:

Part one: a brief interview to screen you for presence of depression anxiety symptoms; and a survey which will ask you to provide basic demographic information and answer questions regarding mood, life satisfaction, time perspective, and self-view.

Part two: experience sampling where you will answer five questions once a day for four weeks on your phone; and a follow-up survey.

Participation in the interview should take approximately 5-15 minutes, while each survey should take approximately 45 minutes. Experience sampling should take approximately 2 minutes each day (with a total of 1 hour for the four weeks). Participation is voluntary, and you can withdraw at any time. Your participation will also be reimbursed, with either credit points (for those of you part of the REP program) or a Coles/Myer Gift Card.

If you:

1. Are aged over 18
2. Do not have a current psychological condition (e.g. anxiety, depression)
3. Can participate in the activities listed above
4. Are fluent in English

We invite you to participate in this research. Or if you would like more information, please don't hesitate to contact: Steph Mathews, email: smathews@swin.edu.au

Thank you for your time.



Advertisement for Clinical Group:

PROJECT TITLE: Seeing oneself across time and the association to anxiety and depression

INVESTIGATOR (S): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

SUPERVISORS: Dr Ben Williams and Dr Maja Nedeljkovic, Swinburne University of Technology

We are conducting a research project to investigate how the way one sees themselves across time (past, present and future) is associated with an individual's feelings. In particular, we are interested in whether the way people think about themselves across time will differ among individuals with/without an anxiety or depressive disorder.

Participants will complete four parts to this study, which can be divided into two parts:

Part one: a brief interview to screen you for presence of depression anxiety symptoms; and a survey which will ask you to provide basic demographic information and answer questions regarding mood, life satisfaction, time perspective, and self-view.

Part two: experience sampling where you will answer five questions once a day for four weeks on your phone; and a follow-up survey.

Participation in the interview should take approximately 30 minutes, while each survey should take approximately 45 minutes. Experience sampling should take approximately 2 minutes each day (with a total of 1 hour for the four weeks). Participation is voluntary, and you can withdraw at any time. Your participation will also be reimbursed, with either credit points (for those of you part of the REP program) or a Coles/Myer Gift Card.

If you:

1. Are aged over 18
2. Have a current anxiety or depressive condition
3. Can participate in the activities listed above
4. Are fluent in English

We invite you to participate in this research. Or if you would like more information, please don't hesitate to contact: Steph Mathews, email: smathews@swin.edu.au

Thank you for your time.

Advertisement for Anxiety Disorders Association of Victoria:

Seeing oneself across time and the associations to anxiety and depression

We are conducting a research project to investigate how the way one sees themselves across time (past, present and future) is associated with an individual's feelings. In particular, we are interested in whether the way people think about themselves across time will differ among individuals with/without an anxiety or depressive disorder.

What the study involves:

Participants will complete four parts to this study, which can be divided into two parts:

Part one: a brief interview to screen you for the presence of depression and anxiety symptoms; and a survey which will ask you to provide basic demographic information and answer questions regarding mood, life satisfaction, time perspective and self-view.

Part two: experience sampling where you will answer five questions once a day for four weeks on your phone; and a follow-up survey.

Participation in the interview should take approximately 30 minutes, while each survey should take approximately 45 minutes. Experience sampling should take 2 minutes each day (with a total of 1 hour for the four weeks). Participation is voluntary and you can withdraw at any time. Your participation will also be reimbursed.

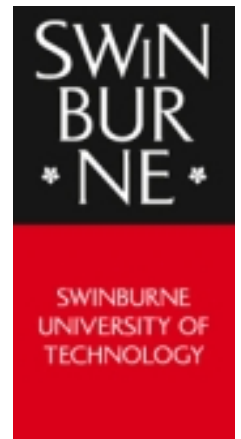
Who can participate?

You are eligible to participate in the study if you:

- Are aged over 18
- Have a current anxiety or depressive condition
- Can be participate in the activities listed above

How to participate:

If you are interested in participating or would like further information, please contact the research team: smathews@swin.edu.au



Appendix 5. Information and Consent Forms



SWINBURNE
UNIVERSITY OF
TECHNOLOGY

Consent Information Statement

Project Title: The relationship between time perspective, temporal self-appraisal and wellbeing.

Student Investigator: Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Supervisors: Dr. Ben Williams and Dr. Maja Nedeljkovic, Swinburne University of Technology

The current research will explore the relationship between an individual's time perspective, their appraisal of the self across time and wellbeing. If you choose to participate you will be asked to complete a short questionnaire in which you will provide some general demographic information, as well as respond to various items that assess life satisfaction, mood, time perspective and self-appraisal.

The questionnaire will take approximately 20 minutes to complete. While some items may seem similar, it is important to respond honestly to all of the questions, giving equal attention to each. However, please be aware that your initial response is usually the most accurate. Your responses to the questionnaire will be confidential and anonymous. The results of this study will form part of Ms. Mathews PhD and may be published in academic journals at some time in the future. However, no individual shall be identified and only group data will be published.

Participation is completely voluntary and your completion of the questionnaire will be taken as your consent to participate and for your data to be used in this study. Your initial agreement to participate does not stop you from discontinuing participation and you are free to withdraw at any time before submitting the questionnaire.

If this research raises issues which cause you concern and which you would like to discuss with a professional, please contact:

Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)
Lifeline, 13 11 14

If you have any queries regarding the study please contact Stephanie Mathews at smathews@swin.edu.au.

This project has been approved by or on behalf of Swinburne's Human Research Ethics Committee (SUHREC) in line with the *National Statement on Ethical Conduct in Human Research*. If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Swinburne Research (H68),
Swinburne University of Technology, P O Box 218, HAWTHORN VIC 3122.
Tel (03) 9214 5218 or +61 3 9214 5218 or reethics@swin.edu.au



Swinburne University of Technology
Faculty of Health, Arts and Design

Participant Consent and Information Form

Project Title: Seeing oneself across time and the association to anxiety and depression

Student Investigator (s): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

Supervisors: Dr. Ben Williams and Dr. Maja Nedeljkovic, Swinburne University of Technology

What is the study about?

This project aims to investigate how the way one sees themselves across time (past, present and future) is associated with an individual's feelings. This study will examine whether the way people think about themselves across time will differ among individuals with anxiety or depressive disorders. The current research will also explore the relationship between an individual's time perspective, their appraisal of the self across time, wellbeing, and life satisfaction.

What does the study involve and what is the time commitment?

If you choose to participate you will be asked to complete four tasks, which can be completed in two parts:

Part One:

1. An interview which will assess you meeting/not meeting criteria for an anxiety or depressive disorder. This interview will be recorded, and completion of the interview will be taken as your consent to participation. This interview can be completed over the phone or at Swinburne University (Hawthorn Campus). This should take between 5-15 minutes.

2. Completing a questionnaire in which you will provide some general demographic information, as well as respond to various questions that measure life satisfaction, mood, time perspective and self-appraisal. These questions are measured on scales, where you will choose answers that best suit you. This questionnaire will take approximately 45 minutes to complete, and can be completed online. While some items may seem similar, it is important to respond honestly to all of the questions, giving equal attention to each. However, please be aware that your initial response is usually the most accurate. Your responses to the questionnaire will be confidential and anonymous.

Part Two:

3. Experience sampling: You will then complete a four-week period of experience sampling. This will require use of a smartphone capable of downloading the InstantSurvey application by Ben Richardson. This application is compatible with most Apple and Android smartphones, and is available on the App Store and Google Play. This task will involve answering five questions once a day when you receive a notification on your phone. These questions will measure your mood, the direction of your thoughts, and how you see yourself. This task will take approximately 2 minutes to complete each time and one hour in total over the four weeks.

4. Completing a follow-up questionnaire which will be similar to the previous one you completed. This will also take approximately 45 minutes to complete.

If you have come from the Swinburne Research Experience Program, upon completion of the study you will be awarded course credit (1 point: parts one; 2 points: part two) for your participation. If you have not come from the REP program, upon completion of the study, you will be awarded \$30 in the form of an Amazon eGift Card or a Coles/Myer Gift Card (\$15 for part one and \$15 for part two).

It is important to emphasize that participation is completely voluntary. Your completion of the questionnaire will be taken as your consent to participate, and for your data to be used in this study. Your initial agreement to participate does not stop you from discontinuing participation and you are free to withdraw at any time, without question or explanation. Your decision to participate or not will not affect your academic evaluation or relationship with Swinburne University of Technology.

Will data provided be confidential and how will it be used?

All data collected will be confidential, and ensure your privacy. Only the researchers listed will have access to the data, which will be stored electronically with password protection. Your data will not be shared with any other individual or organization.

The results of this study will form part of Ms. Mathews PhD, as well as Masters and Honours theses. They may also be published in an academic journal in future. However, no individual will be identified and data will be analysed, reported and published on a group basis only.

If you have any queries regarding this study, please contact:

Stephanie Mathews, email: smathews@swin.edu.au

If this research raises issues which cause you concern and which you would like to discuss with a professional, please contact:

Swinburne Psychology Clinic, (03) 9214 8653 (a low cost counselling service)
Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)
Lifeline, 13 11 14

This project has been approved by or on behalf of Swinburne's Human Research Ethics Committee (SUHREC) in line with the *National Statement on Ethical Conduct in Human Research*. If you have any concerns or complaints about the conduct of this project, you can contact:

Research Ethics Officer, Swinburne Research (H68),
Swinburne University of Technology, P O Box 218, HAWTHORN VIC 3122.
Tel (03) 9214 5218 or +61 3 9214 5218 or resethics@swin.edu.au

Appendix 6. Materials

The studies that form this thesis were part of a larger research project. Only the materials used in this thesis will be presented below. The materials are presented in order of first appearance in the thesis body. Due to copyright restrictions the Mini International Neuropsychiatric Interview, English Version 7.0.1 for DSM-5 (Sheehan et al., 1997) is unable to be included.

Demographics

1. What is your gender?

Male

Female

2. What is your age?

_____ years

Semi-structured interview schedule:

The following questions were adapted from Dinos, Lyons & Finlay (2005):

Self

How would you describe yourself?

How would others describe you?

What don't you like about yourself?

What do you like about yourself?

Which areas do you value highly in your life?

How capable do you feel in these areas?

In general are you satisfied with yourself?

How would you like to be in the future? Do you think you will be the way you want?

Where do you see yourself in the future?

Mental Health

Tell me about your anxiety/depression.

What problems do you experience as a consequence of your anxiety/depression?

What do you think was the cause of your anxiety/depression?

How do you feel now?

What do you think about your anxiety/depression in the future?

What do you expect to happen in the future?

Do you think it will happen?

Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988)

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

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Distressed	1	2	3	4	5
Excited	1	2	3	4	5
Upset	1	2	3	4	5
Strong	1	2	3	4	5
Guilty	1	2	3	4	5
Scared	1	2	3	4	5
Hostile	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Proud	1	2	3	4	5
Irritable	1	2	3	4	5
Alert	1	2	3	4	5
Ashamed	1	2	3	4	5
Inspired	1	2	3	4	5
Nervous	1	2	3	4	5
Determined	1	2	3	4	5
Attentive	1	2	3	4	5
Jittery	1	2	3	4	5
Active	1	2	3	4	5
Afraid	1	2	3	4	5

Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985)

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by selecting the appropriate number. Please be open and honest in your responding.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
1. In most ways my life is close to ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7
4. So far I have gotten the important things I want in life.	1	2	3	4	5	6	7
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7

Depression Anxiety and Stress Scales (Lovibond & Lovibond, 1995)

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

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3

18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3
22	I found it hard to wind down	0	1	2	3
23	I had difficulty in swallowing	0	1	2	3
24	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
26	I felt down-hearted and blue	0	1	2	3
27	I found that I was very irritable	0	1	2	3
28	I felt I was close to panic	0	1	2	3
29	I found it hard to calm down after something upset me	0	1	2	3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31	I was unable to become enthusiastic about anything	0	1	2	3
32	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33	I was in a state of nervous tension	0	1	2	3
34	I felt I was pretty worthless	0	1	2	3
35	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36	I felt terrified	0	1	2	3
37	I could see nothing in the future to be hopeful about	0	1	2	3
38	I felt that life was meaningless	0	1	2	3
39	I found myself getting agitated	0	1	2	3
40	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41	I experienced trembling (eg, in the hands)	0	1	2	3
42	I found it difficult to work up the initiative to do things	0	1	2	3

Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990)

Instructions: Rate each of the following statements on a scale of 1 (“not at all typical of me”) to 5 (“very typical of me”). Please do not leave any items blank.

- | | | | | | |
|--|---|---|---|---|---|
| 1. If I do not have enough time to do everything,
I do not worry about it. | 1 | 2 | 3 | 4 | 5 |
| 2. My worries overwhelm me. | 1 | 2 | 3 | 4 | 5 |
| 3. I do not tend to worry about things. | 1 | 2 | 3 | 4 | 5 |
| 4. Many situations make me worry. | 1 | 2 | 3 | 4 | 5 |
| 5. I know I should not worry about things, but I just
cannot help it. | 1 | 2 | 3 | 4 | 5 |
| 6. When I am under pressure I worry a lot. | 1 | 2 | 3 | 4 | 5 |
| 7. I am always worrying about something | 1 | 2 | 3 | 4 | 5 |
| 8. I find it easy to dismiss worrisome thoughts. | 1 | 2 | 3 | 4 | 5 |
| 9. As soon as I finish one task, I start to worry about
everything else I have to do. | 1 | 2 | 3 | 4 | 5 |
| 10. I never worry about anything. | 1 | 2 | 3 | 4 | 5 |
| 11. When there is nothing more I can do about a
concern, I do not worry about it anymore. | 1 | 2 | 3 | 4 | 5 |
| 12. I have been a worrier all my life. | 1 | 2 | 3 | 4 | 5 |
| 13. I notice that I have been worrying about things. | 1 | 2 | 3 | 4 | 5 |
| 14. Once I start worrying, I cannot stop. | 1 | 2 | 3 | 4 | 5 |
| 15. I worry all the time. | 1 | 2 | 3 | 4 | 5 |
| 16. I worry about projects until they are all done. | 1 | 2 | 3 | 4 | 5 |

Current Self-Appraisal (Adapted from Wilson & Ross, 2001; Wilson, Buehler, Lawford, Schmidt, & Yong, 2012)

Please indicate how you currently see yourself on the following attributes, relative to your peers.

	Much worse than most			Same as most				Much better than most			
	0	1	2	3	4	5	6	7	8	9	10
Self-confident	0	1	2	3	4	5	6	7	8	9	10
Dishonest	0	1	2	3	4	5	6	7	8	9	10
Socially Skilled	0	1	2	3	4	5	6	7	8	9	10
Rude	0	1	2	3	4	5	6	7	8	9	10
Fun	0	1	2	3	4	5	6	7	8	9	10
Dull/Boring	0	1	2	3	4	5	6	7	8	9	10
Easy going	0	1	2	3	4	5	6	7	8	9	10
Narrow minded	0	1	2	3	4	5	6	7	8	9	10
Immature	0	1	2	3	4	5	6	7	8	9	10
Independent	0	1	2	3	4	5	6	7	8	9	10

Past Self-Appraisal (adapted from Wilson & Ross, 2001)

Recent Framing Instructions

Now take a moment to think of a point in time in the recent past, four weeks ago, at the beginning of this study. What were you like then?

Distant Framing Instructions

Now take a moment to think back to another point in time. Think all the way back to the beginning of this study, four weeks ago. What were you like way back then?

	Much worse than most			Same as most				Much better than most			
Self-confident	0	1	2	3	4	5	6	7	8	9	10
Dishonest	0	1	2	3	4	5	6	7	8	9	10
Socially Skilled	0	1	2	3	4	5	6	7	8	9	10
Rude	0	1	2	3	4	5	6	7	8	9	10
Fun	0	1	2	3	4	5	6	7	8	9	10
Dull/Boring	0	1	2	3	4	5	6	7	8	9	10
Easy going	0	1	2	3	4	5	6	7	8	9	10
Narrow minded	0	1	2	3	4	5	6	7	8	9	10
Immature	0	1	2	3	4	5	6	7	8	9	10
Independent	0	1	2	3	4	5	6	7	8	9	10

Manipulation Check

Sometimes points in time in the past feel very far away, while other times feel very close, almost like yesterday. How far ago does 4 weeks feel to you?

Almost like yesterday									Very distant past	
0	1	2	3	4	5	6	7	8	9	10

**Manipulation of Subjective Distance (Adapted from Wilson & Ross, 2001;
Wilson, Buehler, Lawford, Schmidt, & Yong, 2012)**

Instructions for Conditions 1&2:

Please mark on the time line below 2 months ago from today.

Condition 1: Distant Past

3 months ago Today

Condition 2: Near Past

3 years ago Today

Instructions for Conditions 3&4:

Please mark on the time line below 2 months away from today.

Condition 3: Near Future

Today 3 years away

Condition 4: Distant Future

Today 3 months
away

Past Self-Appraisal (Conditions 1 & 2 only)

Please indicate the extent to which the following attributes described you, as you were 2 months go, relative to your peers.

	Much worse than			Same as most				Much better than			
	most							most			
Self-confident	0	1	2	3	4	5	6	7	8	9	10
Dishonest	0	1	2	3	4	5	6	7	8	9	10
Socially Skilled	0	1	2	3	4	5	6	7	8	9	10
Rude	0	1	2	3	4	5	6	7	8	9	10
Fun	0	1	2	3	4	5	6	7	8	9	10
Dull/Boring	0	1	2	3	4	5	6	7	8	9	10
Easy going	0	1	2	3	4	5	6	7	8	9	10
Narrow minded	0	1	2	3	4	5	6	7	8	9	10
Immature	0	1	2	3	4	5	6	7	8	9	10
Independent	0	1	2	3	4	5	6	7	8	9	10

Manipulation Check

Sometimes points in time in the past feel very far away, while other times feel very close, almost like yesterday. How far ago does 2 months feel to you?

Almost like						Very distant past					
yesterday											
0	1	2	3	4	5	6	7	8	9	10	

Future Self-Appraisal (Conditions 3&4 only)

Please indicate the extent to which you expect the following attributes to describe you in 2 months times, relative to your peers.

	Much worse than most				Same as most				Much better than most			
	0	1	2	3	4	5	6	7	8	9	10	
Self-confident	0	1	2	3	4	5	6	7	8	9	10	
Dishonest	0	1	2	3	4	5	6	7	8	9	10	
Socially Skilled	0	1	2	3	4	5	6	7	8	9	10	
Rude	0	1	2	3	4	5	6	7	8	9	10	
Fun	0	1	2	3	4	5	6	7	8	9	10	
Dull/Boring	0	1	2	3	4	5	6	7	8	9	10	
Easy going	0	1	2	3	4	5	6	7	8	9	10	
Narrow minded	0	1	2	3	4	5	6	7	8	9	10	
Immature	0	1	2	3	4	5	6	7	8	9	10	
Independent	0	1	2	3	4	5	6	7	8	9	10	

Manipulation Check

Sometimes points in time in the future feel very far away, while other times feel very close, almost like tomorrow. How far away does 2 months feel to you?

Almost like tomorrow						Very distant future					
0	1	2	3	4	5	6	7	8	9	10	

Appendix 7. Debriefing Statements

Debriefing Statement: The relationship between time perspective, temporal self-appraisal and wellbeing

Thank you for your participation!

The main aim of this study is to explore how an individuals' time perspective influences their appraisal of the self across time. Specifically, we are testing whether the independent variable, time perspective, has any impact upon the dependent variable of temporal self-appraisal. Participants were randomly assigned to one of four experimental conditions, each of which manipulated subjective temporal distance. In the first two conditions, participants were asked to indicate the point on a timeline at which they felt was 2 months ago. However, in the first condition, the timeline ranged from 3 years ago to today (distant past) while in the second condition, the timeline ranged from 3 months ago to today (near past). In the third and fourth conditions, participants were asked to indicate the point on a timeline at which they felt was 2 months away. In the third condition, the timeline ranged from today to 3 months away (near future), while in the fourth condition, the timeline ranged from today to 3 years away (distant future).

Based upon previous research, it is expected that temporally proximal selves will be evaluated more favourably than temporally distant selves. Given the lack of research that examines both time perspective and temporal self-appraisal, the research question of how does dispositional time perspective influence temporal self-appraisal will be posed. The influences upon life satisfaction and mood will also be explored.

If the participation in this study has caused you any distress, please contact one of the following services:

Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)

Lifeline, 13 11 14

If you are seeking further information on this study, please contact experimenter: Stephanie Mathews, smathews@swin.edu.au.

Thank you!



Swinburne University of Technology
Faculty of Health, Arts and Design

Debriefing Statement - Part One

Project Title: Seeing oneself across time and the association to anxiety and depression

Student Investigator (s): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

Supervisors: Dr. Ben Williams and Dr. Maja Nedeljkovic, Swinburne University of Technology

Temporal self-appraisal theory proposes that people are able to manipulate their subjective experience of time for self-enhancement. Previous research has found that in non-clinical populations, people tend to evaluate past and future selves in a way that helps them feel good about themselves as they are now.

The main aim of this study is to compare patterns of temporal self-appraisal (the way one sees themselves) between individuals with a diagnosis of Major Depressive Disorder, Dysthymia, or Generalized Anxiety Disorder with individuals without a current diagnosis of a mental illness. To do this, following a brief interview you were assigned to one of three groups: a depression, anxiety, or healthy control group. You then completed a survey with measures of temporal self-appraisal, time perspective, mindfulness, mood, and life satisfaction.

All groups completed the same survey; however, some of you were asked to rate yourselves on future self-appraisal (dependent variable) in a different way. Subjective temporal distance (independent variable) was manipulated such that you were asked to see yourself in the distant future or in the near future. This will allow us to examine whether temporal distance influences how people view themselves and the effect this may have on current mood (dependent variables).

It is hoped that the examination of temporal self-appraisal in relation to mood, and clinical and non-clinical levels of depression and anxiety will provide an understanding of the circumstances in which temporal self-appraisal is adaptive and maladaptive. This is important as it could assist in clinical interventions.

Thank you for your participation. If you have any further questions, please contact the experimenters: smathews@swin.edu.au

If the participation in this study has caused you any distress, please contact one of the following services:

- Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)
- Swinburne Psychology Clinic, (03) 9214 8653 (Low cost counselling service)
- Lifeline, 13 11 14



Swinburne University of Technology
Faculty of Health, Arts and Design

Debriefing Statement - Part Two (REP participants only)

Project Title: Seeing oneself across time and the association to anxiety and depression

Student Investigator (s): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

Supervisors: Dr. Ben Williams and Dr. Maja Nedeljkovic, Swinburne University of Technology

Temporal self-appraisal theory proposes that people are able to manipulate their subjective experience of time for self-enhancement. Previous research has found that in non-clinical populations, people tend to evaluate past and future selves in a way that helps them feel good about themselves as they are now.

As per the first part of this study, the main aim is to compare patterns of temporal self-appraisal (the way one sees themselves) between individuals with a diagnosis of Major Depressive Disorder, Dysthymia, or Generalized Anxiety Disorder with individuals without a current diagnosis of a mental illness. To do this, following a brief interview you were assigned to one of three groups: a depression, anxiety, or healthy control group. You then completed a survey with measures of temporal self-appraisal, time perspective, mindfulness, mood, and life satisfaction.

You recently participated in four weeks of experience sampling where you answered five questions per day. This is so we can observe any possible differences in mood and temporal self-appraisals across time (dependent variables), in terms of the direction (past, present or future) and valence (positive or negative) of in-moment thinking (independent variables).

It is hoped that the examination of temporal self-appraisal in relation to mood, and clinical and non-clinical levels of depression and anxiety will provide an understanding of the circumstances in which temporal self-appraisal is adaptive and maladaptive that could assist in clinical interventions.

Thank you for your continued participation. If you have any further questions about this study, please contact the experimenters: smathews@swin.edu.au

If the participation in this study has caused you any distress, please contact one of the following services:

- Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)

- Swinburne Psychology Clinic, (03) 9214 8653 (Low cost counselling service)
- Lifeline, 13 11 14



Swinburne University of Technology
Faculty of Health, Arts and Design

Debriefing Statement - Part Three REP participants/Part Two all other participants

Project Title: Seeing oneself across time and the association to anxiety and depression

Student Investigator (s): Stephanie Mathews, PhD Candidate, Swinburne University of Technology

Laura Abbey, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Daniel Solomon, Master of Psychology (Clinical Psychology) Student, Swinburne University of Technology

Nicole Echeverria, Psychology Honours Student, Swinburne University of Technology

Supervisors: Dr. Ben Williams and Dr. Maja Nedeljkovic, Swinburne University of Technology

Temporal self-appraisal theory proposes that people are able to manipulate their subjective experience of time for self-enhancement. Previous research has found that in non-clinical populations, people tend to evaluate past and future selves in a way that helps them feel good about themselves as they are now.

As per the first part of this study, the main aim is to compare patterns of temporal self-appraisal (the way one sees themselves) between individuals with a diagnosis of Major Depressive Disorder, Dysthymia or Generalized Anxiety Disorder with individuals without a current diagnosis of a mental illness. Based on a diagnostic interview, participants were assigned to one of three groups: depression, anxiety or health control group (independent variable). Comparisons will be made between these three groups to examine the effect upon temporal self-appraisal, as well as time perspective, mindfulness, mood and life satisfaction (dependent variables), measured through the first survey.

In addition, you participated in four weeks of experience sampling where you answered five questions per day. This part of the study will be used to examine how temporal comparisons in everyday settings (independent variable) influence mood, and symptoms of depression and anxiety (dependent variables).

All groups then completed a follow-up survey similar to that of the first part of the study. However, some of you were asked to rate yourselves on past self-appraisal (dependent variable) in a different way. Subjective temporal distance (independent variable) was manipulated such that you were asked to see yourself in the distant past or in the near past. This will allow us to examine whether temporal distance influences how people view themselves and the effect this may have on current mood (dependent variables).

It is hoped that the examination of temporal self-appraisal in relation to mood, and clinical and non-clinical levels of depression and anxiety will provide an understanding of the circumstances in which temporal self-appraisal is adaptive and maladaptive that could assist in clinical interventions.

Thank you for your continued participation. If you have any further questions about this study, please contact the experimenters: smathews@swin.edu.au

If the participation in this study has caused you any distress, please contact one of the following services:

- Swinburne Student Services, (03) 9214 8025 (Swinburne Students only)
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