Depression-Avoidance Defences in Bipolar-Euthymia

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Abstract

Contemporary accounts of the manic defence hypothesis propose that underlying mania are activated negative schemas that are psychically defended against. Indeed, research which has investigated the cognitive processes of bipolar-manic individuals has found that despite reporting high levels of perceived self-worth on explicit measures that assess consciously known cognitive processes, when assessed with implicit measures that assess subconscious processes, bipolar-manic individuals exhibit activated negative schemas of low self-worth comparable to bipolar-depressed individuals. These findings have lead researchers to propose that explicit measures of cognitive processes are confounded by defensive responding in bipolar-manic individuals. Despite considerable inconsistencies being found in relation to the activated negative schemas of bipolar-euthymic individuals when assessed with explicit measures, to date, no study has investigated whether bipolar-euthymia is too characterised by defensive responding. The purpose of this study was to investigate whether bipolar-euthymic individuals respond defensively on explicit measures of negative schemas that were specifically designed to operationalise and assess negative schema content (the Dysfunctional Attitudes Scale - DAS and the Young Schema Questionnaire – YSQ), and to investigate whether, as proposed with bipolar-mania, bipolar-euthymia is characterised by depression-avoidance defences.

The study consisted of 149 individuals divided into five participant groups based on diagnosis and mood state: bipolar-depressed, bipolar-euthymic, MDD-depressed, MDD-euthymic and non-psychiatric controls. Participants were administered both the DAS and the YSQ, in addition to an implicit measure of negative schemas of low self-worth, the Pragmatic Inference Task. The results of the study found defensive responding, as characterised by scoring higher on an implicit measure of a schema of low self-worth, the Pragmatic Inference

Task (Failure subscale score) than a comparative explicit measure of low self-worth, the Young Schema Questionnaire Failure to Achieve schema, was characteristic of the bipolar-euthymic group but neither depressed group. Further analyses indicated that when assessed with explicit measures, bipolar-euthymic individuals endorsed negative schema content at a level intermediate between both depressed individuals (bipolar and MDD) and non-psychiatric controls. However when assessed with the implicit measure, bipolar-euthymic individual's endorsed the highest levels of negative schema content compared to all other groups. These findings are considered to be indicative of the employment of depression-avoidant defences during bipolar-euthymia. The theoretical and clinical implications for bipolar disorder are discussed.

Doctor of Psychology Declaration

"I, Shara Granger, declare that the Doctor of Psychology (Clinical Psychology) thesis entitled **'Depression-Avoidance Defences in Bipolar Euthymia"** is no more than 40,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature: _____   Date: _____

Disciplinary area: Clinical

Acknowledgements

PART I: INTRODUCTION

Chapter One

Thesis Overview and Background Information

1.1 Thesis Overview

This thesis is comprised of four parts, encompassing seven chapters. Part I, comprised of Chapter One, introduces the thesis, summarising relevant background information. Part II, comprising Chapters Two, Three and Four, reviews previous research relevant to the current study. Specifically, Chapter Two details DSM-5 (APA, 2013) diagnostic criteria for the 'bipolar and related disorders' and reviews the levels of functional impairment and medical morbidity/mortality rates associated with bipolar disorder. The ramifications of common delays in diagnosis and current treatment modalities are then discussed in Chapter Two, followed by a review of the literature pertaining to the aetiology of the disorder. This thesis is concerned with the psychological process involved in both the aetiology and maintenance of the disorder and as such, the manic defence hypothesis is detailed in the aetiological section. The manic defence hypothesis proposes that mania/hypomania in bipolar disorder results from a defence against underlying negative cognitions (Carlstedt, 2010; Klein, 1935, 1940; Lex, Hautzinger & Meyer, 2011; Neale, 1988), coined 'negative schemas' (Beck, 1967, 1976). Given the centrality of negative schemas in the psychological underpinnings of bipolar disorder, Chapter Three details negative schemas as defined by prominent schema theorists, Beck (1967, 1976) and Young (1990, 1999). Chapter Four is concerned with reviewing previous research which has investigated the negative schemas of individuals with bipolar disorder, during both episodic and non-episodic periods, with a particular focus on whether euthymia is characterised by a defence against activated negative schemas.

Unanswered research questions arising from the limitations of previous research are then

discussed in Chapter Four, providing the rationale for the current study. The aims and

hypotheses of the current study are then detailed in Chapter Four. Part III, comprising

Chapter Five, details the methodology of the current study, namely, the participant details,

measures utilised and the procedures of the study. Part IV, comprising Chapter Six, details

the data analyses used to investigate the study's hypothesis and presents the results of the

study. Part V, comprising Chapter Seven, discusses the findings of the study with respect to

study's hypotheses. The theoretical and clinical implications of the study's findings are then

discussed and the study's limitations noted. Directions for future research are also discussed

in Chapter Seven.

1.2 Background Information

Bipolar disorder - the class of mood disorders characterised by hypomanic/manic and

often depressive episodes (APA, 2013), is associated with substantial functional impairment

(Murray & Lopez, 1996) and high rates of both medical comorbidity and mortality

(Goldstein, Fagiolino, Houck, & Kupfer, 2009; Roshanaei-Moghaddam & Katon, 2009;

Smith et al., 2013). Lifetime suicide prevalence rates of 36.3% and 32.4% for bipolar I

disorder and bipolar II disorder, respectively, indicate the disorder has the highest suicide rate

of all psychiatric disorders (American Psychiatric Association [APA], 2013; Novick, Swartz,

& Frank, 2010). Aetiological studies of bipolar disorder have indicated that both biological

and environmental factors, including psychological processes, are involved in both the

development and maintenance of the disorder (Goodwin & Jamison, 2007; Tsuchiya, Byrne,

& Mortensen, 2003).

One of the more under-researched and controversial theories of the psychological

processes involved in bipolar disorder, 'the manic defence hypothesis', proposes that, at least

in part, manic/hypomanic episodes arise as a result of subconscious psychological defences against the underlying negative cognitive processes that typically manifest in bipolar-depressive symptomatology (Carlstedt, 2010; Klein, 1935, 1940; Lex et al., 2011; Neale, 1988). Cognitive-based therapies label these underlying negative cognitive processes, 'negative schemas' (Beck, 1967, 1976; Young, 1990, 1999). Indeed, research conducted by Winters and Neale (1985) and Lyon, Startup and Bentall (1999), which aimed at testing the manic defence hypothesis, demonstrated that when explicit measures (i.e. direct measures of conscious cognitive processes through assessing the individual directly) were used to assess negative schemas, manic-bipolar individuals reported higher levels of self-esteem and displayed a positive-attribution bias, when compared to both unipolar- and bipolar-depressed individuals, in addition to non-psychiatric controls. In contrast, when implicit measures (i.e. indirect, semi-projective/projective measures of subconscious cognitive processes) of negative schemas were used, manic-bipolar individuals exhibited a negative attribution bias and schemas of low self-worth, comparable to both unipolar- and bipolar-depressed individuals. This difference between the self-esteem reported by manic individuals and the self-esteem that is projected from underneath this external representation, indicated that implicit measures of negative schemas are able to assess activated negative schema content and are therefore valid measures of this cognitive construct. In contrast, these findings indicate that the validity of explicit measures is confounded by defensive responding as a result of the manic defences (Lyon et al.; Winters & Neale).

However, despite being conducted to test defences in mania, Winters and Neale's (1985) study involved remitted bipolar-manic individuals, as opposed to manic-bipolar individuals, to avoid difficulties that would likely arise from interviewing an individual who was manic. Thus, despite Winters and Neale regarding their findings to be indicative rather of depression-avoidance defences being employed in bipolar-mania, it appears that their

findings are indicative of depression-avoidance in bipolar-euthymia. Further support for depression-avoidance defences being employed in bipolar-euthymia has arisen from the findings of contemporary studies that have indicated when compared to controls, bipolar-euthymic individuals exhibit a more negative attributional style (Knowles et al., 2007), endorse more dysfunctional attitudes (Thomas, Bentall, Knowles & Tai, 2009), and exhibit stronger implicit negative self-associations (on an implicit association task) (Jabben et al., 2013). However, the results of studies investigating the activated negative schemas of bipolar-euthymic individuals with explicit measures, specifically designed to test negative schemas, have indicated that bipolar-euthymia is characterised by less negative schema activation than bipolar-depression (Jones et al., 2005; Reilly-Harrington et al., 2010). However, this does not account for why bipolar-euthymic individuals have been found to exhibit similar underlying negative cognitive styles to bipolar-depressed individuals when assessed with implicit measures (Kerr, Scott, & Phillips, 2005).

This thesis proposes that analogous to the manic defence hypothesis, which posits that mania results from the employment of depression-opposing defences (Carlstedt, 2010; Klein, 1935, 1940; Lex et al., 2011; Neale, 1988), variability between the scores on explicit and implicit measures of negative schemas among bipolar-euthymic individuals indicate that bipolar-euthymia is too being characterised by the employment of psychic defences against activated negative schemas. Specifically this thesis proposes that bipolar-euthymic individuals may struggle to defend against their activated negative schemas (Young, 1990, 1999) via overtly reporting more positive beliefs. The purpose of this study is to address limitations of previous research to test this proposed euthymic-defence hypothesis.

PART II: LITERATURE REVIEW

Chapter Two

Bipolar disorder – Impairment, Aetiology and Treatment

2.1 Introduction

Bipolar disorder, estimated to affect 1.8% of the global population (APA, 2013), is a debilitating disorder, which is both widely misdiagnosed and under-detected (Judd & Akiskal, 2003; Mitchell, Slade, & Andrews, 2004). This chapter details the Diagnostic and Statistical Manual of Mental Disorders (5th ed; DSM-5; APA, 2013) diagnostic criteria for each of the identified bipolar and bipolar-related disorders. Global functional impairment and morbidity/mortality rates associated with bipolar disorder are then detailed in this chapter, followed by current treatment approaches. The biological and environmental aetiological theories of the disorder are then reviewed.

2.2 Definition of Bipolar Disorder

Bipolar disorder refers to the class of mood disorders that affects the mood, cognitions, perceptions and behaviour of an individual.   The characterising feature of bipolar disorder is the occurrence of at least one manic or hypomanic episode. Although common in bipolar disorder, the occurrence of a major depressive episode(s) is not required for diagnosis (Goodwin & Jamison, 2007).

The DSM-5 (2013), recognising the lack of a requirement for depressive episodes bipolar and bipolar related disorders, now separates the bipolar and bipolar related disorders from their former position in the DSM-IV (4th ed. – Text Revised; DSM-IV-TR; APA, 2000)

under the chapter, 'Mood Disorders'. The DSM-5 now positions the chapter 'Bipolar and Related Disorders' between the chapters pertaining to 'Depressive Disorders' and 'Schizophrenia Spectrum and other Psychotic Disorders'. The purpose of this positioning in the DSM-5 is to emphasise how bipolar disorder is the bridge that connects depressive and psychotic disorders, with respect to both the aetiology and symptomatology of the disorders.

2.3 Diagnostic Criteria for Bipolar Disorder Mood Episodes

The DSM-5 (APA, 2013) identifies three different mood episodes characteristic of bipolar disorder: manic, major depressive and hypomanic. In order to meet the diagnostic criteria for a bipolar mood episode, symptomatology must not be better accounted for by the effects of substance use/misuse or a medical condition.

The DSM-5 (APA, 2013) defines a manic episode as, "*A distinct period of abnormally and persistently elevated, expansive or irritated mood and abnormally and persistently increased goal-directed activity or energy, lasting at least one week and present most of the day, nearly every day (or any duration if hospitalization is necessary)*" (p. 124). A diagnosis of a manic episode also requires the presence of at least three additional symptoms (four additional symptoms if the individual's mood is regarded to be irritable as opposed to elevated) that affect the individual's cognitions, perceptions and/or behaviour, including: engaging in high risk-taking behaviours, distractibility and grandiosity. The severity of the mood disturbance during a manic episode may warrant hospitalisation for treatment and there is noticeable impairment in the individual's occupational and/or social functioning. In the case of hospitalisation, diagnosis of a manic episode may still be made if the symptoms last less than seven days due to being prematurely controlled through pharmacotherapy. A manic episode may or may not involve psychotic features (APA).

The DSM-5 (APA, 2013) diagnostic criteria for a major depressive episode is the presence of five or more symptoms affecting an individual's mood, cognitions, perceptions and/or behaviour, including: a depressed mood (most days and for the majority of each day – subjectively reported or observable); loss of interest in activities once regarded to be enjoyable; substantial weight loss/gain (or a persistent change in appetite); and suicidal ideation. A depressive episode results in a noticeable impairment in the individual's occupational and/or social functioning and may or may not involve psychotic features. It is important to note however, that *non-episodic* psychotic features are not characteristic of bipolar disorder (APA).

The DSM-5 (APA, 2013) defines a hypomanic episode as, "*A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased activity or energy, lasting at least four consecutive days and present most of the day, nearly every day*" (p.124). A diagnosis of a hypomanic episode also requires the presence of at least three additional symptoms (four additional symptoms if the individual's mood is regarded to be irritable), that affect the individual's cognitions, perceptions or behaviour, including: increased talkativeness, distractibility and flight of ideas. A hypomanic episode is characterised by a noticeable change in an individual's usual functioning, although there is no substantial diminishment in the individual's occupational or social functioning. Furthermore, the severity of the mood disturbance during a hypomanic episode will not warrant hospitalisation for treatment. As such, symptom severity and the duration of a hypomanic episode is both less than those of a manic episode. Psychotic features are indicative of a manic, not hypomanic, episode (APA).

The DSM-5 (APA, 2013) identifies seven disorders that are classified as a 'bipolar or bipolar related disorder': Bipolar I disorder; bipolar II disorder; cyclothymic disorder; substance/medication-induced bipolar and related disorder; bipolar and related disorder due

to a general medical condition; other specified bipolar and related disorder; and unspecified bipolar and related disorder.

2.4 Diagnostic Criteria for Bipolar and Bipolar Related Disorders

Bipolar I disorder is characterised by a current or past occurrence of a manic episode. Although common in bipolar I disorder, the occurrence of at least one major depressive episode is not required for an individual to meet diagnostic criteria (APA, 2013).

Bipolar II disorder is characterised by the experience of at least one hypomanic and one major depressive episode over the course of an individual's life, in the absence of a previous manic episode(s). If an individual has a past history of a manic episode(s), then bipolar I disorder should be considered (APA, 2013).

Cyclothymic disorder is characterised by fluctuations in mood for a minimum period of two years (one year for an adolescent or child) incorporating periods of both depressive and hypomanic symptoms, which do not meet diagnostic criteria for either a hypomanic or major depressive episode. During the course of the mood disturbance, the symptoms are present the majority of time, with symptom-free periods not exceeding two months. To warrant a diagnosis of cyclothymic disorder, an individual must have never met diagnostic criteria for a manic, hypomanic or major depressive episode (APA, 2013).

The DSM-5 (APA, 2013) recognises four other bipolar related disorders: substance/medication-induced bipolar and related disorder, which is characterised by a noticeable and ongoing change in mood that is attributable to the effects of substance use/misuse or substance withdrawal; bipolar and related disorder due to a general medical condition, which is characterised by the presence of a bipolar disorder mood episode(s), induced by a medical condition; and other specified and unspecified bipolar related disorders, which are both characterised by the presence of bipolar disorder features that have resulted in noticeable diminishment in the individual's occupational or social functioning but do not

meet diagnostic criteria for any of the preceding bipolar or bipolar related disorders. The term 'specified' applies when the clinician indicates why diagnostic criteria have not been met (APA).

2.5 Impairment and Morbidity/Mortality Rates Associated with Bipolar Disorder

2.5.1 Functional impairment.

Found to be the sixth leading cause of disability for individuals aged 14-44 years (Murray & Lopez, 1996) and along with schizophrenia, the leading cause of multiple psychiatric hospital admissions (Abood, Sharkey, Webb, Kelly, & Gill, 2002), bipolar disorder has long been associated with substantial impairment in global (i.e. social, occupational and psychological) functioning and high disability needs (Judd & Akiskal, 2003; Mitchell et al., 2004).

With respect to global functioning, both manic and major depressive episodes can be debilitating. The depressed individual can experience a low mood coupled with a substantial loss of interest or enjoyment in activities, including social interactions. Changes in appetite and sleep patterns are common and thoughts may be centred on feelings of helplessness and personal insignificance (APA, 2013). Concentration difficulties significantly impact on a person's ability to work and maintain interests. Thoughts of suicide may also be present, which may ultimately lead to self-injurious behaviours, parasuicidal behaviours or suicide attempts (Joyce, Light, Rowe, Cloninger, & Kennedy, 2010; Zimmerman, et al., 2013). In contrast, the manic individual may have delusions of grandeur and present with inflated self-esteem (Goodwin & Jamison, 2007). They may experience difficulties concentrating on tasks and have racing thoughts (APA). Disinhibited, their behaviour may be vastly incongruent with their usual ethics/morals and they may act impulsively with little regard for consequences leading to over-spending, sexual indiscretion and interpersonal conflict

(National Collaborating Centre for Mental Health [NCCMH], 2006). The manic individual may experience a significant change in appetite and body weight and a significant decrease in sleep (APA). Psychotic symptoms, including delusions and hallucinations are also experienced in up to 53.2% of manic individuals (Parker, et al., 2013).

Global functioning has been found to be significantly more impaired during a depressive episode, as opposed to a manic or hypomanic mood episode (Rosa at al., 2010). Unfortunately, individuals with bipolar disorder have been found to experience chronic or frequent depressive episodes up to 63% of the time (Uher, Mantere, Suominen, & Isometsa, 2013). Given that substantial functional impairment is not characteristic of hypomania, hypomania is the least debilitating mood episode (NCCMH, 2006). However, poorer global functioning is still observed in hypomanic individuals however when compared to euthymic or non-psychiatric individuals (Rosa, et al.).

Impaired global functioning is not isolated to bipolar mood episodes. Approximately two-thirds of individuals with bipolar disorder have been found to not achieve global premorbid functional recovery, following syndromal remission (Goldberg & Harrow, 2011; Huxley & Baldessarini, 2007). Specifically, despite reductions in symptomatology, individuals with bipolar disorder have been found to continue to exhibit deficits, persisting for up to one year post episodic recovery, in the areas of understanding, communicating, getting around, self-care, getting along with others, household/work activities and participation in society (as measured by the World Health Organisation Disability Assessment Scale; Perron, Bohnert, Vaughn, Bauer, & Kilbourne, 2010).

With respect to impairment in occupational functioning, Goldberg and Harrow's (2011) 15-year follow-up study, which compared functional disability between individuals with bipolar disorder and individuals with unipolar depression (i.e. major depressive disorder [MDD]), reported that only 50% of the bipolar participants had worked (including studying)

effectively for at least six months (in total) in the preceding year. This compared to 87% of

MDD participants. Furthermore, Goldberg and Harrow found a significant relationship

between impaired global outcome (as assessed via the presence of symptoms within the last

year, rehospitalisation, deficits in role functioning, deficits in self-support and difficulties

adapting to stress) and the onset of a depressive episode within the preceding year. This is

consistent with the Huxley and Baldessarini's (2007) review, which indicated that functional

impairment is strongly associated with the depressive and dysphoric syndrome in bipolar

disorder. This association between functional impairment and depressive episodes has been

attributed to the slower recovery rate following a depressive episode compared to that of a

manic episode (Rosa et al., 2010). Given this, it is unsurprising that bipolar II disorder,

which is characterised by frequent major depressive episodes, has been found to result in

greater deficits in global functioning than bipolar I disorder (Huxley & Baldessarini).

Further predictors of impaired global functioning have been found to include a co-

morbid diagnosis of an Axis II disorder, not having maintained a stable intimate relationship,

older age and frequent mood episodes (Grande, et al., 2013; Schoeyen, et al., 2013).

Considering the deficits in global functioning that are characteristic of bipolar disorder, it is

unsurprising that individuals with bipolar disorder have also been found to have lower levels

of self-reported 'quality of life' ratings (as measured by the World Health Organization

Quality of Life Assessment—Abbreviated version), compared to those without the disorder

(Brissos, Dias, & Kapczinski, 2008).

2.5.2 Medical co-morbidity.

The risk of developing co-morbid medical conditions is significantly increased in

individuals with bipolar disorder, compared to those without the disorder. In Smith et al.'s

(2013) study that investigated morbidity rates in Scottish individuals with bipolar disorder,

67% of individuals with bipolar disorder were found to have at least one co-morbid physical condition. Furthermore, individuals with bipolar disorder were found to have a significantly greater risk of acquiring three or more physical conditions than those without the disorder. Viral hepatitis, Parkinson's disease and constipation were found to have the highest prevalence rates in individuals with bipolar disorder and were significantly more prevalent among bipolar individuals than those without the disorder.   Chronic kidney disease, thyroid disorder, chronic pain and chronic obstructive pulmonary disorder were also found to be significantly more prevalent among individuals with bipolar disorder than those without. Smith et al. hypothesised that the side effects of psychotropic medications for bipolar disorder may largely account for the high rates of medical co-morbidity. For example, lithium treatment is known to have effects on both kidney and thyroid functioning (Müller-Oerlinghausen, Bauer, & Grof, 2012). They further hypothesised that the higher rates of hepatitis may be a result of the risk taking behaviours that may be exhibited in bipolar disorder (e.g. drug use, unprotected sexual intercourse). Cardiovascular disease (CVD) and hypertension have also been found to be significantly more likely (up to two-fold) in individuals with bipolar disorder than those without the disorder. Furthermore, the onset of CVD and hypertension have been found to occur in individuals with bipolar disorder, up to 14 years earlier than those without the disorder (Goldstein et al., 2009).

Increased risk of co-morbid medical conditions among individuals with bipolar disorder has been attributed to a range of factors. In addition to those reasons listed above, individuals with bipolar disorder have higher rates of substance use (including alcohol and tobacco) (Diaz, et al., 2009; Lagerberg, et al., 2010; Farren, Hill, & Weiss, 2012), compared to those without the disorder, which significantly increases the risk of developing a range of physical health complications (Jones, et al., 2004). Furthermore, the side effects of pharmacological interventions for bipolar disorder often include obesity (McElroy & Keck Jr,

2012) and increased risk of developing metabolic syndrome (Fagiolini, Roy Chengappa, Soreca, & Chang, 2008). Roshanaei-Moghaddam and Katon (2009) hypothesised that stress-induced health complications may also be a contributing factor to the high rates of co-morbid medical conditions among individuals with bipolar disorder.

2.5.3 Mortality.

With high prevalence rates of co-morbid medical conditions among individuals with bipolar disorder, it is unsurprising that mortality rates are also higher in individuals with bipolar disorder compared to those without the disorder (Laursen, Munk-Olsen, Nordentoft, & Mortensen, 2007). Death due to natural causes is significantly more likely in individuals with bipolar disorder, with studies indicating that the risk of premature death is increased from between 35% to 200%. Premature death has been found to result from various physical illnesses, including cerebrovascular, respiratory and cardiovascular diseases/disorders (Roshanaei-Moghaddam & Katon, 2009).

Suicide is the greatest psychiatric contributing factor to morbidity in bipolar disorder. Risk of suicide is 15 times greater in individuals with bipolar disorder compared to the general population and the disorder has the highest suicide rate of all psychiatric disorders, with bipolar I disorder and bipolar II disorder having lifetime suicide prevalence rates of 36.3% and 32.4%, respectively (APA, 2013). Suicide attempts amongst individuals with bipolar disorder have been found to be significantly associated with: alcohol and substance use, a family history of mood disorders and alcoholism, antidepressant-induced hypomania/mania, and higher rates of prior hospitalisations for major depressive episodes (possibly indicating more prolonged or severe depression) (Finseth, Morken, Andreassen, Malt, & Vaaler, 2012).

2.6 Delays in Diagnosing Bipolar Disorder

Despite the onset of bipolar disorder usually occurring in adolescence or early adulthood (Rosa, et al., 2008), diagnosis usually occurs between 5-10 years following first episode onset (Baldessarini, Tondo, Baethge, Lepri, & Bratti, 2007; Drancourt, et al., 2013). Diagnostic delays are longest amongst individuals with bipolar II disorder, exceeding that of bipolar I disorder, by two years on average. Extended delays in diagnosis (and appropriate treatment) are significantly associated with increased risk of suicidal behaviours, greater number of mood episodes and increased severity of mood instability (e.g. rapid cycling) (Drancourt et al).

Despite earlier onset of the disorder (<18 years) being significantly associated with increased severity of the disorder, with respect to symptomatology and course (i.e. rapid cycling, presence of psychotic features, suicidal behaviours and co-morbidity with personality and eating disorders; diagnostic delays are significantly longer among individuals with early onset bipolar disorder than individuals with late onset bipolar disorder (>18 years),. Although delays in treatment seeking among individuals with early onset bipolar disorder has been found to contribute to delays in diagnosis (Suominen et al., 2007), delays in *correct* diagnosis once mental health contact has been made continues to play a large role is diagnostic delays. Correct diagnosis since first mental health contact (among individuals with bipolar) have been found to have a median time of 21 months, with a quarter of individuals being misdiagnosed for over four years. Misdiagnoses of anxiety, schizophrenia, substance abuse disorder or MDD, are most common among individuals with bipolar disorder (Stang, et al., 2006). Misdiagnosis of MDD is largely accounted for by the expression of depressive symptoms in bipolar disorder being more frequent and evident than manic or hypomanic symptoms, in addition to the presence of recurring depressive episodes and the

absence of manic episodes in bipolar II disorder (Goodwin & Jamison, 2007; Phillips &

Kupfer, 2013).

2.7 Treatment of Bipolar Disorder

Psychotropic medications and psychotherapy are the two main treatment interventions

for bipolar disorder. Less common interventions, which include Electroconvulsive Therapy,

Rapid Transcranial Magnetic Stimulation and nutritional supplements, may also be

incorporated in treatment for bipolar disorder. The main psychotropic medications used for

the treatment of bipolar disorder are lithium, anticonvulsants, antidepressants, typical

antipsychotics, atypical antipsychotics and benzodiazepines (Goodwin & Jamison, 2007).

A major issue concerning pharmacological treatment of bipolar disorder is the high

rates of medication non-compliance, with research indicating that more than 50% of

individuals with bipolar disorder either cease pharmacological treatment prematurely, or

follow medication regimes irregularly (Arvilommi, et al., 2014). Medication non-compliance

among individuals with bipolar disorder has been linked to higher rates of relapse and

impaired functioning (Goodwin & Jamison, 2007; Sajatovic et al., 2007). As such, with

psychological treatment approaches having been found to improve rates of medication

compliance, they are often used in conjunction with pharmacological treatment (Miklowitz

D. L., 2006). Psychological treatment approaches are also able to target the psychological

and behavioural manifestations of bipolar disorder and address the personal, social and

interpersonal deficits in functioning associated with the disorder. They may also be the sole

treatment for individuals who are either medication non-compliant or are unable to take

medication (e.g. pregnant females) (Goodwin & Jamison).

2.8 Aetiology of Bipolar Disorder

Although the specific aetiology of bipolar disorder remains unknown (Fowke, Ross, & Ashcroft, 2012; Frey, et al., 2013), research indicates that the development of bipolar disorder is contingent upon the interaction of both environmental and biological (including genetic) factors (Goodwin & Jamison, 2007; Tsuchiya et al., 2003). A complicating factor in determining the disorder's aetiology is the contrasting affective states characteristic of bipolar disorder: depression and mania, which appear to reflect opposing psychological processes (APA; Lyon et al., 1999; Winters & Neale, 1985). However, one of the more prominent psychological theories of bipolar disorder, the manic defence hypothesis, proposes that underlying both depression and mania/hypomania are depressogenic, cognitive processes (Carlstedt, 2010; Klein, 1935, 1940; Lex et al., 2011). The following section reviews the biological and envronemntal factors implicated in the aetiology of the disorder, in addition to the manic defence hypothesis.

2.8.1 Biological factors.

Numerous chromosomal regions and genes have been implicated in the aetiology of bipolar disorder (Greenwood, et al., 2012; Preisig, 2006; Rybakowski, et al., 2012; Rybakowski, 2013). Given this, it is unsurprising that relatives of individuals diagnosed with bipolar disorder having been found, on average, to have a ten-fold increased risk of developing the disorder (APA, 2013), with the risk of developing bipolar disorder directly increasing among closer genetic relations (Preisig). Higher concordance rates among closer degrees relatives indicate that genetic factors contribute to the aetiology of bipolar disorder. Monozygotic (MZ) twins have higher concordance rates of bipolar disorder than dizygotic (DZ) twins, with concordance rates ranging from 38.5-67% among MZ twins and from 4.5-20% among DZ twins (Bertelsen, Harvald, & Hauge, 1977; Kendler, Pedersen, Neale, &

Mathe, 1995). However, the lack of 100% concordance rates among MZ twins indicates that genetic factors are not solely implicated in the development of bipolar disorder. Based on these findings it has been proposed that bipolar disorder may be an example of an epigenetic illness with 79% of risk based on genetic influence and a 21% environmental influence (Kendler et al.).

2.8.2 Environmental factors.

Incidence of trauma is significantly higher in individuals with bipolar disorder compared to the general population (Grandin, Alloy, & Abramson, 2007), with studies indicating that between 80% to 94.2% of individuals with bipolar disorder have a history of childhood or adult trauma (Mowlds, et al., 2010; Maguire, McCusker, Meenagh, Mulholland, & Shannon, 2008). A lifetime trauma history in individuals with bipolar disorder is associated with: an increase in the severity of the disorder; lower levels of health-related quality of life; higher rates of hospital admissions; greater interpersonal difficulties (Gershon, Johnson, & Miller, 2013; Maguire); a greater number of mood episodes; treatment responsivity issues and increased likelihood of psychiatric co-morbidity (Kauer-Sant'Anna, et al., 2007; Daruy-Filho, Brietzke, Lafer & Grassi-Oliveira, 2011). In a recent study by Daglas et al. (2014), which investigated clinical outcomes in individuals with bipolar disorder at 12-months following first episode of psychotic mania, bipolar individuals with a history of trauma were found to have significantly higher manic, depressive and psychopathological symptomatology, in addition to poorer social and occupational functioning, when compared to bipolar individuals without a history of trauma.

Larsson et al. (2013) found greater impairment in bipolar individual's global functioning and earlier onset of the disorder for individuals who scored higher on the Childhood Trauma Questionnaire (CTQ). A three-factor model was found for the CTQ in

Larson et al.'s study: 'Childhood experience of sexual abuse', 'physical abuse' and 'emotional abuse/neglect'. Each factor was associated with differing characteristics of bipolar disorder: Higher sexual abuse factor scores were significantly associated with greater incidence of episodes; higher emotional abuse/neglect factor scores were significantly associated with earlier onset of bipolar disorder and greater impairment in global functioning; and higher physical abuse factor scores were also significantly associated with greater impairment in global functioning.

2.8.3 Psychological factors.

Melanie Klein's early psychoanalytic accounts of bipolar disorder propose that mania serves as a defence against 'melancholia' (depression). Specifically, Klein (1935; 1940) proposed that manic defences, namely omnipotence, idealisation, control, disparagement and denial, are first evident in infancy and serve to protect the infant from the anxieties that result from the depressive position – a mental state concerned with depressive feelings arising from both the loss of a loved object and the fear of destroying the mother. According to Klein, the loved object that has been lost for the infant in the depressive position is the mother's 'good' breast.

Early in the infant's life (which Klein coined the 'paranoid-schizoid position'), the infant views the mother's breast as two separate objects (i.e. part objects): one 'good' (when the mother's breast is available) and one 'bad' (when the mother's breast is unavailable). In the depressive position, the infant who had phantasised about attacking and destroying the bad breast comes to the realization that the two breasts are one and the same - comprised of both good and bad parts. The infant also then realizes that the breast is also a part of the mother, who is now viewed in a more gestalt frame, as a whole object. With this follows the infant's awareness that all along it had been attacking both the bad and good breast (and the

mother) and subsequently, the infant experiences both grief resulting from loss of the loved 'good' object (the good breast) and guilt about inadvertently having wanted to destroy both the good breast and the mother. In an attempt to defend against these anxieties resulting from the depressive position, the infant employs manic defences, namely, omnipotence, denial of psychic reality and idealization, to avoid the depressive mental anxieties that this realization gives rise to. Klein proposed that manic defences are a vital part of the infant's development and that normal development entails the shifting between the depressive position and the manic position.

Klein (1935; 1940) further proposed that internal objects - mental representations of external objects that are taken into the self and become a part of the self - are central to overcoming the depressive position. Since birth, part-objects and whole objects, both good and bad, are internalized and become a part of the self. Internalized good objects offer the infant/child mental comfort and safety, as the external good object does in reality.   In phantasy, bad internalized objects can destroy the good internalized objects, resulting in intense feelings of anxiety for the infant/child. As such, successfully overcoming the depressive position requires that good internal objects are set up securely in the mind, alongside the bad internal objects, resulting in feelings of safety. If the depressive position has not been overcome (which usually occurs at approximately 5 years of age), then activation of the depressive position in adulthood - via the loss of a loved object (e.g. a person, a role, tangible objects), will result in re-emergence of manic defences that are employed in an attempt to overcome the depressive mental state that the depressive position gives rise to. It is these manic defences that are proposed to manifest themselves in the form of manic episodes characteristic of bipolar disorder (or 'manic-depression' as referred to by Klein).

Contemporary accounts of the manic defence hypothesis propose that bipolar disorder is characterised by underlying feelings of inferiority and low self-esteem (Winters & Neale, 1985; Lyon et al., 1999; Neale, 1988). In the context of perceived failure, contemporary accounts propose that the individual with bipolar disorder endeavours to defend against these feelings by attempting to ascend into opposing feelings of omnipotence and triumph, via both engaging in grandiose thinking and striving for success. This 'attempt to ascend' manifests itself in the form of a manic episode (Carlstedt, 2010). Contemporary accounts of the manic defence hypothesis therefore regard mania to be a subconscious attempt to increase self-esteem to defend against negative cognitions and feelings of worthlessness that typically manifest in depressive symptomatology Thus, despite the symptom expression of mania being the polar opposite of depression, this 'depression-avoidance hypothesis' posits that underlying mania are the same negative cognitive processes characteristic of depression (Lex et al., 2011; Lyon et al.; Carlstedt, 2010; Neale). These negative cognitive processes have been coined 'negative schemas' and are detailed in the following chapter.

2.9 Summary

Since its original identification as manic-depressive illness in the latter part of the 19ᵗʰ Century (Kraepelin, 1902, as cited in Goodwin & Jamison, 2007), bipolar disorder has continued to be associated with high levels of disability (Murray & Lopez, 1996), co-morbid medical conditions (Goldstein et al., 2009; Smith et al., 2013) and high rates of suicide (APA, 2013). Despite this, bipolar disorder remains one of the most under-detected and misdiagnosed psychiatric conditions, which has devastating consequences on both the bipolar individual's global functioning and on the course of the disorder, including higher rates of relapse (Baldessarini et al., 2007; Drancourt, et al., 2013). Despite both biological and environmental factors being implicated in the development of the disorder (Goodwin &

Jamison, 2007; Tsuchiya et al., 2003), its aetiology remains largely unknown (Fowke et al.,

2012; Frey, et al., 2013). A complicating factor in ascertaining both the the aetiological and

perpetuating factors involved in bipolar disorder is accounting for the manifestation of

ostensibly contrasting mood states characteristic of the disorder (APA). However, the manic

defence hypothesis proposes that the psychological process involved in mania are not distinct

from depression, proposing that mania manifests as a result of psychic defences against

underlying depressive cognitions (Carlstedt, 2010; Lex et al., 2011; Lyon et al., 1999;

Winters & Neale, 1985), regarded to be activated negative schemas (Beck, 1967, 1976;

Young, 1990; 1999).

Chapter Three

Schema Theories

3.1 Introduction

Contrary to the manic individual's self-reported high self-esteem (Winters & Neale, 1985) and grandiose self-image (APA, 2013), the manic defence hypothesis proposes that mania is characterised by the same underlying, depressive cognitions as depression (Carlstedt, 2010; Klein, 1935, 1940; Lex et al., 2011), termed negative schemas. This chapter details the notion of negative schemas, as proposed by prominent schema theorists Beck (1967, 1976) and Young (1990, 1999).

3.2 Negative Schema Theories

3.2.1 Beck's cognitive model of depression.

In his cognitive model of depression, Beck (1967, 1976) defined schemas as a network of deeply held, conditional beliefs; assumptions; and personal strategies, which affect an individual's interpretation, encoding and retrieval of information pertaining to personal life experiences. Schemas are proposed to develop early in life through exposure to one's environment. Negative schemas are proposed to result from exposure to maladaptive events/experiences during childhood. Negative schemas are an established network of dysfunctional ideas and beliefs that subsequently distort an individual's self-view and view of the world (including others). According to Beck's cognitive model of depression, these negative schemas lie dormant and become 'activated' when the individual is faced with stressors or life experiences that are congruent with the content of their negative schema(s).

Once activated, these negative schemas result in the manifestation of negative cognitions, feelings and behaviours.

Beck (1967, 1976) further proposed that negative schemas may be depressogenic, centred on themes of self-blame, personal deficiency and negative expectations, resulting in a cognitive vulnerability to depression. Depressogenic schemas are said to underlie the negative cognitive biases that are prominent in depression. Negative cognitive biases refer to perceptual processing errors that result from internalized misperceptions of oneself and the world; they are the figurative 'lens' through which information is processed (Novacs & Beck, 1978). Beck (1967, 1976) identified several negative cognitive biases prominent in depression, including: magnifying the experience of negative events; minimizing the experience of positive events; all-or-nothing thinking; and a tendency to recall more negative life events, as opposed to positive events, which are often ignored. These cognitive biases then negatively 'filter' an individual's interpretation, encoding and retrieval of information, and then give rise to cognitive distortions - conscious, negative thoughts that arise automatically and involuntarily. Beck posited that for the depressed individual, cognitive distortions focus on themes related to the individual, their environment and their future. Beck termed these, 'the cognitive triad'. These cognitive distortions then affect the individual's emotional reactions and behaviour, manifesting in the affective and behavioural symptoms characteristic of depression. As an example of the cognitive triad, an individual may be unsuccessful in receiving a promotion at work. Upon hearing the news that they were unsuccessful, the individual automatically thinks to his or herself, "I'm no good (individual)…I never stood a chance at getting that promotion (environment)…I'll be stuck in this dead-end role forever (future)". Subsequently the individual may feel worthless and sad (emotions) and decides to consume alcohol (behaviour) in an attempt to improve his/her

mood. Figure 3.1 illustrates the development of depressive symptomatology according to

Beck's cognitive model of depression.

Maladaptive Childhood
experiences

⇩

Negative Schemas

⇩

Negative Cognitive
biases

⇩

Cognitive
Distortions (Cognitive triad)

⇩

Depressive symptomatology
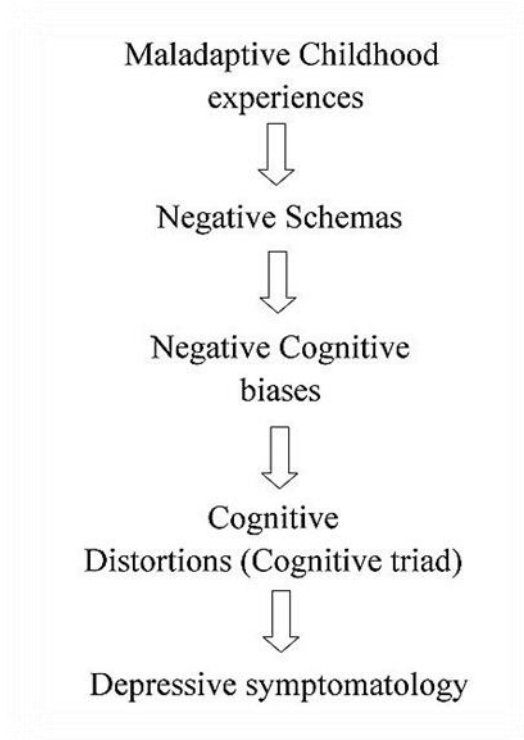
Figure 3.1. Beck's cognitive model of depression.

As noted earlier, Beck (1967, 1976) proposed that schemas are not always active and

such, inactive negative schemas will not give rise to negative cognitive biases and cognitive

distortions. Thus accounts for why depression is episodic and follows a stress-diathesis

model (Braet, Vlierberghe, Vandevivere, Theuwis, & Bosmans, 2013). According to Beck,

activation of negative schemas occurs when an individual is exposed to an event/situation

that triggers the content of the schema. For example, an individual who has a negative

schema centred on personal deficiency - believing that he/she is unlovable - may experience a

depressive episode following a breakdown of an intimate relationship, as the event (the

relationship break-down) triggered the personal deficiency schema. Based on Beck's

cognitive model of depression, activation of this schema will then result in biased interpretations of oneself, the world and others – cognitive biases. Following from the above example, the activation of the personal deficiency schema may result in 'all or nothing thinking' and 'magnifying the experience of negative events', which subsequently give rise to cognitive distortions, including, 'Nobody will ever love me', 'I will die alone" and 'I can't do anything right". These cognitive distortions may then subsequently give rise to feelings of helplessness and loneliness (emotional characteristics of depression) and maladaptive behaviours including isolating oneself from others (behavioural characteristic of depression).

3.2.2 Young's schema theory.

The notion of negative schema was further elaborated by Young (1990, 1999), who proposed that negative schemas arise from core emotional needs being unmet during childhood. Young identified five core emotional needs: "Secure attachments to others, including safety, stability, nurturance and acceptance; autonomy, competence and sense of identity; freedom to express valid needs and emotions; spontaneity and play; and realistic limits and self-control" (Young, Klosko, & Weishaar, 2003, p. 10). Young posited that unmet emotional needs during childhood result from an interplay between a child's temperament (regarded to be innate and persistent) and particular early adverse relational experiences, namely:

1) Toxic frustration of needs – when the environment deprives the child of experiences required to meet their needs (e.g. deprivation of love);

2) Traumatization or victimization – when the child experiences traumatic events or is victimized;

3) Excessive goods - When the child receives an excessive amount of something that, in moderation, would assist the child in meeting their needs but in excess,

deprives them of being able to meet a core need. For example, overprotective

parenting may result in a child not establishing a sense of agency and autonomy;

and

4) Selective internalization or identification with a significant other(s) - When a

child identifies with a caregiver(s) and internalizes their thoughts, emotions,

behaviours and actions (Young et al., 2003).

With respect to temperament, Young (1990, 1999) identified seven temperament

dimensions: labile/nonreactive, dysthymic/optimistic, anxious/calm, obsessive/distractible,

passive/aggressive, irritable/cheerful and shy/sociable. Young proposed a child's

temperament impacts on their early relational experiences in two ways – (1) a child's

temperament may directly influence their environment (e.g. a child who has an obsessive

temperament may elicit feelings of frustration in a parent); (2) and a child's temperament

may impact on their cognitive, emotional and behavioural reaction to stressors (e.g. a

sociable child who is neglected by his mother may try to establish relationships with other

family members. In contrast, a shy child may become socially withdrawn and avoid

interactions with others). Young further noted that extremes of adverse relational

experiences or emotionality (i.e. temperament), are likely to hinder the child's core

emotional needs being met. Specifically, a severely noxious environment is likely to impact

on a highly resilient child's needs being met; and even in the context of adaptive early life

experiences, a highly emotional temperament is likely to impact on a child's needs being

met, with the latter potentially producing psychopathology that appears environmentally

unjustified (Young, 1990, 1999; Young et al., 2003).

Young (1990, 1999) proposed that the development of both poor coping

styles/behaviours and "self-defeating emotional and cognitive patterns that begin early in our

development and repeat throughout our life" (Young et al., 2003, p.7), result from unmet core

emotional needs, coined 'early maladaptive schemas' (EMS). Young initially identified 18 EMS, however differentiated between unconditional and conditional schemas (see Appendix B for a definition of the 18 EMS identified by Young). Unconditional schemas are said to develop early in a child's development in response to experiences within the parental relationship and underlie how one perceives oneself and others. Unconditional schemas deprive the individual of any hope of changing the negative cognitions and emotional reactions that they give rise to. In contrast, conditional schemas are said to develop later in life in response to experiences within other relationships (e.g., intimate and peer), which serve as somewhat of a defence against unconditional schemas. For example, if an individual develops the 'Failure to Achieve' EMS in childhood as a result of their early experiences, they may later attempt to overcome their perceived self-deficits by striving for perfection, resulting in the formation of the negative schema, 'Unrelenting Standards/Hypercriticalness'. Table 3.1 lists the EMS that are considered unconditional and conditional.

Table 3.1.

EMS Categorised into Conditional and Unconditional Schemas

Unconditional Schemas	Conditional Schemas
Abandonment/instability	Subjugation
Mistrust/abuse	Self-sacrifice
Emotional deprivation	Approval seeking/recognition seeking
Defectiveness/shame	Emotional Inhibition
Social isolation/alienation	Unrelenting standards/hypercriticalness
Dependence/incompetence	
Vulnerability to harm or illness	
Enmeshment/undeveloped self	
Failure to achieve	
Entitlement/grandiosity	
Insufficient self-control/self-discipline	
Negativity/pessimism	
Punitiveness	

Furthermore, Young grouped EMS into five schema domains: Disconnection and Rejection; Impaired Autonomy and Performance; Impaired Limits; Other-Directedness; Overvigilance and Inhibition (Young et al., 2003). Table 3.2 shows the grouping of EMS into the five domains. The Disconnection and Rejection, Impaired Autonomy and Performance, and Impaired Limits domains all consist of unconditional EMS. The Other-Directedness domain consists of conditional schemas, and the Overvigilance and Inhibition domain consists of both unconditional and conditional EMS.

Table 3.2

EMS Categorised into Schema Domains

Disconnection/Rejection	Impaired Autonomy	Impaired Limits	Other-directedness	Overvigilance and Inhibition
Abandonment/ Instability	Dependence/ Incompetence	Entitlement/grandiosity	Subjugation	Negativity/pessimism
Mistrust/Abuse	Vulnerability to harm or illness	Insufficient self-control/self-discipline	Self-sacrifice	Emotional inhibition
Emotional deprivation	Enmeshed/undeveloped self		Approval/recognition seeking	Unrelenting standards/hypercriticalness
Defectiveness/shame	Failure to Achieve			Punitiveness
Social Isolation/alienation				

EMS are said to become activated in adulthood when environmental conditions resemble the conditions that fostered the development of EMS. Activation of these EMS subsequently results in the individual experiencing strong negative emotional reactions and cognitions, manifesting in psychiatric symptomatology (e.g. depression and anxiety). EMS are also said to bias an individual's perceptions and interactions with their environment (including others), so that they are congruent with their content. This includes interpreting events in a manner that is consistent with their EMS. For example, an individual who has developed the defectiveness/shame EMS, receives an e-mail from their boss informing them of an upcoming 'writing skills' workshop. The individual interprets this to indicate that their writing skills are perceived by management to be inadequate and that their boss considers their work to be subpar leading to psychological (sadness, rejection) and behavioural (withdrawal, avoidance) changes (Young, 1990, 1999; Young et al., 2003).

Young further posited that despite it appearing counter-intuitive, individuals will subconsciously place themselves in situations that trigger their early maladaptive schemas, due to people subconsciously fighting to achieve 'cognitive consistency' (i.e. to experience what is cognitively familiar), in accordance with cognitive dissonance theory (Festinger, 1957, as cited in Festinger & Carlsmith, 1959). Cognitive dissonance theory proposes that individuals experience psychic anguish if they hold two opposing cognitions, or if there is incongruence between cognitions and life experiences. For example, an individual who prides himself on his morals and considers it immoral to steal, would experience cognitive dissonance if upon waking following a night of alcohol intoxication, he recalls having stolen from a nightclub. Extending on this and in accordance with Young's schema theory (1990, 1999), cognitive dissonance theory further proposes that individuals aim to reduce cognitive dissonance (to reduce the psychic anguish) and achieve cognitive consistency (consonance). A person may attempt to achieve cognitive consonance through modifying previously held

beliefs/cognitions so that they are congruent with one's behaviour or life experiences. Alternatively, an individual may attempt to achieve cognitive consonance through attempting to change one's behaviour or life experiences so that they are in accord with one's beliefs/cognitions (Festinger). For example, extending on the previous example, the man who has stolen from the nightclub yet prides himself on his morals, has a number of means by which he may attempt to reduce cognitive dissonance and achieve consonance. For example, he may attempt to alter his original belief that stealing is immoral so that it is congruent with his behaviour. He may tell himself that stealing whilst intoxicated isn't *really* stealing, as he was impaired during the theft. Similarly, he may tell himself that the nightclub overprices their drinks and that stealing from a thief is not immoral. Alternatively, he may change his behaviours so that they are more congruent with his beliefs by choosing to donate a large sum of money to charity and rationalising that his good deeds that day outweigh his theft the night before.

Young (1990, 1999) proposed that EMSs are then perpetuated by three maladaptive coping styles (surrender, avoidance and overcompensation), employed in an attempt to defend against the emotional disturbances evoked by maladaptive schemas. 'Surrender' refers to surrendering to one's maladaptive schemas and repeating them'; 'avoidance' refers to attempting to block out the content of one's maladaptive schemas; and 'overcompensation' refers to striving to feel the opposite to one's maladaptive schemas. Each coping style is considered to have its own unique set of coping responses, that is, the actual behavioural or cognitive strategies utilised in an attempt to defend against the maladaptive schemas. Young labelled the EMS and/or coping styles that are currently activated for an individual, a 'schema mode'. Schema modes can be adaptive or maladaptive and are triggered by an individual's current experiences and can change moment to moment (Young, 1990, 1999; Young et al., 2003).

3.3 Summary

Regarded to be early developed, maladaptive views of oneself, the environment and others, negative schemas (or EMS as coined by Young) are proposed to be trait markers of psychiatric disorders that do not always remain in a constant activated state (Beck, 1969, 1979; Young, 1990, 1999). Beck proposed that increased negative schema activation results in depressive symptomatology. In contrast, the manic defence hypothesis proposes that mania results from psychically defending against activated negative schemas. Thus according to the manic defence hypothesis and both Beck and Young's schema theories, euthymia inherently implies inactivation of negative schemas. The following chapter reviews both contemporary and earlier studies of the negative schemas of individuals with bipolar disorder to assist in understanding the psychological processes involved in the aetiology and maintenance of the disorder.

Chapter Four

The Psychological Underpinnings of Bipolar Disorder

4.1 Introduction

The psychological processes involved in the affective states of bipolar disorder remain vastly under-researched. This chapter reviews the findings of studies which have investigated the negative schemas characteristic of bipolar disorder, to assist in understanding the psychological underpinnings of the disorder. The rationale for the current study based on limitations of previous research is then detailed, as are the aims and hypotheses of the current study.

4.2 Explicit Measures: Assessing State or Trait Markers of Bipolar Disorder?

The Dysfunctional Attitudes Scale (DAS: Weissman & Beck, 1978) and Young Schema Questionnaire (YSQ: Young & Brown, 1990) were both developed as a means of operationalising and assessing negative schemas. Both assessments are self-administered inventories. The DAS was developed to assess for the presence and severity of dysfunctional attitudes associated with depressogenic schemas (Weissman & Beck), and the YSQ was developed to assess for the presence and severity of the 18 EMS, identified by Young (1990, 1999) to be characteristic of entrenched psychological disorders. Both measures are considered to be explicit measures in that they are direct, self-report measures that assess an individual's conscious awareness of their cognitive processes (Winters & Neale, 1985). By their very definition, negative schemas are proposed by both Beck (1967; 1976) and Young (1990; 1999) to be trait (i.e. stable underlying patterns of behaviour) rather than state markers of psychiatric disorder, which measure fluctuations in mood/symptomatology, such as the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). In an effort to

ascertain whether the DAS and the YSQ do indeed assess stable trait markers of bipolar disorder, studies have investigated whether dysfunctional attitudes and EMS activation are present during non-episodic bipolar periods (euthymia), based on the premise that trait markers should be evident during these euthymic periods (Jones et al. 2005). However, when compared to non-psychiatric controls, bipolar-euthymic individuals have been found to endorse greater levels of dysfunctional attitudes on the 24-item version of the DAS (DAS-24; Power, et al., 1994) (Jones et al.) and on the DAS sub-factors 'Need for Approval' and 'Perfectionism' (Scott et al., 2000), 'Vulnerability' and 'Dependence' (Bian, Yang, Li, Gan, & Zuo, 2007). Bipolar-euthymic individuals have also been found to score significantly higher on nearly all EMS of the YSQ than non-psychiatric controls, (Hawke & Provencher, 2012) and higher than MDD-euthymic individuals on the EMS: 'Abandonment', 'Failure to Achieve', 'Insufficient Self-Control', 'Subjugation', 'Unrelenting Standards' and 'Enmeshment' (Nillson, Staarup, & Halvorsen, 2014).

However, with respect to the DAS, the results of cross-sectional and longitudinal studies with bipolar individuals have not supported the stability of dysfunctional attitudes across the course of the disorder. For example, bipolar-depressed individuals have been found to endorse significantly more dysfunctional attitudes (as assessed with the DAS) than euthymic bipolar individuals (Jones, et al., 2005; Reilly-Harrington et al., 2010). In contrast, bipolar manic/hypomanic individuals have been found to endorse significantly less dysfunctional attitudes than bipolar-depressed individuals (Reilly-Harrington et al.; Scott et al., 2000), although more than non-psychaitric controls (Goldberg, Gerstein, Wenze, Welker & Beck, 2008). Higher levels of dysfunctional attitude endorsement have also been exhibited in individuals experiencing a bipolar mixed-episode (simultaneous manic and depressive symptoms) (APA, 2013) when compared to manic, hypomanic and euthymic bipolar individuals (Reilly-Harrington et al.). These fluctuating levels of dysfunctional

attitudes across differing mood states have lead researchers to conclude that the DAS assesses both state and trait markers of bipolar disorder (Alloy, Abramson, Walshaw, & Neeren, 2006; Reilly-Harrington, et al., 2010). Unfortunately, to date, no study has investigated potential differences in EMS endorsement across the course of the disorder. As such, it remains to be elucidated whether, for bipolar individuals, current mood state impacts on the level of EMS endorsement as assessed with the YSQ.

4.3 Explicit Measures as an Assessment of Activated Schemas

It has been argued that attempting to categorise the DAS and the YSQ as measures of either negative schemas (trait markers) or mood-dependent state markers, simplifies the complexity of negative schemas (Halvorsen et al., 2010; Wang et al., 2010). According to both Beck (1967, 1976) and Young (1990, 1999), negative schemas do not remain in a constant activated state and as such, despite being trait markers, their accessibility to then be reported upon will vary across the course of a disorder (Beck; Young). In accordance with this account of negative schemas, it has been proposed that the DAS assesses negative schema content that is more or less accessible depending on an individual's mood state, due to differing levels of activation that give rise to those mood states (Babakhani & Startup, 2012). Based on this account, the finding that bipolar-mania is characterised by less dysfunctional attitudes than bipolar-depression (Reilly-Harrington et al., 2010; Scott et al., 2000) indicates that mania is characterised by less negative schema activation than bipolar-depression. Thus, this finding is not supportive of the manic defence hypothesis, which proposes that the levels of activated negative schemas of bipolar-manic individuals ought to be similar, if not near identical, to those of bipolar-depressed or unipolar depressed individuals (Lyon et al., 1999; Neale, 1988; Winters & Neale, 1985).

4.4 Evidence for Defensive responding in Bipolar-Manic Individuals

The manic defence hypothesis proposes that activated negative schemas are defended against in mania and consequently, the resulting negative cognitions that typically accompany their activation are not consciously known to the manic individual (Carlstedt, 2010; Lex et al., 2011; Neale, 1988). This very notion of manic defences inherently implies that investigating the activated negative schemas of bipolar-manic individuals with explicit measures is likely to be confounded by defensive responding, as explicit measures assess consciously known cognitive content (Lyon et al., 1999; Winters & Neale, 1985). To account for the possibility of defensive responding in bipolar-manic individuals on explicit measures, in a study conducted by Lyon et al. (1999), both implicit and explicit measures were used to investigate the negative schemas of bipolar-manic individuals. Implicit measures refer to indirect, projective/semiprojective measures that assess subconscious cognitive processes and are regarded to not be confounded by defensive responding; in contrast to explicit measures that assess conscious cognitive processes (Winters & Neale). Lyon et al.'s study consisted of one explicit measure of negative schemas, a parallel form of the Attibutional Style Questionnaire (ASQ: Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982; Seligman, Abramson, Semmel, & von Baeyer, 1979), which they named the ASQ parallel form (ASQpf) and two implicit measures of negative schemas, the Pragmatic Inference Task (PIT: Winters & Neale, 1985) and an Emotional Stroop Task (EST: Gotlib & McCann, 1984). The ASQpf is an explicit measure of attributional style in which individuals are directed to consciously consider possible causes for six hypothetical positive and six hypothetical negative scenarios and then rate the degree to which their causal statements are reflective of internal (self) or external (other) factors. In contrast, the PIT is regarded to be an implicit measure of attributional style and is presented to participants as a memory test. Similar to the ASQpf, the PIT consists of six hypothetical positive and six hypothetical

negative scenarios. However, dissimilar to the ASQpf, the PIT scenarios imply both an internal and external locus of causality i.e. causality is ambiguous. Attributional style (i.e. negative or positive) is determined with the PIT by assessing whether an individual attributes more internal or external causes to the successful and failure scenario outcomes. The developers of the PIT (Winters &Neale) proposed that the PIT controls for an individual's ability to deceive himself of his true feelings and/or present in a socially-desirable manner, given its implicit/projective nature. Furthermore the developers proposed that a negative attributional style is indicative of a schema of low self-worth. Also incorporated into Lyon et al.'s study was an EST. Regarded to be an implicit measure, the notion behind the EST is that words that are congruent with a person's underlying cognitive biases will be processed slower than words that are incongruent with a person's underlying cognitive biases (Gotlib & McCann, 1984).

Lyon et al. (1999) found that when assessed with the ASQpf (the explicit measure), the bipolar-manic group displayed a more positive attributional bias than the bipolar-depressed group. However on the PIT and the EST (the implicit measures), the bipolar-manic group exhibited similar negative attributional styles and cognitive biases to the bipolar-depressed group. Consistent with the manic defence hypothesis, Lyon et al. concluded that when "latent negative self-representations are primed by appropriate stimuli, it seems that bipolar individuals either consciously experience feelings of low self-worth, in which case they become depressed, or defensive responses are triggered, in which case they become grandiose and manic" (p.280). The findings of Lyon et al.'s study therefore indicate that the ability of explicit measures to assess the activated negative schema content of bipolar-manic individuals is confounded by defensive responding, resulting from the employment of manic defences. Furthermore, in accordance with Young's (1990, 1999) proposed coping styles, Lyon et al.'s description of depression and mania therefore indicates that depression is

characterised by 'surrendering' to negative schemas and mania is characterised by 'overcompensating' for the negative schemas. Further support for the manic defence hypothesis arose in a more recent study conducted by Kerr et al. (2005), in which bipolar-manic individuals were found to exhibit similar congiitve styles to bipolar-depressed individuals, as assessed with a Card Stroop Task and an EST.

The above findings indicate that bipolar-manic individuals may endorse less dysfunctional attitudes, as assessed with the DAS, than bipolar-depressed individuals (Reilly-Harrington et al., 2010; Scott et al., 2000) due to the explicit nature of the DAS being confounded by defensive responding. However, if the DAS is indeed confounded by defensive responding, it would appear that manic defences do not entirely defend against activated negative schemas, as evidencecd by bipolar-manic individuals exhibiting higher levels of dysfunctional attitudes than non-psychaitric controls (Goldberg et al., 2008). Unfortunately however, in evaluating whether explicit measures are able to assess negative schemas, the majority of contemporary studies have adopted a more clinical understanding of trait markers as being not only persistent but stable (Chen et al., 2006). By doing so, research has focused more on the assessing whether the DAS and YSQ are able to assess stable cognitive constructs (Lex, Meyer, Marquart, & Thau, 2008; Reilly-Harrington, et al., 2010; Wright, Lam, & Newsom-Davis, 2005). Thus, potential defensive responding on both the DAS and the YSQ is yet to be investigated.

4.5 Evidence for Defensive Responding in Bipolar-Euthymic Individuals

Due to studies indicating that bipolar-euthymia is characterised by lower level endorsement of dysfunctional attitudes compared to bipolar-depression (Jones, et al., 2005; Reilly-Harrington et al., 2010), it has been proposed that bipolar-euthymia is predominately characterised by minimal schema activation (Babakhani & Startup, 2012). Indeed, the

findings of a recent study conducted by Babakhani and Startup support this hypothesis. In their study, Babakhani and Startup found euthymic-bipolar participants endorsed more dysfunctional attitudes following attemped priming of their negative schemas via a solitary recollection mood induction technique. Based on these findings, Babakhani and Startup concluded that bipolar-euthymia inherently implies inactivation of negative schemas and that to assess their true propensity requires artificial activation.

However, it has been found that when assessed with implicit measures of negative cognitive style, a Card Stroop Task and an EST, bipolar-euthymic individuals demonstrate similar patterns of performance to both manic and depressed bipolar individuals, indicating similarities in underlying cognitive styles across the phases of the disorder (Kerr et al., 2005). This finding is not only indicative that bipolar-euthymia is characterised by underlying negative cognitive processes similar to bipolar-depression but is indicative that explicit measures may be confounded by defensive responding in not only bipolar-manic but bipolar-euthymic individuals also. Indeed, in an earlier study conducted by Winters and Neale (1985), bipolar-euthymic individuals were found to exhibit defensive responding on explicit measures of self-esteem. In their study, Winters and Neale aimed to investigate whether self-esteem remained at a stable low level throughout both manic and depressive episodes. However, despite their study being conducted to investigate the psychic defences of bipolar-manic individuals, in an effort to avoid the difficulties that would arise from interviewing an individual who is manic, their study was comprised of 16 remitted-manic bipolar outpatients. Also included in their study were 16 remitted unipolar depressive outpatients and 16 non-psychiatric individuals.

Winters and Neale incorporated measures of defensiveness and self-deception in their study, in addition to various explicit measures of self-esteem. One implicit measure of attributional style was also incorporated into the study. Winters and Neale developed the

implicit measure that they utilised in their study – a pragmatic inference task (PIT), the measure which was later incorporated into Lyon et al.'s (1999) study. Winters and Neale's study had three main hypotheses: (1) the bipolar-manic group's self-reported levels of self-esteem would be similar to the control group and higher than the depressed group; (2) the bipolar-manic group would score higher than both groups on measures of self-deception and social desirability, indicative of manic defences; and (3) on the PIT, both the remitted-depressed and the bipolar-manic groups would attribute more external causes to successful outcomes and more internal causes to failure outcomes, compared to the control group. The results of their study indicated that on explicit measures of self-esteem, both the bipolar-manic and control groups exhibited similar levels of self-esteem, higher than the self-esteem levels of the remitted-depressed group. However, in contrast to the explicit measures of self-esteem, on the PIT, both the remitted-depressed and the bipolar-manic groups attributed more failure outcomes to internal causes (as opposed to external causes) than the control group. Furthermore, the bipolar-manic group were also found to score higher than both the remitted-depressed and control groups on the measures of social desirability and self-deception, indicative of defensive responding. Based on these findings, Winters and Neale concluded that bipolar-manic individuals possess underlying negative cognitions of low self-worth, comparable to depressed individuals, which are assessable via the use of implicit measures, as they are not compounded by defensiveness and self-deception (i.e. manic defences).

As mentioned previously, Winters and Neale's (1985) study did not actually investigate the negative schemas of bipolar-manic individuals but rather bipolar-euthymic individuals. Thus, despite this study being developed to investigate defensive responding in bipolar-manic individuals, the findings indicate that euthymia is characterised by defensive responding on explicit measures, indicative of underlying negative cognitions in euthymia. Further supporting this notion of defensive responding in euthymia was the findings of a

more recent study conducted by Knowles et al. (2007). Replicating the findings of Winters and Neale's study, Knowles at al. found that when assessed with the PIT, bipolar-euthymic individuals exhibited a pessimistic attributional style, comparable to remitted unipolar individuals. In contrast, on explicit measures of self-esteem, bipolar-euthymic individuals were found to exhibit higher levels of self-esteem than remitted unipolar individuals. These findings indicate that bipolar-euthymia is characterised by defensive responding indicative of underlying activated negative schemas. Indeed, as with bipolar-manic individuals (Goldberg et al., 2008), defensive responding in bipolar-euthymic individuals would account for why bipolar-euthymic individuals endorse higher levels of dysfunctional attitudes when compared to non-psychiatric controls (Bian et al., 2007; Jones et al. 2005; Scott et al., 2000) but less when compared to bipolar-depressed individuals (Jones, et al., 2005; Reilly-Harrington et al., 2010).

4.6 Limitations of Previous Research

Previous research has indicated that compared to bipolar-depressed individuals, bipolar-euthymic individuals exhibit low levels of negative schema activation on explicit measures, including the DAS (Jones, et al., 2005; Reilly-Harrington et al., 2010). In contrast, when assessed with implicit measures, bipolar-euthymic individuals exhibit high levels, comparable to bipolar-depressed individuals (Kerr et al., 2005). However, due to the limitations of previous studies it remains to be elucidated whether explicit measures of negative schemas are confounded by defensive responding in bipolar-euthymic individuals. A major limitation of previous studies is that implicit measures have not been incorporated into studies which have investigated negative schema content of bipolar-euthymic individuals with the DAS and the YSQ. Furthermore, differences in EMS endorsement across the course of bipolar disorder (as assessed with the YSQ) are yet to be investigated.   Previous research

has indicated that implicit measures, being measures of subconscious cognitive processes, are able to control for defensive responding in bipolar individuals (Winters and Neale, 1985). Thus, the incorporation of an implicit measure into a study can provide a baseline measure of negative schema content, to which scores on explicit measures can be compared. This would enable investigation of potential defensive responding on explicit measures (Thomas, Bentall, Knowles & Tai, 2009). Conversely, implicit measures have not been incorporated in studies which have found on explicit measures, bipolar-euthymic individuals exhibit elevated levels of dysfunctional attitudes and implicit self-associations compared to non-psychiatric controls (Jabben et al., 2013; Thomas et al.), in addition to similarities in the cognitive processes between bipolar-euthymic and bipolar-depressed individuals (Kerr et al., 2005). Furthermore, the one study which indicated that euthymia is characterised by inactivation of negative schemas by demonstrating increased endorsement of dysfunctional attitudes following a mood induction technique specifically designed to activate negative schemas, did not incorporate an implicit measures into the study design (Babakhani & Startup, 2012). Thus, it remains unclear whether the priming of negative schemas did indeed activate negative schemas or conversely whether it may have impacted on the efficacy of the defences employed during euthymia.

4.7 Current Study

4.7.1 Rationale.

The identification of activated negative schemas being defended against in euthymia would extend the depression avoidance hypothesis to euthymia, indicating that euthymia is characterised by the employment of psychic defences to avoid the distressing psychological cognitions that accompany depression, including low self-esteem (Winters & Neale, 1985). This would not only contribute to the understanding of both the psychological, aetiological

and perpetuating factors involved in bipolar disorder but more importantly, would inform treatment planning.

4.7.2 Aim and study design.

The aim of this study was to investigate whether depression-avoidance defences are characteristic of bipolar euthymia. This study was comprised of five participant groups: bipolar-euthymic, bipolar-depressed, MDD-depressed, MDD-euthymic and a non-psychiatric control group. In order to investigate whether bipolar-euthymic individuals do indeed respond defensively on explicit measures, between groups analyses were conducted on the difference between participants' scores on an implicit measure of negative schemas centred on low self-worth (the PIT) and participants' scores on an explicit measure of low self-worth, the YSQ-Failure to Achieve EMS. In addition, between-groups differences on the PIT, YSQ Failure to Achieve EMS, DAS total, YSQ total, YSQ Unconditional EMS and YSQ Conditional scores were investigated, in accordance with the analyses conducted by Winters & Neale (1988) and Lyon, Startup & Bentall (1999).

Due to the conclusion drawn from Babakhani and Startup's (2012) study that "studies of cognitive styles among euthymic people with bipolar disorder without use of mood induction techniques to access those cognitive styles give misleading impressions of normality of those cognitions" (p.397), this study also incorporated a mood induction technique, to prime the negative schemas of bipolar-euthymic individuals. Babakhani and Startup (2012)'s study demonstrated increased dysfunctional attitudes in the interpersonal, achievement and goal attainment domains of the DAS-24, following the administration of a solitary recollection mood induction technique in which participants recalled personal sad life experiences. Thus, adhering to Babakhani and Startup's study design, this study incorporated a solitary recollection mood induction technique, whereby individuals recall childhood and

recent traumatic experiences, via the administration of the Childhood Traumatic Events

Questionnaire (CTES, Pennebaker & Susman, 1998) and the Recent Traumatic Events

Questionnaire (RTES, Pennebaker & Susman, 1998).

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4.7.3 Hypotheses.

4.7.3.1 Primary hypothesis

To enable investigation of the differences in responding on the implicit and explicit

measures of negative schema centred on low self-worth, participants' scores on the PIT-

failure (i.e. the number of internal causes attributed to failure outcomes) and the YSQ Failure

to Achieve EMS were standardised.   YSQ Failure to Achieve standardised scores were then

subtracted from PIT-failure scores to create a new variable, 'defensive responding'. High

defensive responding scores therefore indicated a greater level of defensive responding. In

accordance with the study's proposition that bipolar-euthymia is characterised by defensive

responding, it was hypothesised that the defensive responding score of the bipolar-euthymic

group would be significantly greater than that of the bipolar-depressed, MDD-depressed and

control groups (hypothesis one). As it remains to be elucidated whether MDD-euthymia may

also be characterised by defensive responding, no hypothesis was made in relation to the

difference in defensive responding scores between the bipolar-euthymic and MDD-euthymic

groups.

4.7.3.2 Secondary hypotheses

In accordance with the findings of Winters and Neale's study, which indicated that the

number of external causes attributed to successful events did not differ between the bipolar,

MDD and control groups, it was hypothesised that there would be no significant difference

in the number of external causes attributed to successful events between the groups

(hypothesis two). In contrast, in accordance with the findings of Winters and Neale's study,

it was hypothesised that the number of internal causes that bipolar-euthymic group attributed to failure outcomes would be comparable to the remitted-depressed group but significantly more than the non-psychiatric group (hypothesis three). Furthermore, in accordance with the findings of Kerr et al.'s (2005) study which found bipolar-euthymic individuals exhibited an underlying negative cognitive style similar to bipolar-depressed individuals when assessed with an implicit measure, it was further hypothesised that the number of internal causes that both bipolar- and MDD-euthymic groups attribute to failure events would be comparable to both the bipolar-depressed and MDD-depressed groups (hypothesis four).

Based on the findings of previous research in which bipolar-euthymic individuals were found to respond defensively on explicit measures of self-esteem (Knowles et al., 2007; Winters & Neale, 1985), it was hypothesised that the level of EMS endorsement of the bipolar-euthymic group on this EMS would be significantly less than both that of the bipolar-depressed and MDD-depressed groups (hypothesis five). However, due to previous research having found bipolar-euthymic individuals to score higher on this EMS than non-psychiatric controls (Ak, Lapsekili, Haciomeroglu, Sutcigil, & Turkcapar, 2012), it was hypothesised that the level of EMS endorsement of the bipolar-euthymic on this EMS would be significantly greater than that of the control group (hypothesis six).

Based on the findings of previous studies (Bian et al., 2007; Reilly-Harrington et al., 2010; Scott et al., 2000), it was hypothesised that the bipolar-euthymic group would endorse significantly less dysfunctional attitudes than both the bipolar-depressed and MDD-depressed groups, as assessed with the DAS but that all three groups would endorse significantly more dysfunctional attitudes than the non-psychiatric control group (hypothesis seven). In addition, it was hypothesised that the bipolar-euthymic group would endorse significantly less EMS than both the bipolar-depressed and MDD-depressed groups, as assessed with the YSQ-total but that all three groups would endorse significantly more EMS than the non-

psychiatric control group (hypothesis eight)As previously noted, it is unknown whether MDD-euthymia may be characterised by defensive responding and as such, no directional hypotheses were made in relation to the MDD-euthymic group on these explicit measures. The purpose of investigating the levels of endorsed dysfunctional attitudes and EMS of the MDD-euthymic group was to further assist in understanding the potential differences in the psychological processes characteristic of bipolar-euthymia and MDD-euthymia.

To assess differences in endorsed EMS, this study investigated the differences in the YSQ-total scores between the study groups. Total tallied scores for both the YSQ conditional and unconditional EMS were also compared between groups. As noted, unconditional EMS are EMS that are considered to deprive the individual of any hope of changing the negative cognitions and emotional reactions that they give rise to. In contrast, conditional EMS, are said to develop later in life in response to experiences within other relationships (e.g., intimate and peer), which utilise more developed interpersonal and problem solving behaviours and serve as somewhat of a defence against unconditional EMS (Young, 1990, 1999). Given that this thesis proposes that bipolar-euthymia is characterised by depression-avoidance defences, it was hypothesised that the level of conditional EMS endorsement of the bipolar-euthymic group would be comparable to that of both the bipolar-depressed and MDD-depressed groups and that all three groups would endorse significantly higher levels of conditional EMS than non-psychiatric controls (hypothesis nine). In contrast, given that this thesis proposes that euthymia is characterised by depression-avoidance defences and unconditional schemas are considered the core negative EMS, as opposed to developed defensive EMS (Young, 1990, 1999), it was hypothesised that the level of unconditional EMS endorsement of bipolar-euthymic individuals would be comparable to that of the non-psychiatric control group, and significantly less than the bipolar-depressed and MDD-groups (hypothesis ten).

PART III: METHOD

Chapter Five

Methodology of the Current Study

5.1 Introduction

This chapter details the study's participants, including both the procedures involved in recruiting participants and the study's participant exclusion criteria. The measures utilised in the current study, with a focus on the validity and reliability of each measure are then detailed, followed by the procedures implemented to conduct the study.

5.2 Participants

5.2.1 Power analysis.

The statistical power analysis tool, G*Power was used to conduct a priori power analysis for ANOVA. Assumptions regarding the data (i.e. means and standard deviations) were made based on the findings of Winters & Neale's (1985) study. The power analysis indicated that the study was required to obtain a minimum of 65 participants in total to have 80% power for detecting a medium sized effect, with the significance level is set at .05.

5.2.2 Participant recruitment.

The following methods of participant recruitment were utilized in this study:

5.2.2.1 Australian private psychologists.

Australian private psychologists, registered with the Australian Psychological Society (APS) and who identified themselves on the APS website (www.psychology.org.au) as

servicing clients with mood disorders, were contacted by telephone or email. Psychologists were provided with a description of the study and the study's URL (Appendix C).

5.2.2.2 Mood disorder support groups.

Australian mood disorder support group facilitators/hosts were contacted via telephone and email. Group facilitators/hosts were provided with a description of the study and the study's URL (Appendix C).

5.2.2.3 Advertising.

Study-specific business cards were developed which provided a brief description of the study and the study's URL (Appendix D). These business cards were made available to potential participants in numerous public locations, including General Practitioner offices, psychiatrist suites and eateries.

Participants were also recruited via advertising on relevant internet websites (see Appendix E for a list of the websites). A brief written description of the study and URL were posted on each of the internet websites (Appendix F).

5.2.2.4 Word-of-mouth.

At the conclusion of the online survey package, participants were asked to provide information regarding the study, to any individuals who they believed may be interested in participating.

5.2.3 Participant attrition rates, exclusion criteria and Group allocation

5.2.3.1 Attrition rates and exclusion criteria.

A total of 441 participants aged over 18 years commenced the study, which was delivered via an online survey package. Of the initial 441 participants, 76 participants disengaged from the study prior to completing the introductory block of questions, pertaining to demographic information and mental illness diagnosis/es. A further 110 participants disengaged from the study prior to completing any of the study's screening measures and a further 49 participants disengaged from the study prior to completing any of the negative schema measures incorporated in the study. Of the remaining 206 participants, a further five participants were excluded due to having been diagnosed with a personality disorder to avoid possible inflation of endorsed negative schemas in participant groups. This decision was made based on evidence of expression of high levels of maladaptive schemas in this group (Young, 1990, 1999; Young et al., 2003). Furthermore, due to the study consisting of standardised psychometric measures, which were designed and controlled on an English speaking population, two participants were excluded due to their English proficiency being self-regarded to be below intermediate.

5.2.3.2 Inclusion criteria for participant groups.

Participants were initially categorised into three groups based on their self-reported psychiatric diagnostic history. Participants who self-reported having been diagnosed with bipolar disorder by a mental health practitioner were allocated to the bipolar group, participants who self-reported having been diagnosed with major depressive disorder (MDD) by a mental health practitioner were allocated to the MDD group; and the remaining participants were allocated to the control group.

Inclusion criteria for the groups were as follows:

- The bipolar group: A self-reported current/previous diagnosis of bipolar disorder.

- The MDD group: A self-reported current/previous diagnosis of MDD, in addition to screening negative for bipolar disorder

- The control group: No self-reported current/previous diagnosis of a psychiatric illness, in addition to screening negative for both bipolar disorder and depression.

As a result of the participant inclusion criteria, a further 15 participants from the MDD-group and 13 participants from the control group were excluded from the data set due to screening positive for bipolar disorder. A further 24 participants from the control group were also excluded from the data set due to either reporting they had a lifetime diagnosis history of a mental illness ($n = 8$) or having screened positive for depression ($n = 16$). Total group numbers were as follows: Bipolar group ($n = 59$), MDD group ($n = 50$) and control group ($n = 53$).

5.2.4 Participant information.

In total, 30 males and 119 females participated in the study. Participant ages ranged from 18-68 years and the average age of participants was 32.52 years ($SD = 13.24$). With respect to location, 83.9% percent of participants resided in Australia (33.6%), UK (18.8%) or USA/Canada (31.5%). The remaining 16.1% of participants resided in 'other countries' (Table A.1 in Appendix W shows the location frequencies for the participant groups). The majority of participants identified with being Caucasian (77.2% of participants), followed by Asian (13.4%). The remaining 9.4% identified with being of other ethnicities (Table A.2 in Appendix X shows the ethnicity frequencies for the participant groups).

All participants reported to have completed at least their secondary education, with the majority of participants having completed tertiary/university or postgraduate studies (57.1%). With respect to employment, 27.5% of participants were employed full-time, 17.4% were employed part-time and 5.4% were employed casually. Of the remaining participants, 26.8% were students/volunteers, 8.1% were on government benefits and 14.8% were unemployed.

5.3 Measures

5.3.1 Screening measure.

5.3.1.1 Mood disorder questionnaire.

The Mood Disorder Questionnaire (MDQ: Hirschfeld, et al., 2000) (Appendix L) is a self-administered, screening questionnaire for bipolar disorder. Consisting of 17 items (15 of which are relevant for screening purposes), the MDQ assesses for the presence of a period of bipolar mood disturbance, characterised by moderate-serious interpersonal, financial, legal and/or occupational difficulties. Although participants were required to provide their psychiatric diagnostic history as part of the study screening process, the MDQ provided an additional means of ensuring the homogeneity of the depressed and control groups.

For the current study, the threshold set for the MDQ (i.e. the symptom cut-off score and the severity of impairment required to screen positive), was a cut-off score of seven and at least a moderate degree of impairment. Thus, participants in the depressed or control group who reported having experienced seven or more symptoms of bipolar disorder (questions 1.1 - 1.13 of the MDQ) in the one period of time (question 2 of the MDQ) that resulted in moderate or serious problems with respect to interpersonal, financial, legal and/or occupational functioning (question 3 of the MDQ), were excluded from the data set. This threshold is recommended by the developers of the MDQ who found that at this threshold, the MDQ has a specificity of 97.9%, with a negative predictive value of 95.6%, in general

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population samples and specificity of 81.1% and a negative predictive value of 78.2%, in

mood disorder patient samples (Hirschfeld, et al., 2000).

5.3.1.2 Altman self-rating mania scale.

The Altman Self-Rating Mania Scale (ASRM: Altman , Hedeker, Peterson, & Davis,

1997) (Appendix M) is a five-item, self-report inventory, used to assess for both the presence

and severity of manic symptoms in individuals with bipolar disorder. The ASRM is

comprised of three factors – 'mania', 'psychotic symptoms' and 'irritability'. The developers

of the ASRM found that the mania subscale score significantly positively correlated with

both the total scores of the Mania Rating Scale ($r = 0.718$) and the mania subscale scores of

the Clinician-Administered Rating Scale for Mania ($r = 0.766$). Furthermore, the ASRM is

significantly positively correlated with the well-being subscale of the Internal State Scale, in

addition to the Self-Report Manic Inventory, both at baseline and post-treatment. With a cut

off score of six, the ASRM has been found to have high sensitivity and good specificity

values of 85.5% and 87.3%, respectively, in screening for manic/hypomanic symptomatology

(Altman et al.). Therefore a cut off score of six was utilised to identify bipolar-manic

individuals, who were then excluded from the data set.

5.3.1.3 The patient health questionnaire-9.

The Patient Health Questionnaire-9 (PHQ:9: Kroenke, Spitzer, & Williams, 2001)

(Appendix N) is a brief, self-administered instrument, used to screen, diagnose, monitor and

measure depressive symptoms. The PHQ-9 consists of nine items pertaining to the DSM-IV

(APA, 2000) diagnostic criteria for depression, which are rated on a four-point Likert scale

f*rom 0 = 'Not at all'* to *4 = 'Nearly every day'.*   There are two methods of scoring the PHQ-

9: Using a symptomatic cut-off score of 10 or greater; or using a diagnostic algorithm method

as proposed by the developers of the PHQ-9. The diagnostic performance of the PHQ-9 has

not been found to differ with respect to which method is employed (Gilbody, Richards,

Brealey, & Hewitt, 2007).

The PHQ-9 has been found to have high internal reliability with a Chronbach's α of

0.89 and excellent test-retest reliability, ranging from an intraclass correlation coefficient of

0.84 – 0.92 (Kroenke et al., 2001; Pinto-Meza, Serrano-Bianco, Peñarrubia, Blanco, & Haro,

2005). When validated against DSM-IV diagnostic criteria for major depressive disorder, the

PHQ-9 has also been found to have a sensitivity of 0.80, with a positive likelihood ratio of

10.12 and to have specificity of 0.92, with a negative likelihood ratio of 0.22 (Gilbody, et al.,

2007)

The current study utilized the symptomatic cut-off score of 10. Symptomatic

participants were allocated to either the bipolar-depressed or MDD groups, or alternatively,

excluded from the control group.

5.3.2 Schema measures.

5.3.2.1 Dysfunctional attitudes scale.

The Dysfunctional Attitudes Scale (DAS: Weissman & Beck, 1978) (Appendix O) is

a 40-item self-administered inventory, used to assess the presence and severity of

dysfunctional attitudes that are characteristic of depression. DAS items are rated on a seven-

point Likert scale, ranging from *1 = 'totally disagree'* to *7 = 'totally agree'*, with reverse

ratings for positive items. An individual's DAS score is the sum of all item scores, thus DAS

total scores can range from 40-280.

The DAS has been found to correlate positively with other measures of depression

intensity, namely, the Beck Depression Inventory (r = 0.65), the Scale of Profile of Mood

States (r = 0.76) and the Hammen and Krantz stories (r = 0.62). The DAS has been shown to

have both good internal consistency (chronbach's α = 0.93) and test-retest reliability (r = 0.71) (Weissman & Beck). The DAS has also been found to have good validity (Hammen & Krantz, 1985).

5.3.2.2 Young schema questionnaire-short form version 3.

The Young Schema Questionnaire-Short Form Version 3 (YSQ-S3: Young, Pascal, Cousineau, 2006) (Appendix P) is 90-item questionnaire that measures the presence and severity of the 18 early maladaptive schemas (EMS), identified by Young (1990; 1999). The 18 EMS assessed by the YSQ are 'emotional deprivation', 'abandonment', 'mistrust/abuse', 'social isolation' , 'defectiveness', 'failure to achieve', 'dependence/incompetence', 'vulnerability to harm', 'enmeshment', 'subjugation' , 'self-sacrifice, 'approval seeking', 'emotional inhibition', 'unrelenting standards', 'pessimism', 'punitiveness', 'entitlement' and 'insufficient self-control. There are five question items pertaining to each of the 18 EMS in the YSQ that are rated on a six-point scale, with one representing '*completely untrue of me*' and six representing '*describes me perfectly*'. Scores for each of the 18 EMS are derived by adding the five EMS question items for each of the 18 EMS. Thus scores for each EMS can range from five to 30. The total YSQ-S3 score is used as a means to assess the presence of more severe and varied EMS. Total YSQ-S3 score can range from 90 to 540.

The YSQ-S3 is the most recent version of the YSQ-short form (YSQ-SF). The YSQ-SF (Young, 1998) has been found to have good internal consistency with Chronbach's α = 0.96 for psychiatric patients and Chronbach's α = 0.92 for non-psychiatric samples (Waller, Meyer, & Ohanian, 2001). It has been found to be a valid measure for predicting depression and to have good discriminant validity in measuring schemas, comparable to the original Young Schema Questionnaire - Long form (Baranoff, Oei, Cho, & Kwon, 2006). In Saritaş and Gençöz's (2011) study which investigated the psychometric properties of the YSQ-S3,

the YSQ-S3 was regarded by the researchers to have "satisfactory psychometric properties" (p.94).

5.3.2.3 Pragmatic inference task.

The Pragmatic Inference Task (PIT: Winters & Neale, 1985) (Appendix Q) is an implicit measure of an individual's attributional style (positive or negative), proposed to reflect the presence and severity of negative schemas pertaining to low self-worth. The PIT consists of 12 hypothetical scenarios - six of which have successful outcomes and six which have failure outcomes. Both successful and failure scenario outcomes imply both an internal and external locus of causality. Following the presentation of each scenario, individuals are then asked four questions about the scenario. Two questions concern memory of factual information regarding the scenario; one question concerns memory of implied non-causal information; and the last question, which assesses attributional style, concerns memory of implied causality (i.e. internal or external factors) of success or failure outcomes. Attributional style is determined by assessing whether an individual attributes internal or external causes to the successful and failure scenario outcomes. In developing the PIT, pilot work with university students enabled Winters and Neale to modify PIT items until the probability of attributing either an external cause or an internal cause was not significantly less or more than 0.5.

Winters and Neale (1985) found there to be no significant correlation between bipolar participants' scores on the PIT and the Self Report Inventory-II (SRI-II). As the PIT is an implicit measure and the SRI-II is an explicit measure, Winters and Neale regarded this discrepancy to support the PIT as being a valid instrument for measuring subconscious schemas of low self-worth.

5.3.3 Mood induction measures.

5.3.3.1 Childhood traumatic events and recent traumatic events scales.

The Childhood Traumatic Events Scale (CTES, Pennebaker & Susman, 1998) (Appendix R) and the Recent Traumatic Events Scale (RTES: Pennebaker & Susman) (Appendix S) are both self-completed questionnaires, comprised of 5 question groups that explore an individual's exposure to childhood traumatic events (age<17) and recent traumatic events (within the preceding three years). The CTES enquires about an individual's exposure to five specific traumatic events, during childhood: the death of a close friend or family member; a major upheaval between one's parents, including separation or divorce; a traumatic sexual experience; violence; and illness or injury. Furthermore, the CTES enquires at whether an individual was exposed to any other "major upheaval" in childhood that they believe negatively shaped their life and to describe what this upheaval was. The CTES requires the individual to rank how traumatic each event experienced was on a scale of one through to seven, with one representing *'not at all traumatic'* and seven representing *'extremely traumatic'.* The CTES also requires the individual to rank the extent to which they confided in others about each traumatic event they experienced, on a scale of one through to seven, with one representing '*Not at all'* and seven representing '*a great deal'.*

In contrast the RTES enquires about an individual's exposure to six specific traumatic events within the preceding three years. These items include whether an individual has experienced the following events within the preceding three years: 'the death of a very close friend or family member; a major upheaval between oneself and one's spouse, including divorce or separation; a traumatic sexual experience; violence; illness or injury; and a major change in the kind of work one does. As with the CTES, the RTES enquires whether an individual was exposed to any other major upheaval within the preceding three years that they believed negatively shaped their life and to describe what this upheaval was. It also

involves the individual ranking how traumatic each event experienced on a scale of one through to seven, with one representing *'not at all traumatic'* and 7 representing '*extremely traumatic'* and ranking the extent to which the individual confided in others about each traumatic event they experienced, on a scale of one through to seven, with one representing '*Not at all'* and seven representing '*a great deal'.*

Both scales were incorporated in the current study to ensure activation of bipolar-euthymic participants' negative schemas, prior to the completion of the two explicit (DAS and YSQ-S3) and implicit (PIT) negative schema measures. As such, given that the CTES and the RTES were utilised as methods of negative mood induction, participants' scores on the CTES and the RTES were not included in data analyses.

5.4 Procedure

5.4.1 Ethical approval.

An application for ethics approval was submitted to the Victoria University Human Research Ethics Committee on 27/06/2012. Approval was granted on 06/09/2012. (HRETH: 12/199; see Appendix A).

5.4.2 Development of the online survey.

Data collection entailed the completion of an online survey package, which predominately consisted of the aforementioned measures (Section 4.3.3), in addition to additional questions to obtain demographic and diagnostic information. The online survey package was generated using Qualtrics software, Version 2014, of the Qualtrics Research Suite (Qualtrics, Provo, UT). Qualtrics Research Suite software is accessed via the internet and provides the necessary resources to both develop and distribute a survey, in addition to enabling exportation of the collected data to data analyses programs. To commence the

development of the survey package, a study-specific Qualtrics account was created and activated. This account was a portal to a private and secure Qualtrics account that was only accessible via a Qualtrics login ID and secure password. The software's 'Quick Survey Builder' function of the Qualtrics Research Suite software was utilised to develop the online survey package. The Quick Survey Builder function enabled survey items to be inputted, via the 'Edit Survey' function. All measures listed in section 5.2 were entered into Qualtrics verbatim so that the type of question item (e.g. descriptive text, multiple choice, rank order) was identical to the hard copy version of the original measure.

   The 'Edit Survey' function of the Survey Builder enabled the survey to be divided into sections, labelled 'blocks' (see below). This enabled a set of questions to be presented at the one time or to impose conditions on sets of questions, to enable only relevant items to be displayed to participants. For example, an 'if' condition was imposed on a diagnostic related question, so that the question was only displayed if a participant had selected that they have been diagnosed with a psychiatric disorder.   The study was divided into section, labelled 'blocks' (see Appendix G for a flowchart of the study design)

5.4.2.1 Block one: Information to participants and consent form.

The study's uniform resource locator (URL) opened to Block One of the online survey package, which consisted of the *Information to Participant's Involved in Research Statement,* followed by the *Consent Form* (Appendix H). Participants were required to click "I consent", to enable participation in the study. In the event that participants clicked "I do not consent", the survey was designed so that the web browser automatically closed. Furthermore, participants were able to opt out of completing the survey at any time, simply by closing the web browser by clicking the 'X' button in the top-right corner of the web page.

5.4.2.2 Block two: Refusal item notice.

Block Two consisted of one item of descriptive text, which was referred to as the 'refusal item'. The refusal item was displayed to participants if they met any study exclusion criteria. The refusal item, stated: "*Unfortunately you are not eligible to participate in this study. Thank you for your interest in participating in this study. If you have any questions regarding this study, please contact Principal Researcher, Dr. Karen Hallam – Ph (office hours) +61 or (03) 9919 2586; karen.hallam@vu.edu.au*".

5.4.2.3 Block three: Basic demographics and exclusion criteria.

Block Three items were concerned with obtaining participants' gender and age, in addition to establishing whether participants met basic exclusion criteria (See appendix I for Block Three items). Specifically, exclusion criteria were: a lack of English proficiency or a visual or intellectual deficit, which would have likely significantly impaired a participant's ability to complete an online survey package. The survey was designed so that participants who met exclusion criterion were presented with the refusal item (see 5.4.2.2) and were unable to continue completing the survey package.

5.4.2.4 Block four: Participant demographic information.

Block Four items were concerned with obtaining additional participant demographic information, including participants' country of birth, country of residency, ethnicity, highest level of education obtained and employment status (see Appendix J for Block Four items).

5.4.2.5 Blocks five, six and seven: Participant psychiatric history.

Blocks Five, Six and Seven items were concerned with establishing whether participants had a previous/current diagnosis of bipolar disorder or depression and if so, the course of the disorder, current mood state and current treatment. Block Seven items established whether participant's had a current/previous psychiatric diagnosis/es (including personality disorder), other than bipolar or depression and if so, what they had specifically been diagnosed with and by whom.

In Blocks Five, Six and Seven, certain questions were displayed only on the basis of certain condition/s having been met. This was enabled via the inclusion of 'branches' in the 'Survey Flow' section of the 'Edit Survey' function, in which certain questions would 'branch' (i.e. be displayed) on the basis of relevant conditions having been met. For example, if a participant answered 'Yes" to the question, 'Have you ever been diagnosed with a psychiatric illness/mental disorder?' this question would then branch to other questions pertaining to their diagnosis, including 'What disorder/s have you received a diagnosis of?'. In contrast, if a participant responded with 'No' to the question, 'Have you ever been diagnosed with a psychiatric illness/mental disorder?' the survey would not branch to diagnostic-related questions (see Appendix K for Blocks Five to Seven items).

5.4.2.6 Blocks eight, nine and ten: Mood Screening measures.

Blocks Eight, Nine and Ten were comprised of the MDQ, the ASRM and the PHQ-9, respectively.

5.4.2.6 Blocks eleven and twelve: Mood induction technique.

Blocks Eleven and Twelve were comprised of the CTES and the RTES, respectively.

5.4.2.7 Blocks thirteen, fourteen and fifteen: Negative schema measures.

Block 13 to 15, were comprised of the DAS, the YSQ-S3 and the PIT, respectively.

5.4.2.8 Block sixteen: Survey completion notice.

The final block, block 16, consisted of one descriptive item, noting the completion of the survey package (Appendix V). At completion of the survey, the survey was submitted to Qualtrics and closed. The Victoria University home page was then displayed to participants.

5.4.2.9 EST measure

An EST was originally incorporated into the study design (see Appendix T for EST instructions presented to participants. See Appendix U for the words incorporated into the EST). However due to technical issues, EST data was found to be invalid. The EST was subsequently removed from the survey package).

5.4.3 Collection of data.

Qualtrics provided the survey package with its own uniform resource locator (URL) – the web address that enabled direct access to the survey package. The survey package took approximately 55 minutes to complete and was active for 1 year and four months, with participant recruitment continuing throughout the year of activation.

5.5 Study Design

This study was a cross-sectional study given that participants were allocated to groups depending on their diagnostic history. Specifically, the population groups of interest were: individuals with bipolar disorder who were euthymic at the time of participating in the study; individuals with bipolar disorder who were depressed at the time of participating in the study;

individuals with MDD who were euthymic at the time of participating in the study;

individuals with MDD who were depressed at the time of participating in the study; and

individuals with no history of psychiatric conditions. The study was a between-groups

design.

PART IV: RESULTS

Chapter Six

Results of the Current Study

6.1 Introduction

This chapter details the results of the statistical analyses employed to test the study's hypotheses aimed at investigating whether bipolar-euthymia is characterised by depression-avoidance defences. Specifically, analyses were concerned with investigating between-group differences in defensive responding scores (primary hypotheses) in addition to the levels of endorsed dysfunctional attitudes and EMS, as assessed with the DAS and YSQ, and differences in attibutional style (positive or negative), as assessed with the PIT (secondary hypotheses).

6.2 Data analyses

6.2.1 Data screening and analyses.

Data was analysed using the IBM version 22.0 SPSS Statistics Package. The data was initially screened for missing data and outliers. Missing data was kept as missing during analyses and was accounted for by the use of the 'exclude cases pairwise' option offered in SPSS, which excludes a case with missing variable data for analysis/es of that specific variable (Pallant, 2010). Non-normality of data sets was characteristic of the majority of the variables and as such, outliers were detected via SPSS boxplots. Data that exceeded 1.5x the inter-quartile range (IQR) was regarded to be an outlier. This method of detecting outliers does not assume normality of the data, in contrast to converting the data to z scores, which

assumes normality (Schwertman, Owens, & Adnan, 2004). Outliers were replaced with Winsorized values (i.e., the outlier is replaced with the next highest/lowest value that is not considered to be an outlier) (Sheskin, 2003).

The two major assumptions of parametric tests, normality and homogeneity, were then investigated with respect to each of the variables. Normality was assessed through visual inspection of histograms and box-plots of each participant groups' scores on the DV's, in addition to conducting Shapiro-Wilk tests (a normality test) and significance tests of skewness and kurtosis. Levene's test was used to investigate whether the assumption of homogeneity of variances was met or violated (Ghasemi & Zahediasl). Provided assumptions of parametric tests were not violated, One-Way Analyses of Variance (ANOVA) tests were performed to compare differences between the groups with respect to the DV's, followed by Tukey post-hoc comparisons. When assumptions of parametric tests were violated, data was transformed in an attempt to meet these assumptions. Specifically the data was transformed with the following formulas: Square root, logarithm, inverse, reflect and square root, reflect and logarithm, and reflect and inverse (Pallant, 2010). Transformation of data did not result in assumptions of normality and homogeneity being met. When the assumption of homogeneity is violated but normality isn't, or non-normality is mild-moderate, it is recommended that Welch's heteroscedastic F test (Welch's ANOVA) be used to assess for significant differences between the groups on the DV's, followed by Games-Howell post-hoc comparisons (Field, 2009). The Welch ANOVA has been shown to be quite robust when homogeneity and normality are violated, provided that non-normality is mild-moderate (Algina, Oshima, & Lin, 1994). In the event that normality is clearly violated but the assumption of homogeneity is met, it is recommended that a Kruskal-Wallis non-parametric ANOVA (Kruskal-Wallis test) be performed, followed by Mann-Whitney U tests to investigate differences between the groups (Pallant, 2010). In the event that both

normality and homogeneity assumptions are violated, it is recommended that the 'Welch ANOVA with 20% trimmed means and windsorized variances be used, which is considered a robust test when normality and homogeneity assumptions are violated (Field, 2013). For the current study, when assumptions of normality and/or homogeneity were violated both parametric and non-parametric tests were conducted on these variables and the parametric statistics reported if there was no difference in the outcome. When non-parametric tests were used, significance levels were approximated using the Monte Carlo method, to achieve a more accurate significance level (Field).The chosen alpha level for investigating demographic and clinical characteristics between groups was .05. Although it is recommended that a Bonferroni adjustment be applied to the alpha level when theoretically related DV's are being investigated, a Bonferroni adjustment requires that the DV's are from both the same 'family' (theoretical construct) and analysed with the same statistical analyses (Sinclair, Taylor, & Hobbs, 2013). Given that this study utilised four different statistical tests, it was deemed inappropriate to apply a Bonferroni adjustment and instead a more stringent alpha level of .01 was chosen when investigating DV's between groups (O'Keefe, 2003). This more stringent alpha level was chosen to account for multiple comparisons, which increases the risk of committing Type I errors (rejecting the null hypothesis when it is true) (Field, 2009). Furthermore, this alpha level was considered to not be too stringent that it would result in an inflated risk of committing Type II errors (accepting the null hypothesis when it is false) (Gordon, 2012). A p value between .01 and .05 was considered to be approaching statistical significance. A Bonferroni adjustment was, however, applied to the alpha level of post hoc tests, which in the case of the post hoc Tukey and Games-Howell tests, is automatically applied by SPSS (Field). With respect to follow-up Mann-Whitney U tests to investigate differences between groups following a significant Kruskal-Wallis H test statistic, the alpha level of .01 was divided by 9 (the number of between groups comparisons

that were conducted in follow-up analyses) (Pallant, 2010), resulting in an alpha level of .001. A *p* value between .001 and .006 was considered to be approaching statistical significance, given that had the alpha level for the Kruskal-Wallis test been .05, the alpha level of follow-up Mann-Whitney U tests would have been .006.

All participant data (following outlier winsorization) was used to explore between group differences on DV scores. Specifically, this entailed exploring whether the groups differed on the DAS-total, YSQ-total, total YSQ-Unconditional EMS, total YSQ-Conditional EMS, YSQ Failure to Achieve EMS and YSQ Incompetence/dependence EMS scores, in addition to the number of external causes attributed to successful outcomes (PIT-Success scores), and the number of internal causes attributed to failure outcomes (PIT-Failure scores).

6.2.2 Calculating effect sizes.

Due to the different statistical analyses required to investigate the study's primary and secondary hypotheses, a number of different effect sizes were calculated, depending on the statistical test performed. Eta squared is used for mean comparison of *k* samples and as such, was reported for ANOVA's, with scores of ≤ 0.01; 0.01 - 0.06; and .14 <, representing small, medium and large effect sizes, respectively. Cohen's d is calculated for mean comparisons of two groups, and as such was reported for Tukey and Games-Howell post hoc tests. With respect to Cohen's d, scores of ≤ 0.2; 02 - 0 .5; and.8<, represent small, medium and large effect sizes, respectively. Rank correlations (*r*) were used to report effect sizes for Mann-Whitney U-Tests, with scores of ≤ 0.3; 0.3 - 0.5; and 0.5<, representing small, medium and large effect sizes, respectively (Field, 2009).

6.3 Characteristics of the Participant Groups

6.3.1 All groups.

6.3.1.1 Clinical characteristics.

Following participant exclusions (see Section 5.2.3), data for 59 bipolar participants, 50 MDD participants and 53 control participants remained. Bipolar and MDD participants were then further divided into groups based on their episodic status, as assessed with the depression and mania screening measures, the ASRM and the PHQ-9. A cut off score of six and 10 were used to assess for episodic symptomatology, for the ASRM and PHQ-9, respectively. Bipolar participants who screened positive for depression on the PHQ-9 were allocated to the bipolar depressed group ($n = 25$). This thesis was concerned with investigating the negative schemas of bipolar euthymic individuals, thus bipolar participants who screened positive for mania on the ASRM ($n = 6$) or screened positive for both mania and depression ($n = 7$) were excluded from the data set. Furthermore, both groups were too small to enable investigation and collapsing groups would have inflated the endorsement of negative schemas in this group, due to the incorporation of bipolar-mixed participants. Remaining bipolar participants were allocated to the bipolar euthymic group ($n = 21$). MDD participants who screened positive for depression were allocated to the MDD-depressed group ($n = 26$). Remaining MDD participants were allocated to the MDD-euthymic group ($n = 24$). Table 6.1 presents the means and standard deviations of the screening measures for each participant group.

Table 6.1

Means and Standard Deviations of PHQ-9 and ASRM Scores for Participant Groups

		PHQ score		ASRM score	
	n	*M*	*SD*	*M*	*SD*
Bipolar-depressed	25	18.44	5.01	2.24	1.79
Bipolar-euthymic	21	3.70	2.30	2.29	1.93
MDD-depressed	26	16.67	4.35	2.62	3.31
MDD-euthymic	24	4.00	2.96	1.71	1.94
Control	53	3.55	2.87	3.17	3.55

Note: *n* = *M* = mean. *SD* = standard deviation.

6.3.1.2 Gender and age.

Table 6.2 shows the gender and age characteristics of participant groups. A Chi-Square Test for Independence showed that the groups did not differ significantly with respect to gender, χ^2 (5, $n = 150$) = 6.33, $p = .29$, Cramer's $V = .21$. The chi square statistic was approximated using the Monte Carlo method, due to the minimum expected cell frequency assumption having been violated (Pallant, 2012). A Kruskal-Wallis test showed the groups did however differ significantly with respect to age, χ^2 (5, $n = 149$) = 19.21, $p < .001$. Follow-up Mann-Whitney U Tests were performed to investigate differences in the mean age between participant groups, with a Bonferroni adjustment applied to the alpha level to control for Type I error rates. Specifically, the alpha was adjusted to .005 (calculated by dividing .05 the number of comparisons to be made [9]). Internal comparisons with Mann-Whitney U tests revealed that the control group was significantly younger than the bipolar-euthymic, $U = 252.50$, $z = -3.65$, $p < .001$, $r = -.30$, and the bipolar-depressed group, $U = 390.50$, $z = -2.92$, $p = .003$, $r = -.24$. Furthermore the MDD-depressed group was found to be significantly younger than the bipolar-euthymic group, $U = 132.50$, $z = -3.01$, $p = .002$, $r = -$

.25. Despite the groups differing significantly with respect to age, age was unable to be

controlled for in this study, due to the statistical tests required to analyse the data not enabling

for the control of a covariate.

Table 6.2

Gender and Age Characteristics of Participant Groups

Group	*N*	Gender		Age			
		M	F	*M*	*SD*	*Md*	*MR*
Bipolar-depressed	25	2	23	36.24	10.86	33.00	101.60
Bipolar-euthymic	21	4	17	38.95	11.83	36.00	111.81
MDD-depressed	26	3	23	29.00	10.85	25.00	70.10
MDD-euthymic	24	6	18	31.92	13.59	27.50	79.45
Control	53	15	38	29.00	12.12	23.00	67.99

Note: *n* = number of participants. M = male. F = female. *M* = mean. *SD* = standard

deviation. *Md* = median. *MR* = mean rank used to conduct Kruskal Wallis test.

6.3.1.3 Education and employment.

A Chi-Square Test for Independence showed that the groups significantly differed

with respect to education level, χ^2 (12, *n* = 149) = 21.92, *p* = .038, Cramer's *V* = .244.

Converting data to standardized residuals enabled identification of significant relationships

(Field, 2009). It was found that significantly more people in the bipolar-depressed group had

completed secondary education at the *p* < .05 level, compared to other groups.

With respect to employment, a Chi-Square Test for Independence showed that the groups

significantly differed on employment status, χ^2 (20, *n* = 149) = 43.92, *p* = .002, Cramer's *V* =

.271. Further analyses of the data following conversion of data in standardised residuals,

revealed that compared to other groups, the ratio of part-time workers to other employment

status options was significantly higher in the bipolar-euthymic (at *p* < .05 level); the ratio of

students/volunteers to other employment status options was significantly lower (at $p < .05$ level) in the bipolar-euthymic group and significantly higher in the control group (at $p < .05$ level); and the ratio of unemployed individuals and individuals in receipt of government benefits compared to other employment status options was significantly higher in the bipolar-depressed group (at $p < .01$ and $p < .05$ levels, respectively). Despite the groups differing significantly with respect to education and employment, both variables were unable to be controlled for in this study, due to the statistical tests required to analyse the data not enabling for the control of a covariate.

6.3.1.4 Incidence of childhood and recent traumatic events.

A Kruskal-Wallis test showed the groups differed with respect to the incidence rate of childhood traumatic experiences, χ^2 (4, $n = 146$) = 16.94, $p = 0.001$, and recent traumatic experiences, χ^2 (4, $n = 147$) = 22.14, $p < .001$. Follow-up Mann-Whitney U tests (with a Bonferroni adjustment applied to the .05 alpha level) revealed that the bipolar-depressed group experienced significantly more childhood traumatic experiences than both the control group, $U = 345.00$, $z = -3.20$, $p = .001$, $r = -.26$, and MDD-euthymic group, $U = 159.00$, $z = -2.72$, $p = .005$, $r = -.23$. The bipolar-depressed group also experienced significantly more recent traumatic events than the control group, $U = 283.50$, $z = -4.12$, $p < .001$, $r = -.34$, and the MDD-euthymic group, $U = 139.50$, $z = -3.28$, $p = .001$, $r = -.27$. Despite the groups differing significantly with respect to incidence of childhood and recent traumatic events, these variables were unable to be controlled for in this study due to the statistical tests required to analyse the data not enabling for the control of a covariate.

6.3.2 Bipolar and MMD groups.

6.3.2.1 Age at diagnosis.

The majority of participants in the two bipolar groups reported having been diagnosed with either bipolar I or bipolar II. Table 6.3 shows the bipolar type diagnoses of each bipolar group. The average age of diagnosis (self-reported) of bipolar disorder was 25.28 years for the bipolar-euthymic group (SD = 8.54) and 31.84 years for the bipolar-depressed group (SD = 12.57). The average age of diagnosis (self-reported) for the MDD-euthymic group was 22.61 years (SD = 7.49) and 21.72 years (SD = 8.18) for the MDD-euthymic group.

Table 6.3

Bipolar Type Diagnosis of Participants in Bipolar Groups

Group	Bipolar Type (n)				
	Bipolar I	Bipolar II	Cyclothymic	BD-NOS	Other
Bipolar-depressed	8	12	0	2	3
Bipolar-euthymic	12	7	0	1	1
Total (n)	28	21	0	4	6

Note: n = number of participants. BD-NOS = bipolar disorder-not otherwise specified. Other = other-specified or unspecified bipolar and related disorder.

6.3.2.2 Psychiatric comorbidity.

Participants in the bipolar and MDD group who had been diagnosed with a co-morbid mental illness were as follows: bipolar-depressed (n = 9), bipolar-euthymic (n = 7), MDD-depressed (n = 19) and MDD-euthymic (n = 5) (Table A.3 in Appendix X shows the reported comorbid psychiatric illnesses characteristics of each group). Both bipolar disorder and MDD are associated with high rates of psychiatric comorbidity (Krishnan, 2005; Melartin , et

al., 2002). As such, inclusion of bipolar and MDD participants with co-morbid mental illness was regarded to be reflective of typical bipolar and MDD presentations.

6.3.2.3 Medication.

All bipolar-euthymic participants reported currently taking medication, as did 80% of bipolar-depressed participants, 65.4% of MDD-depressed participants and 41.7% of MDD-euthymic participants. A Chi-Square Test for Independence showed that these medication rates were significantly different between the bipolar and MDD groups, χ^2 (3, $n = 96$) = 19.92, $p < .001$, Cramer's $V = .456$. Converting data to standardized residuals enabled identification of significant relationships (Field, 2009). Significantly more individuals in the bipolar-euthymic group were medication compliant when medication compliance was compared to other groups (at $p < .05$ level) and significantly less individuals in the MDD-euthymic group were medication non-compliant compared to other groups (at $p < .01$ level). Despite the groups differing significantly with respect to medication, medication status was unable to be controlled for in this study due to the statistical tests required to analyse the data not enabling for the control of a covariate.

6.4 Study Findings

The following section details the findings of the between groups analyses for each of the DV's, following winsorization of outliers.

6.4.1 Findings regarding primary hypothesis.

6.4.1.1 Analyses of defensive responding scores.

Defensive responding scores were available for 75.84% of participants. This resulted in a population of 19 bipolar-depressed participants, 17 bipolar-euthymic participants, 17

MDD-depressed participants, 20 MDD-euthymic participants and 40 control participants.

The defensive responding score for each participant was calculated via converting YSQ

Failure to Achieve EMS and PIT-Failure raw scores into standardized scores (z scores) and

then subtracting the standardized YSQ Failure to Achieve score from the standardized PIT-

Failure score for each participant. Table 6.4 shows the means and standard deviations of the

standardized defensive responding scores for all five groups

Table 6.4

Means and Standard Deviations of Defensive Responding
Scores for Participant Groups

	N	*M*	*SD*
Bipolar-depressed	19	-.60	1.19
Bipolar-euthymic	17	.88	.92
MDD-depressed	17	-.95	-.95
MDD-euthymic	20	.36	.89
Control group	40	.16	.94

Note: n = number of participants. *M* = mean. *SD* = standard
deviation.

An ANOVA was used to explore differences in the mean defensive responding scores

between the groups. The results of the ANOVA showed a statistic significant difference in

defensive responding scores between the groups, $F(4, 108) = 9.96$, $p < .001$. The effect size,

calculated using eta squared was .27, indicating a large effect. Tukey post hoc comparisons

revealed that the mean defensive responding score for the bipolar-euthymic group was

significantly greater than that of both the bipolar-depressed group, $p < .001$, $d = 1.42$, and

MDD-depressed groups, $p < .001$, $d = 1.96$.

Interestingly, the bipolar-depressed group was found to score significantly lower than the MDD-euthymic group, p = .002, d = -.94. In addition, the MDD-depressed group was found to score significantly lower than the control group, p = .002, d = -1.18; and the MDD-euthymic group, p = .001, d = -1.43.

6.4.2 Findings regarding secondary hypotheses

Between-groups analyses of scores on both the PIT and explicit measures were conducted to test secondary hypotheses. Figure 6.1 shows differences between groups on explicit measures scores.
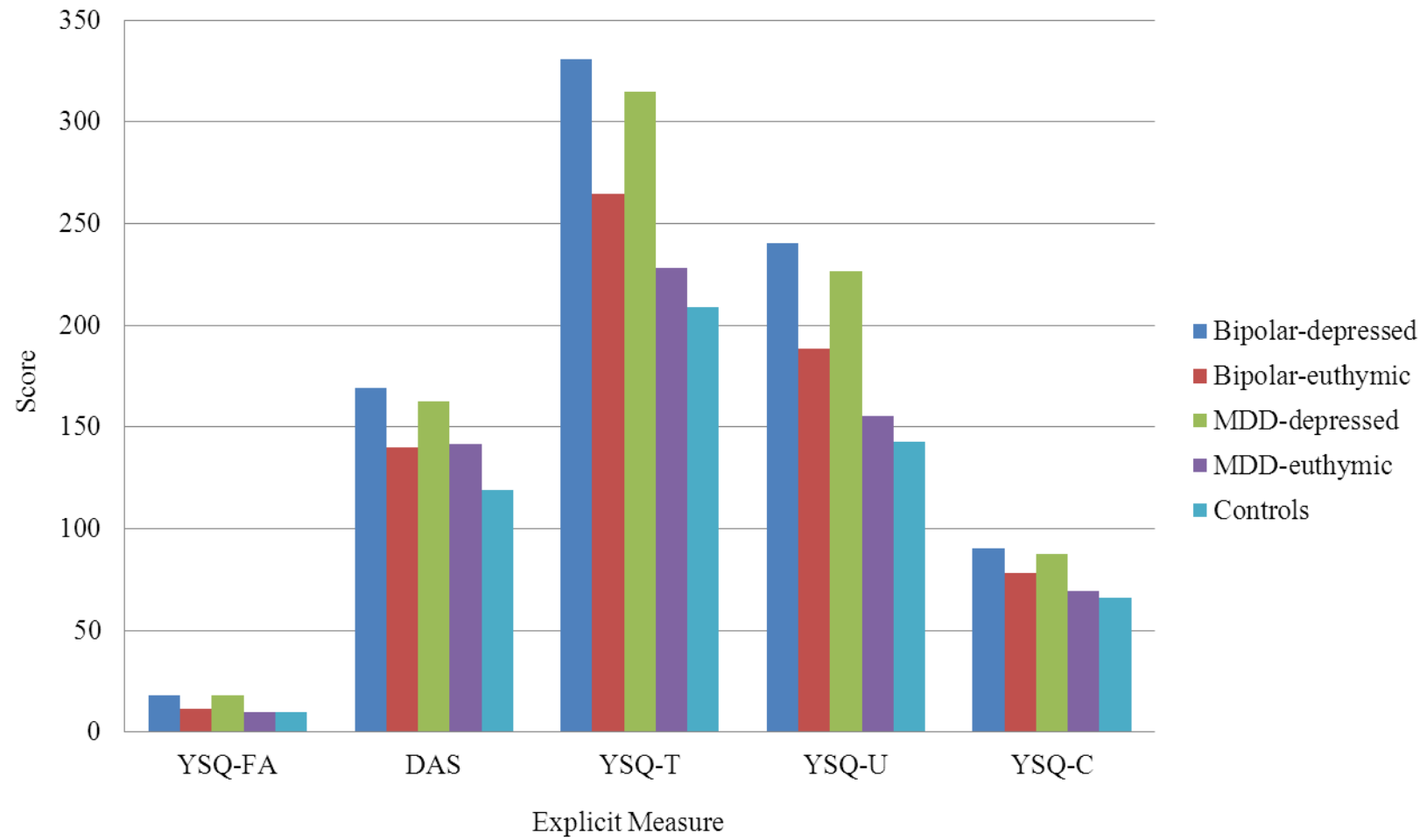
Figure 6.1. Between-groups score differences on explicit measures of negative schemas.

6.4.2.1. Comparison of PIT scores pertaining to number of external causal

attributions to success outcomes.

Total number of external casual attributions for successful outcomes on the PIT (PIT-Success score) was available for 80.54% of the participants. This resulted in a population of 29 bipolar-depressed participants, 17 bipolar-euthymic participants, 17 MMD-depressed participants, 19 MDD-euthymic participants, and 38 control participants.

The control, MDD-euthymic and MDD-depressed groups all had median PIT-success scores of 3.00. The bipolar-depressed and bipolar-euthymic groups both had median scores of 4.00. A Kruskal-Wallis Test revealed no statistically significant difference between the frequency of internal causal attributions for successful outcomes between the six groups, χ^2 $(4, n = 110) = 6.20, p = 0.187$.

6.4.2.2 Comparison of PIT scores pertaining to number of internal causal

attributions to failure outcomes.

Total number of internal casual attributions for failure outcomes on the PIT (PIT-failure score) was available for 76.51% of the participants. This resulted in a population of 19 bipolar-depressed participants, 17 bipolar-euthymic participants, 17 MMD-depressed participants, 20 MDD-euthymic participants and 41 controls. Table 6.5 shows the mean, median and mean rank of PIT-failure score for each of the participant groups.

Table 6.5

Mean, Median and Mean Rank PIT-Failure Scores of Participant Groups

	n	*M*	*SD*	*Md*	*MR*
Bipolar-depressed	19	3.21	1.357	3.00	67.42
Bipolar-euthymic	17	3.88	1.364	4.00	81.24
MDD-euthymic	20	2.65	1.387	2.50	54.10
MDD-depressed	17	2.47	1.125	2.00	49.63
Control group	41	2.41	1.048	2.00	48.02

Note: n = number of participants. *M* = mean. *SD* = standard deviation. *Md* = median. *MR* = mean rank used to conduct Kruskal Wallis test.

As can be seen in Table 6.5, the bipolar-euthymic group attributed the most number of internal reasons for failure outcome events, followed by the bipolar-depressed group. Conversely, the control group attributed the least, closely followed by the MDD-depressed and MDD-euthymic groups. A Kruskal-Wallis Test revealed a statistically significant difference between the number of internal casual attributions for failure outcomes across the six groups, χ^2 (4, *n* = 114) = 15.78, *p* = 0.002. Follow-up Mann-Whitney Tests U tests between pairs of groups were then conducted to determine which groups differed significantly. A Bonferroni adjustment to the alpha values was applied by dividing 0.01 by 9 (the number of comparisons required) to reduce the risk of Type I error rates. The adjusted alpha level for each comparison was *p* = 0.001. Follow up Mann-Whitney U tests showed that despite the stringent error rate, the median rank for the bipolar-euthymic was significantly higher than that of the control group, *U* = 147.00, *z* = -3.53, *p* =< .001, *r* =-.33 and was approaching being significantly more than the MDD-depressed group, *U* = 64.00, *z* = -2.83, *p* = .004, *r* = -.26.

6.4.2.3 Analyses of 'failure to achieve' EMS endorsement.

Failure to Achieve EMS scores were available for 84.56% of the participants. This resulted in a population of 20 bipolar-depressed participants, 20 bipolar-euthymic participants; 21 MMD-depressed participants; 22 MDD-euthymic participants and 44 controls. Table 6.6 shows the mean and median YSQ Failure to Achieve EMS scores for the six groups.

Table 6.6

Means and Standard Deviations of Failure to Achieve EMS Scores for Participant Groups

	n	*M*	*SD*
Bipolar-depressed	20	18.40	7.99
Bipolar-euthymic	20	11.26	3.41
MDD-depressed	21	18.29	6.66
MDD-euthymic	22	9.82	4.36
Control group	44	10.05	4.79

Note: n = number of participants. M = mean. SD = standard deviation. Means and standard deviations calculated prior to trimming and winsorization.

A Welch ANOVA with 20% trimmed means and windsorized variances showed a statistically significant difference in YSQ Failure to Achieve EMS scores between the groups at the $p < .01$ level, $F(4, 48.79) = 14.05$, $p < .001$. The effect size, calculated using eta squared, was .42, indicating a very large effect. Post-hoc analyses with Games-Howell indicated that the bipolar-depressed group scored significantly higher on this schema than the control group, $p < .001$, $d = 1.53$, the bipolar-euthymic group, $p = .009$, $d = 1.16$, and the MDD-euthymic group, $p = .001$, $d = 1.47$. Furthermore, the MDD-depressed group also scored significantly higher on this schema than the control group, $p < .001$, $d = 1.76$, the

bipolar-euthymic group, $p = .002$, $d = 1.33$; and the MDD-euthymic group, $p < .001$, $d = 1.69$.

6.4.2.4 Analyses of DAS scores.

DAS-total scores were available for 93.96% of the participants. This resulted in a population of 23 bipolar-depressed participants, 20 bipolar-euthymic participants, 23 MMD-depressed participants, 23 MDD-euthymic participants, and 51 control participants. Table 6.7 shows the means and standard deviations of total DAS scores for each of the participant groups.

Table 6.7

Means and Standard Deviations of DAS-Total Scores for Participant Groups

	n	*M*	*SD*
Bipolar-depressed	23	169.30	41.57
Bipolar-euthymic	20	140.05	45.75
MDD-depressed	23	162.83	35.70
MDD-euthymic	23	141.57	36.43
Control group	51	119.25	27.25

Note: n = number of participants. M = mean. SD = standard deviation.

An ANOVA was used to explore differences in the levels of endorsed dysfunctional attitudes between the groups, as measured with total DAS-total scores. The results of the ANOVA showed a statistically significant difference in total DAS scores between the groups: $F (4, 135) = 10.49$, $p < .001$. The effect size, calculated using eta squared, was .24, indicating a large effect. Post hoc comparisons using the Games-Howell test revealed that

the mean DAS-total score of the control group was significantly lower than that of the

bipolar-depressed group, $p < .001$, $d = -1.42$; and the MDD-depressed group, $p < .001$, $d = -$

1.37 (please note: 'd' refers to Cohen's d).

6.4.2.5 Analyses of YSQ-total scores.

YSQ-total scores were available for 76.51% of the participants. This resulted in a

population of 20 bipolar-depressed participants, 18 bipolar-euthymic participants, 18 MMD-

depressed participants, 20 MDD-euthymic participants and 38 control participants. Table 6.8

shows the means and standard deviations of total YSQ scores for each of the participant

groups.

Table 6.8

Means and Standard Deviations of YSQ-Total Scores for

Participant Groups

	n	*M*	*SD*
Bipolar-depressed	20	330.95	86.96
Bipolar-euthymic	18	264.56	45.65
MDD-depressed	18	314.72	62.69
MDD-euthymic	20	228.10	63.73
Control group	38	208.89	61.25

Note: n = number of participants. *M* = mean. *SD* = standard

deviation.

An ANOVA was used to explore differences in the levels of endorsed EMS between

the groups, as measured with YSQ-total scores. The results of the ANOVA showed a

statistically significant difference in YSQ-total scores between the groups: $F (4, 109) =$

16.19, $p < .001$. The effect size, calculated using eta squared, was .37, indicating a large

effect. Tukey post hoc comparisons showed that the mean YSQ-total score of the control group was significantly lower than that of the bipolar-depressed group, $p < .001$, $d = -1.62$ and the MDD-depressed group, $p < 0.001$, $d = -1.71$, and was approaching being significantly lower than the bipolar-euthymic group using the more stringent error rate recommended for these analyses, $p = .028$, $d = -1.03$. Tukey post hoc comparisons also showed that the mean YSQ-total score for the MDD-euthymic group was significantly lower than the mean YSQ-total scores of both the bipolar-depressed group, $p < .001$, $d = -1.38$, and MDD-depressed group, $p = .001$, $d = -1.42$.

6.4.2.7 Analyses of total YSQ-unconditional EMS scores.

Total YSQ-Unconditional EMS scores (i.e. total score for all unconditional EMS) were available for 78.52% of the participants. This resulted in a population of 20 bipolar-depressed participants, 18 bipolar-euthymic participants; 19 MMD-depressed participants; 20 MDD-euthymic participants and 40 controls. Table 6.9 shows the mean and standard deviations of YSQ-Unconditional EMS scores for the participant groups.

Table 6.9

Means and Standard Deviations of YSQ-Unconditional EMS Scores for Participant Groups

	n	*M*	*SD*
Bipolar-depressed	20	240.650	62.87
Bipolar-euthymic	18	188.500	38.56
MDD-depressed	19	226.53	48.92
MDD-euthymic	20	155.50	47.33
Control group	40	142.83	47.68

Note: n = number of participants. *M* = mean. *SD* = standard deviation.

An ANOVA showed a statistically significant difference in total YSQ Unconditional EMS scores between the groups: $F (4, 112) = 18.62$, $p < .001$. The effect size, calculated using eta squared, was .40, indicating a very large effect. Tukey post hoc comparisons showed that the mean YSQ-Unconditional EMS score for the control group was significantly lower than that of the bipolar-depressed group, $p < .001$, $d = -1.75$ and the MDD-depressed group, $p < 0.001$, $d = -1.73$; and was approaching significance for being lower than the bipolar-euthymic group, $p = .013$, $d = -1.05$. Furthermore, the mean YSQ-Unconditional EMS score for the MDD-euthymic group was significantly less than that of the bipolar-depressed group, $p < .001$, $d = -1.53$; and the MDD-depressed group, $p < .001$, $d = -1.48$. The mean YSQ-Unconditional EMS score of the bipolar-euthymic group was approaching being significantly less than the bipolar-depressed group, $p = .013$, $d = -1.00$.

6.4.2.8 Analyses of total YSQ-conditional schema scores.

Total YSQ-Conditional EMS scores were available for 81.21% of the participants. This resulted in a population of 20 bipolar-depressed participants, 18 bipolar-euthymic participants; 19 MMD-depressed participants; 22 MDD-euthymic participants and 42 controls. . Table 6.9 shows the means and standard deviations of YSQ Conditional EMS total scores for each group.

Table 6.10

Means and Standard Deviations of YSQ-Conditional EMS

Scores for Participant Groups

	n	*M*	*SD*
Bipolar-depressed	20	90.30	29.07
Bipolar-euthymic	18	78.00	17.82
MDD-depressed	19	87.42	17.13
MDD-euthymic	22	69.18	22.16
Control group	42	66.00	17.53

Note: n = number of participants. *M* = mean. *SD* = standard deviation.

An ANOVA showed a statistically significant difference in total YSQ-Conditional EMS scores between the groups: $F(4, 116) = 6.93$, $p < .001$. The effect size, calculated using eta squared, was .19. Tukey post hoc comparisons revealed that the YSQ-Conditional EMS score for the control group was significantly lower than that of the bipolar-depressed group, $p < .001$, $d = -1.01$ and the MDD-depressed group, $p = 0.003$, $d = -1.24$. Furthermore, Tukey post hoc comparisons the mean YSQ-Conditional EMS score for the MDD-euthymic group was approaching being significantly less than the bipolar-depressed group, $p = .011$, $d = -.82$; and MDD-depressed group, $p = .045$, $d = -.92$.

PART V: DISCUSSION

Chapter Seven

Discussion of Thesis Findings

7.1 Introduction

The findings of previous research indicate that when assessed with explicit measures of negative schemas, the level of endorsed negative schema content of bipolar-euthymic individuals falls between bipolar-depressed and non-psychiatric individuals (Jones, et al., 2005; Reilly-Harrington et al., 2010). In contrast, when assessed with implicit measures of negative schema content, bipolar-euthymic individuals exhibit similar negative cognitive styles to that of bipolar-depressed individuals (Kerr et al., 2005). These contrasting findings indicate that bipolar-euthymia may be characterised by depression-avoidance defences, a hypothesis that is further supported by the findings that despite bipolar-euthymic individuals being found to overtly report high levels of self-esteem, when assessed with implicit measure of negative schema content, they exhibit an underlying schema of low-self-worth (Knowles et al., 2007; Winters & Neale, 1985). Due to the limitations of previous research however, hypotheses regarding euthymia being characterised by depression-avoidance defences have neither been considered nor tested. Thus, the aim of the current study was to provide further insight into potential employment of depression-avoidance defences in bipolar-euthymia, by investigating between groups differences in responding on implicit versus explicit measures. Specifically, groups were compared on the score difference between participants' scores on the PIT (with respect to failure scores) and on an explicit measure of low self-worth, the YSQ-Failure to Achieve EMS. In addition, between-groups differences on the DAS total, YSQ total, YSQ Unconditional EMS, YSQ Conditional EMS and the PIT scores were

investigated, in accordance with the analyses conducted by Winters & Neale (1988) and Lyon, Startup & Bentall (1999). The following chapter reviews the findings of the current study with respect to the study's aims and hypotheses. The limitations of the current study are acknowledged, prior to discussion of the theoretical and clinical implications of the study's findings, incorporating directions for future research.

7.2 Findings of the Current Study

7.2.1 Primary hypotheses.

In contrast to Winters & Neale's (1985) study which utilised the PIT as a means of investigating whether bipolar-mania is characterised by a schema of low self-worth comparable to bipolar- and MDD-depressed individuals, in the current study the PIT was used to enable assessment of potential defensive responding on the YSQ Failure to Achieve EMS. The PIT is proposed to control for an individual's ability to deceive himself of his true feelings and/or present in a socially-desirable manner (Winters & Neale) and thus was incorporated into the current study to serve as a baseline measure of negative schema activation (Thomas et al., 2009) (particularly with respect to activation of a negative schema of low self-worth). With respect to the current study, the hypothesis that the mean defensive responding score of the bipolar-euthymic group would be significantly greater than that of the bipolar-depressed, MDD-depressed and control groups (hypothesis one), was partially supported with the bipolar-euthymic group scoring significantly higher than both the bipolar-depressed and MDD-depressed groups but not the control group. This finding therefore indicates that defensive responding on the explicit measure of low self-worth was characteristic of the bipolar-euthymic group, with the two depressed groups not exhibiting this defensive responding. Interestingly, the MDD-euthymic group was also found to have significantly greater mean defensive responding score than both the bipolar-depressed and

MDD-depressed groups, indicating defensive responding to be characteristic of MDD-euthymia also.

7.2.2 Secondary hypotheses.

7.2.2.1 Between-group differences on negative attributional style.

With respect to the current study, the hypothesis that PIT-Success scores (i.e. the number of external causes attributed to successful scenario outcomes) would not differ significantly between the groups (hypothesis two) was supported. So too was the hypothesis that PIT-Failure scores (i.e. the number of internal causes attributed for failure scenario outcomes) would not differ significantly between the bipolar-euthymic, bipolar-depressed, MDD-depressed and MDD-euthymic groups (hypothesis four). However, despite the latter hypothesis being supported, what was unexpected was the finding that the bipolar-euthymic group was the only group to score significantly higher than the control group, with respect to PIT-Failure scores and that that the PIT-Failure score of the bipolar-euthymic group showed a trend towards being significantly higher than that of the MDD-depressed group. No other significant between-group differences were observed. Thus, the findings of the between-group analyses of PIT-Failure scores indicated that the bipolar-euthymic group attributed the most number of internal causal outcomes for failure events. Given that previous research found bipolar-euthymic individuals to exhibit a negative attributional style similar to MDD-euthymic individuals, as assessed with the PIT, this finding was both not expected and has substantial theoretical and clinical implications, discussed in the proceeding sections of this chapter. As a result of these findings, the hypothesis that the PIT-Failure scores of the bipolar and MDD groups would be significantly higher than that of the control group (hypothesis three) was only partially supported.

This is the first study to indicate that bipolar-euthymia may be characterised by lower levels of self-worth than bipolar-depression, MDD-depression and MDD-euthymia. It must be noted however, in contrast with other studies which have utilised the PIT as a means of assessing underlying negative schema content (Knowles et al., 2007; Winters & Neale, 1985), the current study attempted to prime negative schemas prior to the administration of the explicit and implicit schema measures, which may have therefore activated latent schemas in the study's participant groups. Indeed, based on the finding that the control group did not attribute significantly less internal causes for failure events than the bipolar-depressed and MDD groups, it would appear that the mood induction technique was successful in priming the negative schemas of the study's participants, including control participants. Thus, due to the study design, it is unknown whether the finding that bipolar-euthymic individuals attributed more internal outcomes to failure events than the other groups is indicative of bipolar-euthymia being generally characterised by lower levels of self-worth at a subconscious level, or is indicative of bipolar-euthymia being characterised by a greater propensity for negative schema activation. Noteworthy is that although the current study found the bipolar-euthymic group to score the highest on the PIT-Failure DV, the bipolar-euthymic group did not score significantly higher on this DV than the other bipolar or depressed groups.

7.2.2.2 Between-groups differences on failure to achieve EMS endorsement.

In contrast to the finding that the bipolar-euthymic individuals endorsed the greatest level of negative schemas of low self-worth on the PIT, bipolar-euthymic individuals were found to score significantly lower than both the bipolar- and MDD-depressed groups on the 'Failure to Achieve' EMS and did not differ significantly from that of the MDD-euthymic and control groups. As such, the hypothesis that the level of EMS endorsement of the

bipolar-euthymic group on this EMS would be significantly less than both that of the bipolar-depressed and MDD-depressed groups was supported (hypothesis five). However, the hypothesis that the level of EMS endorsement of the bipolar-euthymic on this EMS would be significantly greater than that of the control group was not supported (hypothesis six).

Given that bipolar-euthymic individuals were found to score the highest on the PIT but were found to score lower than the two depressed groups on the Failure to Achieve EMS, these findings further indicate that bipolar-euthymic individuals exhibit defensive responding on explicit measures that assess negative schema content pertaining to low self-worth.

7.2.2.3 Between-groups differences on global negative schema endorsement.

The explicit measures utilised in the current study, the DAS and the YSQ, were both developed as a means of operationalising and assessing negative schemas (Weissman & Beck, 1978; Young & Brown, 1990; Young et al., 2006). However, the results of previous research revealed that bipolar-euthymic individuals respond defensively on explicit measures of negative schema content (Knowles et al., 2007; Winters & Neale, 1985). The purpose of incorporating these measures into the current study was to ascertain whether given the explicit nature of these measures, they too are confounded by defensive responding in bipolar-euthymic individuals. However, given that the DAS assesses dysfunctional attitudes and the YSQ assesses a range of EMS, it could be argued that differences in responding on these measures compared to the implicit measure among bipolar-euthymic individuals may be due to the DAS and the YSQ assessing different self-representations, as opposed to it being indicative of defensive responding. As such, these explicit measure scores were not directly compared with PIT-failure scores. Rather between-groups analyses of explicit measures scores were conducted and then compared to the findings of the between-groups

analyses of the implicit measure scores, a pattern believed to be indicative of defensive responding (Alloy et al., 2006).

Analyses of between-group differences on DAS-total, YSQ-total and YSQ-Unconditional EMS (early-developed, persistent negative schemas) scores were conducted to assess differences between the groups with respect to global negative schema endorsement. In addition, between-groups differences in YSQ-Conditional EMS scores were conducted to assess for potential differences between the groups with respect to the endorsement of EMS developed later in life to cope with Unconditional EMS. The depressed groups scored highest on these dependent variables (DV's) followed by the bipolar-euthymic group and then the control group. The depressed groups (bipolar and MDD) were found to score significantly higher than the control group on these dependent variables but the bipolar-euthymic group did not score significantly different from the depressed or control groups. Thus, the hypotheses that the DAS-total, YSQ-total and YSQ-unconditional EMS scores of the bipolar-euthymic group would be intermediate between both the two depressed groups (bipolar and MDD) and the control group (hypotheses seven, eight and ten, respectively) were supported. It is important to note that the bipolar-euthymic group's YSQ-total score was closer situated to the two depressed groups, as evidenced by the mean score of the bipolar-euthymic group showed a trend towards being significantly higher than that of the control group. Indeed, EMS endorsement during euthymia would account for why impaired global functioning is not isolated to depressed and manic episodes in bipolar-individuals (Goldberg & Harrow, 2011; Huxley & Baldessarini, 2007). In contrast, the bipolar-euthymic group's YSQ-Unconditional EMS mean score was closer situated to that of the control group, as evidenced by the mean score of the bipolar-euthymic group showing a trend towards being significantly lower than that of the bipolar-depressed group. With respect to similarities between the bipolar-euthymic and MDD-euthymic groups, the MDD-euthymic group was

also found to score intermediate between both the bipolar- and MDD-depressed groups and the control group on the DAS, indicating similar levels of endorsed dysfunctional attitudes between the bipolar-euthymic and MDD-euthymic individuals. In contrast, with respect to the YSQ-total and YSQ-Unconditional EMS scores, the MDD-euthymic group scored similar to the control group, scoring significantly lower than the bipolar-depressed and MDD-depressed groups on both DV's.

The hypothesis that that the level of YSQ-Conditional EMS endorsement of the bipolar-euthymic group would be comparable to that of both the bipolar-depressed and MDD-depressed groups and that all three groups will endorse higher levels of conditional EMS than non-psychiatric controls (hypothesis nine) was not supported. Rather, the bipolar-euthymic group scored intermediate between the two depressed groups (bipolar and MDD) and the control group. Furthermore, the mean YSQ-Conditional EMS score of the MDD-euthymic group was approaching being significantly less than that of both depressed groups.

Taken together, these findings indicate that on explicit measures, bipolar-euthymic individuals endorse lower levels of negative schema content than bipolar-depressed and MDD-depressed individuals, and endorse higher levels than controls on EMS. In contrast, MDD-euthymic individuals tend to endorse similar levels of negative schema content to non-psychiatric controls, with the exception of endorsed levels of dysfunctional attitudes in which they endorse greater levels.

7.2.3 Overall findings.

The current study found bipolar-euthymia to be characterised by defensive responding on an explicit measure of a negative schema of low self-worth. In addition, the current study found that the bipolar-euthymic group scored the highest on the implicit measure of negative schema content, the PIT-Failure. In contrast, on explicit measures of schemas (as assessed

with YSQ total, YSQ-Unconditional EMS, YSQ-Conditional EMS, Failure to Achieve EMS and Incompetence/Dependence EMS scores), the bipolar-euthymic group scored intermediate between the depressed groups (bipolar and MDD) and the control group. It must be noted that although the current study found the bipolar-euthymic group to score the highest on the PIT-Failure DV, the bipolar-euthymic group did not score significantly higher on this DV than the bipolar-depressed group. The bipolar-depressed group was found to endorse negative schemas pertaining to low self-worth (low self-esteem and feelings of failure) on the explicit measures of negative schemas. Overall, these findings are evidence of both negative schemas of low self-worth being activated (or at the very least having the propensity to be activated) during bipolar-euthymia and bipolar-depression, and bipolar-euthymia being characterised by defensive responding on explicit measures, indicative of the employment of depression-avoidance defences during euthymia. Furthermore, these findings indicate that endorsement of negative schemas varies between bipolar- and MDD-euthymic individuals, with bipolar-euthymic individuals endorsing higher levels of negative schema content to a greater degree than MDD-euthymic individuals, albeit not significantly. This is the first study to investigate depression-avoidance defences during bipolar-euthymia and not only contributes to further understanding the aetiology and maintenance of bipolar disorder but informs psychological treatment of the disorder during euthymic states. However, being the first study to investigate this research area, this study was not without its limitations, which future research would benefit from addressing.

7.3 Limitations of the study

The utility of an internet survey in conducting an international study cannot be underestimated. However, the method of participant recruitment impacts on the generalizability of the findings. The very method of participant recruitment relied on bipolar study participants having both access to the internet and the motivation to complete an online

survey, which offered no tangible incentive to complete. This recruitment method would therefore not capture individuals of a lower socio-economic status, whose access to the internet may be limited; and would have likely resulted in the recruitment of bipolar participants who exhibited higher levels of motivation than what is truly representation of the population. In addition, this study design limited the ability to conduct assessments of diagnosis/es. This included an inability to confirm bipolar-type diagnosis. Thus, in the current study, bipolar participants were not divided into further groups according to their diagnostic type (i.e. bipolar I disorder, bipolar II disorder, cyclothymic disorder, BD-NOS). There are differences in presentation among the differing bipolar types. For example, bipolar II disorder is characterised by more frequent depressive episodes when compared to bipolar I disorder (Huxley & Baldessarini, 2007). These differences may be a result of differing levels of negative schema activation or differences in the employment of depression-avoidance defences. It also remains unknown whether the different bipolar types are characterised by differing activated EMS. Future research would therefore benefit from investigating both potential differences in schema endorsement among the differing bipolar types and potential differences in defensive responding on explicit measures. Furthermore, residual negative schema activation may be characteristic of participants who have recently experienced a depressive or manic episode (Judd, et al., 2008). Likewise, it is unknown whether the duration of a current episode may impact on the degree of negative schema activation. However, due to the absence of clinical confirmation or clinical assessment of participants, the duration of bipolar and MDD participants' current episode or time since last episode episodic could not be determined and controlled for. Future research aimed at investigating depression-avoidant defences in bipolar-euthymic individuals would therefore benefit from confirming participants' diagnoses and duration of the mood state via either a clinical assessment or via consultation with participants' treating clinicians.

Another limitation of the current study was the lack of an additional implicit measure with which to compare the scores of the explicit measures to. The PIT is an implicit assessment of attributional bias considered to assess negative schema content pertaining to low self-worth (Winters & Neale, 1985). Inclusion of another implicit measure of cognitive style would assist in ensuring that a range of negative schema content is assessed with implicit measures. Furthermore, it must be noted that the PIT is an under-researched measure and evidence for its validity in assessing underlying negative schema content of low self-worth is limited and requires further investigation. Unfortunately, due to technical issues, data obtained from the Emotional Stroop Task included in the study was invalid. Furthermore with respect to the study design, the purpose of the study was to investigate whether defensive responding on explicit measures, indicative of depression-avoidance defences, was characteristic of bipolar-euthymia. Thus, to ensure that the negative schemas of the bipolar-euthymic participants were activated prior to the administration of both the explicit and implicit measures of negative schemas, this study included a mood-induction technique to prime negative schemas (Babakhani & Startup, 2012). The down-side of this mood induction technique was the inability to determine whether overall elevations on the PIT-Failure DV was indicative of bipolar-euthymia being characterised by persistent activated negative schemas of low self-worth, or whether bipolar-euthymia is characterised by a greater propensity for negative schema activation. Future research would benefit from administering a range of implicit measures to bipolar-euthymic individuals, in addition to individuals from other sample populations for comparison (e.g. bipolar-depressed and bipolar-manic) without prior administration of a mood-induction technique. This would assist in identifying the baseline level of negative schema activation of bipolar-euthymic individuals, in addition to obtaining further information on the content of bipolar individual's activated negative schemas.

7.4 Theoretical Implications of the Study's Findings

   7.4.1 Differences in negative schema activation in bipolar- and MDD-euthymia.

MDD-euthymic participants were incorporated into the current study to enable investigation of potential differences in schema activation and defensive responding between bipolar- and MDD-euthymic individuals, given that the manic defence hypothesis proposes that bipolar-disorder is characterised by the same underlying depressogenic cognitions as MDD (Klein, 1935, 1940). It was considered of particular importance to include a MDD-euthymic group into the current study as, to date, no study has compared differences in endorsement of negative schemas between bipolar- and MDD-euthymic individuals on explicit and implicit measures, following a mood induction technique. Interestingly, this study found that when compared to the MDD-depressed and bipolar-depressed groups, the MDD-euthymic group's defensive responding score was indicative of defensive responding on an explicit measure of a negative schema of low self-worth. However, the current study found MDD-euthymic individuals endorsed less negative schema content than bipolar-euthymic individuals on the implicit measures of negative schemas and a number of the explicit dependent variables, with the scores of MDD-euthymic individuals often being comparable to that of the control group on DV's. These findings indicate that bipolar- and MDD-euthymia are characterised by different levels of negative schema activation, with bipolar-euthymia being characterised by greater negative schema activation and endorsement. These findings are somewhat surprising given that when compared to bipolar-euthymia, MDD-euthymia is characterised by greater clinical severity, including more negative self-evaluation and trait anxiety than bipolar-euthymia (Becerra, et al., 2012). When compared to MDD-euthymic individuals however, bipolar-euthymic individuals have been found to employ more adaptive coping strategies, including seeking social support, actively engaging

in social activities and reframing negative events (Coulston, et al., 2013) and exhibit better emotion regulation (Becerra, et al., 2012). This may account for why bipolar-euthymia is characterised by less clinical severity than MDD-euthymia, yet greater negative schema activation and endorsement.

7.4.2 Low self-worth as characteristic of all bipolar states.

The findings of this study indicate that both bipolar-euthymic and bipolar-depressive mood states are characterised by activated negative schemas centred on low self-worth (including low self-esteem and feelings of failure), as evidenced by the bipolar-euthymic group scoring high on the PIT-Failure DV and the bipolar-depressed group scoring high on all explicit DV's. Furthermore, Lyon et al.'s (1999) study found bipolar-mania to also be characterised by activated negative schemas of low self-worth. Taken together, these findings are indicative of all phases of bipolar disorder being characterised by activated negative schemas of low self-worth. These findings therefore indicate that low self-esteem is a cognitive vulnerability to developing bipolar disorder. However, it is important to note that the emergence of bipolar symptomatology would further require biological vulnerability, given that previous research has indicated that the development of bipolar disorder is contingent upon the interaction of both environmental and biological (including genetic) factors (Goodwin & Jamison, 2007; Tsuchiya et al., 2003). Thus, low self-esteem alone would not be adequate for the emergence of bipolar symptomatology. In addition, these findings indicate the employment of defences during bipolar-manic and –euthymic states to defend against low self-esteem. However to understand the defences implicated in bipolar, it is first important to understand the development of underlying feelings of low self-worth.

7.4.2.1 The development of negative schemas of low self-worth.

As noted previously, cognitive dissonance theory (Festinger, 1957, as cited in Festinger & Carlsmith, 1959) proposes that individuals experience psychic anguish if they hold two opposing cognitions, or if there is incongruence between cognitions and life experiences With respect to the impact of trauma on the cognitive processes of an individual, cognitive dissonance theory proposes that maladaptive/traumatic events during childhood may result in the development of low self-esteem, due to the individual modifying their self-view to be congruent with their experiences. That is, to make sense of maladaptive/traumatic events, a child may perceive himself as deserving of the experiences, or alternatively, that he may have perhaps caused the experience(s). This assists the child to make sense of the situation, so that it is logical. Unfortunately this desire to make sense of the maladaptive/traumatic event and maintain a perception of control by blaming oneself is considered to be a critical factor in the development of low self-esteem (Bochner, 2011). One of the more famous accounts of this phenomenon of internalising the experiences of trauma is that of the proposed Stockholm syndrome. The Stockholm syndrome posits that an individual who is held captive and tortured may adopt the beliefs of their captor to achieve cognitive consonance and make sense of the trauma (Namnyak, Tufton , Szekely , Toal, & Worboys, 2008). Indeed, this is consistent with both Beck (1967, 1976) and Young's (1990, 1999) accounts of the development of negatives schemas, in that maladaptive events during childhood impact on the individual's self-view and result in the development of negative schemas. Given the high incidence rates of childhood maladaptive/traumatic events associated with bipolar disorder (Grandin, Alloy, & Abramson, 2007; Mowlds, et al., 2010; Maguire, McCusker, Meenagh, Mulholland, & Shannon, 2008), it is therefore unsurprising that the current study has indicated that schemas of low self-worth, inclusive of low self-esteem (Winters & Neale, 1985) are trait markers of bipolar disorder whose activation (or

propensity for activation) are not mood-dependent, as they reflect underlying self-representations (Lyon et al., 1999).

The manic defence hypothesis proposes that bipolar-depression or bipolar-mania arises from an interaction between both life events and the psychic response to threatened self-worth (Neale, 1988). The current study has indicated that activated negative schemas of low self-worth are characteristic of not only bipolar-depression and bipolar-mania but bipolar-euthymia. However, in accordance to the manic defence hypothesis, unique to bipolar-depression and bipolar-mania is not low self-esteem but the external stressor that precedes the onset of the mood episode. Indeed the occurrence of stressful life events prior to the onset of a bipolar mood episode is well documented (Alloy, Abramson, Walshaw, & Neeren, 2006; Goodwin & Jamison, 2007; Maiera, 2012). Based on the manic defence hypothesis and the findings of the current study it would appear that the bipolar-euthymic individual can defend against underlying low self-esteem and maintain somewhat of a level of cognitive homeostasis (holding two opposing views of self-worth without experiencing psychic anguish); however when subjected to external stressors, the ability of the bipolar-euthymic individual to maintain this homeostasis appears to be compromised. The following section discusses how both Young's (1990, 1999) proposed coping styles and the cognitive dissonance theory (Festinger, 1957, as cited in Festinger & Carlsmith, 1959) may account for the bipolar-euthymic individual's inability to maintain cognitive homeostasis in the presence of external stressors.

7.4.3 Implications for Young's schema theory: Coping styles and reducing cognitive dissonance.

As noted previously, Young (1990, 1999) proposed that early maladaptive schemas are perpetuated by three maladaptive coping styles (surrender, avoidance and

overcompensation) that are employed in an attempt to defend against the emotional disturbances evoked by EMS. 'Surrender' refers to surrendering to one's EMS and repeating them'; 'avoidance' refers to attempting to block out the content of one's EMS; and 'overcompensation' refers to striving to feel the opposite to one's EMS. Each coping style is considered to have its own unique set of coping responses, that is, the actual behavioural or cognitive strategies utilised in an attempt to defend against the maladaptive schemas. As proposed by Young, individuals attempt to achieve cognitive consistency and avoid cognitive dissonance. Thus, coping styles are perhaps best understood as dissonance reduction strategies. As proposed by Young, one may therefore attempt to reduce cognitive dissonance via surrendering to negative schemas, avoiding negative schema or overcompensating for negative schemas.

With respect to bipolar disorder, Young's proposed 'surrender' coping style encapsulates the manifestation of bipolar-depression, in that bipolar-depression appears to arise from surrendering to activated negative schemas. That is, the bipolar-depressed individual appears to outwardly accept the content of his activated schemas, as evidenced by cognitions characterised by pessimism and hopelessness (APA, 2013). Indeed, surrendering to his activated schemas would enable to him to maintain cognitive consonance. Furthermore, particular EMS's identified in Young's schema theory reflect both the underlying depressogenic cognitions and defences characteristic of bipolar disorder, as proposed by the manic defence hypothesis (Carlstedt, 2010; Klein, 1935, 1940; Lex et al., 2011); specifically, the 'Failure to Achieve' and 'Incompetence/Dependence' EMS. Indeed with respect to the current study, bipolar-depressed individuals endorsed high levels of schema content pertaining to the 'Failure to Achieve' and 'Incompetence/Dependence' schemas. Thus, with respect to these schemas, it would appear that the bipolar-depressed individual copes with his activated Failure to Achieve and Incompetence/Dependence EMS

by surrendering to them, manifesting in feelings of worthlessness and reliance on others that he overtly acknowledges. As further proposed by Young (1990, 1999) to maintain cognitive consistency, he is likely to then repeat behaviours that confirm the content of these schemas and thus perpetuate them, thus entering and re-entering depressed states and contributing to the cycling characteristic of his illness.

In contrast, Young's proposed 'overcompensation' coping style (Young et al., 2003), encapsulates depression-avoidance defences proposed by the manic defence hypothesis. That is, to avoid the psychic pain that accompanies the activation of negative schemas, the bipolar-manic individual attempts to act in a manner that opposes their underlying schemas, by striving to succeed and engaging in grandiose thinking; overcompensating for a negative schema, by behaving in a way that is incongruent with its content. Avoiding the depressive thoughts and feelings that activation of this schema manifests in, he strives to succeed to prove to himself and the world that he is not a failure. Thus, in contrast to the bipolar-depressed individual, the bipolar-manic individual, who has defended against the underlying depressogenic cognitions and feelings, attempts to reduce cognitive dissonance by overcompensating for his underlying negative beliefs. He sets high standards for himself to enable himself to believe that he is worthwhile (Carlstedt, 2010; Lex et al., 2011; Neale, 1988).

Based on the findings of the current study, it would appear that the euthymic individual attempts to avoid the cognitions and feelings that accompany activation of his negative schemas. He does not surrender to them, nor does he overcompensate for them; instead, he attempts to escape his negative schemas by ignoring their presence. Thus, with respect to euthymia, Young's proposed 'avoidance' coping styles encapsulates the findings of both the current study and previous research (Knowles et al., 2007; Winters & Neale, 1985) that bipolar-euthymic individuals attempt to not acknowledge experiencing the thoughts and

feelings that accompany activation of negative schemas of low self-worth. By ignoring the content of his activated negative schemas of low self-worth, which reduces cognitive dissonance, the bipolar individual is able to achieve cognitive consonance. However, the current study's findings that bipolar-euthymic individuals generally endorsed greater negative schema content than both non-psychiatric controls and MDD-euthymic individuals on the explicit measures, indicates that this defence style is not entirely effective.

As proposed by the manic defence hypothesis (Neale, 1985) however, when faced with severe external stressors, the bipolar-euthymic individual then either experiences a depressive or a manic episode. It would appear that when faced with external evidence that he has failed, the bipolar-euthymic individual attempts to reduce cognitive dissonance become futile and in an attempt to regain cognitive consonance, he has no option but to then either surrender to his underlying feelings of low self-worth or overcompensate for them. Indeed this would account for why individuals with bipolar disorder have been found to have a vulnerability to relapse during stressful life events that are congruent with a personality style or schema focused on self-criticism or performance expectations (Francis-Raniere, Alloy, Abramson, 2006), as they are then unable to maintain cognitive consonance.

7.4.4 The impact of defensive responding on the validity of explicit measure of negative schemas.

This study indicates that the validity of explicit measures in the negative schema content of bipolar-euthymic individuals is confounded by defensive responding. In accordance with Young's schema theory (1990, 1999), it would appear that the DAS and YSQ scores (including YSQ subscale scores) of bipolar-euthymic individuals essentially reflect the 'schema mode' of an individual, which refers to both the EMS and coping styles that are currently active. Given that some degree of negative schema content can be assessed

by the DAS and the YSQ, an indication of negative schema activation can be ascertained. However, the manifestation of avoidance coping confounds the scoring. This again raises questions around the trait versus state status of these measures and calls for the consideration of more unconscious or implicit measurement approaches when assessing complex cognitive styles in individuals with highly constructed defence profiles (Thomas at el., 2009).

7.5 Clinical Implications

Psychological intervention is regarded to be most effective during euthymic states, as individuals are receptive to the psychological strategies (Stafford & Colom, 2013). Currently, psychological intervention during bipolar-euthymic states predominately focuses on relapse prevention, psycho-education, cognitive behavioural therapy (CBT), family-focused therapy (FFT), and interpersonal and social rhythm therapy (IPSRT) (Goodwin & Jamison, 2007; Scott, Colom, & Vieta, 2007; Stafford & Colom), which have been found to be effective in improving rates of medication adherence (Scott et al.) and the personal, social and interpersonal deficits in functioning associated with bipolar disorder (Goodwin & Jamison).

The findings of the current study indicate that bipolar-euthymic participants endorsed negative schemas of low self-esteem, indicating activation of negative schemas. . Furthermore, the findings of this study revealed that despite this activation, bipolar-euthymic participants overtly reported less endorsement of negative schemas (including those pertaining to low self-worth), indicative of depression-avoidance defences. Based on both Young's accounts of coping styles and the theory of cognitive dissonance, these findings are suggestive of bipolar-euthymic individuals attempting to ignore/avoid the content of their activated negative schemas. Consequently, as a result of this avoidance of the content of activated negative schemas, these findings are also suggestive that bipolar individuals are

able to report and present with relatively normal to slightly elevated levels of self-worth without experiencing cognitive dissonance. The literature review of this thesis highlighted the possible impact of external stressors on the bipolar-euthymic individual's ability to maintain cognitive consonance, resulting in the manifestation of manic or depressive symptomatology. The literature review and findings of this thesis therefore indicate that assisting bipolar-euthymic individuals to improve coping in response to external stressors and addressing the underlying negative schemas, with a particular focus on negative schemas of low self-worth, not only has the potential to assist with relapse prevention but may address the residual depressive symptomatology and functional impairment that is often observed during euthymia Goldberg & Harrow, 2011; Huxley & Baldessarini, 2007; Perron, Bohnert, Vaughn, Bauer, & Kilbourne, 2010).

7.5.1 Psychological intervention aimed at improving coping.

It remains unknown whether depression-avoidance defences in bipolar disorder occur consciously or subconsciously, and thus as it is with defences in bipolar-mania, there are two possible interpretations of the finding that bipolar-euthymia is characterised by defensive responding (Lyon et el., 1999). One interpretation, congruent with the manic-defence hypothesis, is that depression-avoidance defending occurs subconsciously and for the euthymic individual, the content of the activated schema is unknown to him; he is essentially ignorant to how he truly thinks about himself and the world. Another interpretation is that the bipolar-euthymic individual is consciously aware of his underlying depressive cognitions and feelings and attempts to defend against them by reporting his thoughts and feelings in a manner that is incongruent to his negativistic thoughts and feelings, in an attempt to cope (Lyon et al.). Indeed, bipolar-euthymic individuals have reported deliberate thought suppression during euthymic states, in an attempt to cope with negativistic thinking

(Miklowitz, Alatiq, Geddes, Goodwin, & Williams, 2010), indicating that on some level the bipolar-euthymic individual is aware of his activated negative schema content. Further assisting the bipolar-euthymic individual to consciously improve his coping in response to stressors would likely lessen the impact of the external stressor(s) on threats to the self, which otherwise would result in episodic relapse. Perhaps more importantly, this thesis would imply that assisting the bipolar individual during times of euthymia to discover or learn to accept incongruous self-directed negative thoughts may reduce the overall psychic burden of the illness. This may begin to treat the avoidance, overcompensation and surrender that may characterise cognitive styles during this illness.

7.5.2 Psychological intervention aimed at addressing negative schemas.

The results of this study show that despite responding defensively on explicit measures, bipolar individuals still exhibit overt endorsement of dysfunctional attitudes and EMS when euthymic. Thus, in addition to the aforementioned treatment modalities of bipolar disorder (i.e., relapse prevention, IPSRT, FFT and CBT) (Goodwin & Jamison, 2007; Scott et al.; Stafford & Colom), the current study demonstrates that bipolar-euthymic and bipolar-depressed individuals endorse greater negative schema content than controls. Psychological intervention aimed at exploration of these underlying beliefs and behavioural patterns to bring them into conscious awareness (including schema therapy), should assist in not only reducing negative cognitions during bipolar-euthymia but assist in functional recovery (Hawke L. D., 2013).

Furthermore, both the literature review and findings of this thesis indicate that underlying bipolar-euthymia are negative schemas of low self-worth, either consistently activated or highly vulnerable to activation throughout euthymia. Furthermore, the cognitive dissonance theory proposes that low self-esteem results from the individual considering

himself to have been deserving of maladaptive/traumatic events. This indicates that the

perception of past trauma continues to play a perpetuating role in bipolar disorder. As such,

assisting the bipolar individual to reframe their previous traumatic experiences, so that they

no longer consider themselves to be responsible for their maladaptive and traumatic

experiences should address their underlying low levels of self-worth that leave them

vulnerable to relapse. Indeed, reframing the trauma to address maladaptive perceptions of

one's involvement in the trauma is one of the more prominent focus points in the

psychological treatment of trauma symptoms (Kar, 2011).

7.6 Conclusion

Bipolar disorder's depressive and manic episodes have long been considered to be

characterised by underlying negative cognitions, indicative of activated negative schemas

(Klein, 1930, 1935; Lex et al., 2011; Neale, 1988; Winters & Neale, 1985). However, the

findings of the current study indicate that bipolar-euthymia is also characterised by

underlying high levels of negative schemas of low self-worth, that are either active or have a

high propensity for activation. The results show that on explicit measures of negative

schemas, bipolar-euthymic individuals also endorse moderate levels of negative schemas,

indicative of global endorsement of negative schemas. However, the most interesting finding

of this study is that of bipolar-euthymic individuals exhibited defensive responding on an

explicit measure of a negative schema of low self-worth, indicating that bipolar-euthymia is

characterised by the employment of depression-avoidant defences. This finding has

substantial theoretical implications for the manic defence hypothesis, with these findings

indicating that the depression-avoidant defences extend to euthymic states, and implying that

bipolar euthymia is an important mood state for treatment and care, not just 'normal'

functioning between two poles. The discussion section of this thesis proposed that defensive

responding in mania and euthymia may result from differences in the coping style employed

during the differing bipolar mood states. However, further research is required in this area to

understand the differences between psychic defences employed in mania and euthymia.

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APPENDIX A: ETHICAL APPROVAL

MEMO

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

TO	Dr Karen Hallam	DATE	06/09/2012

School of Psychology
Victoria University

FROM   Dr Debra Kerr
Acting Chair
Victoria University Human Research Ethics Committee

SUBJECT   Ethics Application – HRETH 12/199

Dear Dr Hallam

Thank you for submitting this application for ethical approval of the project entitled:

HRETH 12/199   Schemata of Individuals with a Mood disorder
(HREC 12/142)

The proposed research project has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)' by the Victoria University Human Research Ethics Committee. Approval has been granted from **6 September 2012 to 6 September 2014.**

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date (**6 September 2013**) or upon the completion of the project (if earlier). A report proforma may be downloaded from the VUHREC web site at: http://research.vu.edu.au/hrec.php.

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse and/or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment. It should also be noted that it is the Chief Investigators' responsibility to ensure the research project is conducted in line with the recommendations outlined in the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007).'

On behalf of the Committee, I wish you all the best for the conduct of the project.

Kind regards,

Dr Debra Kerr

Acting Chair

Victoria University Human Research Ethics Committee

APPENDIX B: YOUNG'S 18 EARLY MALADAPTIVE SCHEMAS DEFINED

Abandonment/Instability

"The perceived instability or unreliability of those available for support and connection. Involves the sense that significant others will not be able to continue providing emotional support, connection, strength, or practical protection because they are emotionally unstable and unpredictable (e.g., have angry outbursts), unreliable, or present only erratically; because they will die imminently; or because they will abandon the individual in favour of someone better" (Young et al., 2003, p.14).

Mistrust/Abuse

"The expectation that others will hurt, abuse, humiliate, cheat, lie, manipulate, or take advantage. Usually involves the perception that the harm is intentional or the result of unjustified and extreme negligence. May include the sense that one always ends up being cheated relative to others or 'getting the short end of the stick'" (Young et al., 2003, p.14).

Emotional Deprivation

"The expectation that one's desire for a normal degree of emotional support will not be adequately met by others. The three major forms of deprivation are:

    A. Deprivation of Nurturance: Absence of attention, affection, warmth, or companionship.

    B. Deprivation of Empathy: Absence of understanding, listening, self-disclosure, or mutual sharing of feelings from others.

    C. Deprivation of Protection: Absence of strength, direction, or guidance from Others" (Young et al., 2003, p.14).

Defectiveness/Shame

"The feeling that one is defective, bad, unwanted, inferior, or invalid in important respects or that one would be unlovable to significant others if exposed. May involve hypersensitivity to criticism, rejection, and blame; self-consciousness, comparisons, and insecurity around others; or a sense of shame regarding one's perceived flaws. These flaws may be private (e.g., selfishness, angry impulses, unacceptable sexual desires) or public (e.g., undesirable physical appearance, social awkwardness)" (Young et al., 2003, p.14).

Social Isolation/Alienation

"The feeling that one is isolated from the rest of the world, different from other people, and/or not part of any group or community" (Young et al., 2003, p.14).

Dependence/Incompetence

"Belief that one is unable to handle one's everyday responsibilities in a competent manner, without considerable help from others (e.g., take care of oneself, solve daily problems, exercise good judgment, tackle new tasks, make good decisions). Often presents as helplessness" (Young et al., 2003, p.15).

Vulnerability to Harm or Illness

"Exaggerated fear that imminent catastrophe will strike at any time and that one will be unable to prevent it. Fears focus on one or more of the following: (A) Medical catastrophes (e.g., heart attacks, AIDS); (B) Emotional catastrophes (e.g., going crazy); (C) External catastrophes (e.g., elevators collapsing, victimization by criminals, airplane crashes, earthquakes)" (Young et al., 2003, p.15).

Enmeshment/Undeveloped Self

"Excessive emotional involvement and closeness with one or more significant others (often parents) at the expense of full individuation or normal social development. Often involves the belief that at least one of the enmeshed individuals cannot survive or be happy without the constant support of the other. May also include feelings of being smothered by or fused with others or insufficient individual identity. Often experienced as a feeling of emptiness and foundering, having no direction, or in extreme cases questioning one's existence" (Young et al., 2003, p.15).

Failure

"The belief that one has failed, will inevitably fail, or is fundamentally inadequate relative to one's peers in areas of achievement (school, career, sports, etc.). Often involves beliefs that one is stupid, inept, untalented, lower in status, less successful than others, and so forth" (Young et al., 2003, p.15).

Entitlement/Grandiosity

"The belief that one is superior to other people; entitled to special rights and privileges; or not bound by the rules of reciprocity that guide normal social interaction. Often involves insistence that one should be able to do or have whatever one wants, regardless of what is realistic, what others consider reasonable, or the cost to others; or an exaggerated focus on superiority (e.g., being among the most successful, famous, wealthy) in order to achieve power or control (not primarily for attention or approval). Sometimes includes excessive competitiveness toward or domination of others: asserting one's power, forcing one's point of view, or controlling the behaviour of others in line with one's own desires without empathy or concern for others' needs or feelings" (Young et al., 2003, p.15).

Insufficient Self-Control/Self-Discipline

"Pervasive difficulty or refusal to exercise sufficient self-control and frustration tolerance to achieve one's personal goals or to restrain the excessive expression of one's emotions and impulses. In its milder form, the patient presents with an exaggerated emphasis on discomfort avoidance: avoiding pain, conflict, confrontation, responsibility, or overexertion at the expense of personal fulfilment, commitment, or integrity" (Young et al., 2003, p.15).

Subjugation

"Excessive surrendering of control to others because one feels coerced—submitting in order to avoid anger, retaliation, or abandonment. The two major forms of subjugation are:

A. Subjugation of needs: Suppression of one's preferences, decisions, and desires.

B. Subjugation of emotions: Suppression of emotions, especially anger. Usually involves the perception that one's own desires, opinions, and feelings are not valid or important to others. Frequently presents as excessive compliance, combined with hypersensitivity to feeling trapped. Generally leads to a build-up of anger, manifested in maladaptive symptoms (e.g., passive–aggressive behaviour, uncontrolled outbursts of temper, psychosomatic symptoms, withdrawal of affection, "acting out," substance abuse)" (Young et al., 2003, p.16).

Self-Sacrifice

"Excessive focus on voluntarily meeting the needs of others in daily situations at the expense of one's own gratification. The most common reasons are: to prevent causing pain to others; to avoid guilt from feeling selfish; or to maintain the connection with others perceived as needy. Often results from an acute sensitivity to the pain of others. Sometimes leads to a

sense that one's own needs are not being adequately met and to resentment of those who are taken care of" (Young et al., 2003, p.16).

Approval-Seeking/Recognition-Seeking

"Excessive emphasis on gaining approval, recognition, or attention from other people or on fitting in at the expense of developing a secure and true sense of self. One's sense of esteem is dependent primarily on the reactions of others rather than on one's own natural inclinations. Sometimes includes an overemphasis on status, appearance, social acceptance, money, or achievement as means of gaining approval, admiration, or attention (not primarily for power or control). Frequently results in major life decisions that are inauthentic or unsatisfying or in hypersensitivity to rejection" (Young et al., 2003, p.16).

Negativity/Pessimism

"A pervasive, lifelong focus on the negative aspects of life (pain, death, loss, disappointment, conflict, guilt, resentment, unsolved problems, potential mistakes, betrayal, things that could go wrong, etc.) while minimizing or neglecting the positive or optimistic aspects. Usually includes an exaggerated expectation—in a wide range of work, financial, or interpersonal situations—that things will eventually go seriously wrong or that aspects of one's life that seem to be going well will ultimately fall apart. Usually involves an inordinate fear of making mistakes that might lead to financial collapse, loss, humiliation, or being trapped in a bad situation. Because they exaggerate potential negative outcomes, these individuals are frequently characterized by chronic worry, vigilance, complaining, or indecision" (Young et al., 2003, p.16).

Emotional Inhibition

"The excessive inhibition of spontaneous action, feeling, or communication, usually to avoid disapproval by others, feelings of shame, or losing control of one's impulses. The most common areas of inhibition involve: (a) inhibition of anger and aggression; (b) inhibition of positive impulses (e.g., joy, affection, sexual excitement, play); (c) difficulty expressing vulnerability or communicating freely about one's feelings, needs, and so forth; or (d) excessive emphasis on rationality while disregarding emotions" (Young et al., 2003, p.17).

Unrelenting Standards/Hypercriticalness

"The underlying belief that one must strive to meet very high internalized standards of behaviour and performance, usually to avoid criticism. Typically results in feelings of pressure or difficulty slowing down and in hypercriticalness toward oneself and others. Must involve significant impairment in pleasure, relaxation, health, self-esteem, sense of accomplishment, or satisfying relationships. Unrelenting standards typically present as (a) perfectionism, inordinate attention to detail, or an underestimate of how good one's own performance is relative to the norm; (b) rigid rules and "shoulds" in many areas of life, including unrealistically high moral, ethical, cultural, or religious precepts; or (c) preoccupation with time and efficiency, the need to accomplish more" (Young et al., 2003, p.17).

Punitiveness

"The belief that people should be harshly punished for making mistakes. Involves the tendency to be angry, intolerant, punitive, and impatient with those people (including oneself) who do not meet one's expectations or standards. Usually includes difficulty forgiving mistakes in oneself or others because of a reluctance to consider extenuating circumstances,

allow for human imperfection, or empathize with feeling" (Young, Klosko, & Weishaar,

2003)" (Young et al., 2003, p.17).

APPENDIX C: DESCRIPTION OF THE STUDY PROVIDED TO PSYCHOLOGISTS
AND SUPPORT GROUP HOSTS

To whom it may concern,

My name is Shara Granger and I am currently completing my Doctorate in Clinical Psychology at Victoria University.

As part of my degree, I am conducting a study aimed at investigating the maladaptive schemas of individuals with bipolar disorder and potential psychic defences during euthymia. I am currently recruiting participants who have been diagnosed with either bipolar disorder or major depressive disorder, who may be interested in participating. The study is an online survey and has been approved by the Victoria University Higher Education Research Ethics Committee. I was enquiring as to whether you may be able to provide the link to my survey to any current clients who may be interested in attending. The study link is:

http://vuaehd.qualtrics.com/SE/?SID=SV_e3UtzM1Kc7gBNdP

I have also attached the ethics approval. Please do not hesitate to contact me if you require any additional information.

Kind regards,

Shara Granger

APPENDIX D: ADVERTISING BUSINESS CARDS
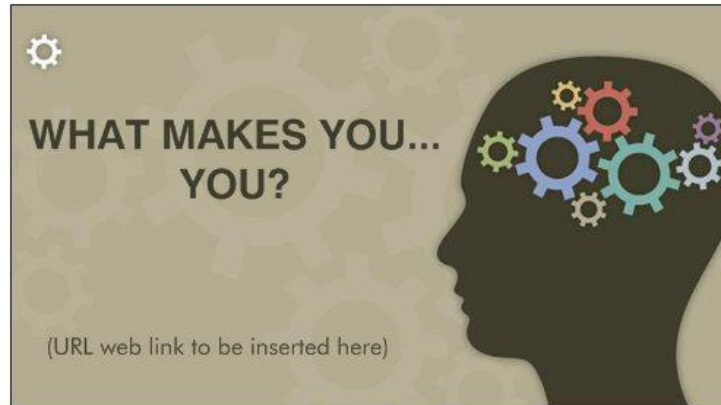
Business card (front)

Business card (reverse side)

APPENDIX E: LIST OF RECRUITMENT WEBSITES

- Facebook Support Groups – (www.facebook.com) A message was sent to the administrators of the following support groups, requesting that details of the study be posted. I received a message from administrators from the following groups, informing me that they would post details of the study.

  o My Bipolar Disordered Life

  o Bipolar Support Group

  o Support Bipolar Awareness

  o My Bipolar Disordered Life

  o Mood Disorders Society of Canada

  o Mood Disorders Association of Ontario

  o The Mood Disorders Association of BC

  o Bipolar Depression Group

  o Bipolar Express

  o Bipolar Awareness: Stop the Stigma

  o Bipolar-Rambler

  o Bipolar Nation

  o Depression Support Group

  o Depression Bipolar Support Group NZ

  o Depression Group

  o Depression is not a Weakness

  o Beating Depression Together

- Reddit forums

- Psychology Research on the Net

  o http://psych.hanover.edu/Research/exponnet.html

- Online Psychology Research

  - www.onlinepsychresearch.co.uk/

- In-Mind

  - In-Mind.org

APPENDIX F: DESCRIPTION OF STUDY POSTED ON WEBSITES

I am currently conducting a study that looks at the deeply held beliefs of individuals with

bipolar disorder. It is hoped that the study's findings will provide further information about

the maintenance of the disorder and what psychological interventions might be effective in

reducing relapse rates.

This study is being conducted as part of the Doctorate of Psychology (clinical) program at

Victoria University and has ethical approval.

If you would like to participate, the study is comprised of an internet survey package. The

link to the survey is provided, which details additional information about the study and means

of contacting the study's researchers if you have any questions.

http://vuaehd.qualtrics.com/SE/?SID=SV_e3UtzM1Kc7gBNdP

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APPENDIX G: FLOWCHART OF SURVEY BLOCKS

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Block One

Information to Participants   Consent Form

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Block Two

Resfusal Item Notice

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Block Three

Basic Demographics   Exclusion Critera

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Block Four

Partciaipnt Demographic Information

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Block Five

Bipolar Disorder Diagnostic Questions

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Block Six

Major Depressive Disorder Diagnostic Questions

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Block Seven

Other Psychiatric Disorder Diagnostic Questions

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Block Eight

Mood Disorder Questionnaire

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Block Nine

Altman Self Rating Mania Scale

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Block Ten

Patient Health Questionnaire - 9

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Block Eleven

Childhood Traumatic Events Scale

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Block Twelve

Recent Traumatic Events Scale

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Block Thirteen

Dysfunctional Attitudes Scale

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Block Fourteen

Young Schema Questionnaire - Short Form Version 3

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Block Fifteen

Pragmatic Inference Task

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Block Siixteen

Survey Completion Notice

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Block One

Information to Participants   Consent Form

APPENDIX H: INFORMATION TO PARTICIPANTS AND CONSENT FORM

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate in a research project titled: The Schemas of Individuals with a Mood Disorder. We are inviting individuals aged 18 years and over, who identify with having bipolar disorder or depression, in addition to individuals who identify with having no mental/psychiatric illness, to participate in this study.

This project is being conducted by student researcher, Shara Granger, as part of the Doctorate of Clinical Psychology at Victoria University, under the supervision of Dr. Karen Hallam from The School of Psychology, Victoria University.

Project explanation:
The aim of this project is to find out if people with bipolar disorder experience negative feelings and thoughts about themselves and the world differently than individuals with depression or no previous psychiatric history. It is hoped that this knowledge will help us better treat bipolar disorder, particularly by using psychological therapies more effectively.

We already know that often people with bipolar disorder view things more negatively than people without the disorder, even when people with bipolar disorder are feeling 'high' (i.e. hypomanic or manic). However, even though people with bipolar disorder report feeling positive while experiencing mania, when these feelings are explored, it is often found that they think more negatively than other individuals who don't have bipolar disorder.

There is minimal research exploring how and why people with bipolar disorder have these different feelings. This project will consist of three groups - Participants who identify with having bipolar disorder; participants who identify with having depression; and participants who identify with having no mental/psychiatric illness.

What will I be asked to do?
Your participation in this study is completely voluntary and you are able to withdraw from participating at any time. If you choose to withdraw, any information you have provided will not be accessible to the researchers. Victoria University students, please note that your decision whether to take part or not take part, or to take part and then withdraw, will not affect your studies in any way. Participation in this study will remain anonymous, so no personally identifying information will be required from you at any stage in the study.

If you choose to participate in this study, you will be asked to complete an on-line package consisting of a number of questionnaires/tasks that will give us further information on your life experiences and how these may have shaped your view of yourself and the world. The survey package takes approximately 55 minutes to complete. The types of questions you will be asked in this survey package include how you feel about yourself and the world. Two questionnaires will also ask you questions about whether you have experienced traumatic events (e.g., death of a loved one) and how traumatic you found them. You will also be asked to complete an on-line task, in which you will be required to respond to the colour of words. We ask that people with a history of epilepsy or seizures do not proceed with participating in

this task, as this task may potentially induce a seizure in individuals who have a history of epilepsy or seizures

What will I gain from participating?

Although there are no direct benefits from participating in this study, the study data will be analysed to determine how the thoughts and feelings of individuals with bipolar disorder, differ from individuals with depression or individuals with no psychiatric history, and the reasons behind these differences. The results of this study will be utilised to assist in further understanding the development of bipolar disorder and may help us better tailor individual psychological treatments for people experiencing bipolar disorder

How will the information I give be used?

Individuals who self-identify with having bipolar disorder will be allocated to the 'bipolar group'; Individuals who self-identify with having depression will be allocated to the 'depressed group'; and individuals who self-identify with having no mental illness/psychiatric illness (and have never received a diagnosis for a mental/psychiatric illness) will be allocated to the 'control group'. All groups will complete the same survey package. The answers to your questions asked in this survey package will be collated with that of other participants in your group (i.e. bipolar, depression or control group). This information will only be accessible to the principal researcher and student researcher of this study. All electronic data/files will be password-protected and stored on secure media devices.

The results of this study will form a Doctoral thesis and may also be used to prepare journal articles for publication, or be presented at relevant national and international conferences. Upon completion of the study, the information you have provided will be kept for five years, as specified by Victoria University research regulations. After this time, all information will be destroyed.

What are the potential risks of participating in this project?

Although it is anticipated that there are no direct risks associated with your participation in this study, some participants may find answering survey questions that address sensitive topics, such as mental health status and trauma experiences, to be upsetting or distressing. In the event that you experience any distress as a result of completing the survey, please access the "looking for Help" page on the Lifeline International Website at http://www.lifeline.org.au/About-Lifeline/Lifeline-international/Looking-for-Help/Looking-for-Help, to locate your nearest counselling service. We strongly advise anyone who is having suicidal thoughts to contact Lifeline and seek assistance. If you would like to contact a staff member from the Department of Psychology who is a clinical psychologist not directly involved in this research you may call Associate Professor Gerard Kennedy (Phone (business hours): +61 or (03) 9919 2481; gerard.kennedy@vu.edu.au for confidential advice or assistance. Furthermore, you are also able to opt out of participating in the study at any time, simply by closing the web browser.

How will this project be conducted?

The survey package for the study has been developed and is hosted on the secure Qualtrics server. Participants' answers to the following survey package will form the data of this study. This data will then be used to analyse how the thoughts and feelings of individuals with bipolar disorder differ from individuals with depression and individuals who identify with having no mental/psychiatric illness.

Your consent to participate in this study is implied by you completing the survey package.

Who is conducting this study?
Principal Researcher: Dr. Karen Hallam, (Phone (Business hours): +61 or (03) 9919 2586);
karen.hallam@vu.edu.au
Student researcher: Shara Granger, shara.granger@live.vu.edu.au

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Any queries about your participation in this project may be directed to the Principal Researcher listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Research Ethics and Biosafety Manager, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 or phone +61 or (03) 9919 4148.

Consent to participate:
If you agree to the conditions of this project (detailed above) and would like to participate in this study, please indicate your consent to participate.

I certify that I am at least 18 years old and that I am voluntarily giving my consent to participate in the study, and that I freely consent to participation involving the above mentioned procedures. I understand that the information I provide will be kept confidential and that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

○   I consent to participate in this study
○   I do not consent to participate in this study

APPENDIX I: SURVEY QUESTIONS PERTAINING BASIC DEMOGRAPHICS AND EXCLUSION CRITERIA

1. What is your gender?
   ❍ Male
   ❍ Female

2. What is your age? (in years)

3. At what level of proficiency do you consider your English to be? (Please select the highest level you identify with)

   ❍ Proficient
     - You consider yourself to be fluent in the English language and you rarely come across English that you do not understand.
   ❍ Advanced
     - You consider your English vocabulary to be large and you believe you have good knowledge of the English language, including phrases, verbs and colloquial expressions. You consider your spoken English to be both fluent and accurate.
   ❍ Upper-intermediate
     - You consider your English vocabulary to be fairly large and consider yourself to be able to discuss almost every circumstance in English and almost always describe a word, even if you do not know its actual name. You consider your spoken English to be almost fluent and nearly completely accurate.
   ❍ Intermediate
     - You consider your English vocabulary and knowledge of grammar to be at a level that enables you to talk and read about a wide number of topics. You consider yourself to be able to assess your own pronunciation and consciously approve upon it. You believe you have good knowledge of tenses.
   ❍ Pre-intermediate
     - You consider your English skills to be at a level that enables you to talk about many subjects and talk with confidence in the present, past and future tenses. You are confident to perform tasks such as shopping, making an appointment and converse, in English. You consider yourself to have an adequate understanding of grammar.
   ❍ Elementary
     - You consider yourself to be able to speak English in simple sentences and reply to questions on a range of topics. You can talk about your likes/dislikes, family/friends and routines, in English. Your English skills enable you to carry out simple, everyday tasks such as shopping or booking an appointment.
   ❍ Beginner
     - You consider yourself to know a few English words, such as, 'hello', 'goodbye' and 'weekend'. You can say your name, state your nationality, ask basic questions and provide basic answers to questions, in English. Basic tasks, which rely on English skills, such as, shopping or booking an

appointment, are somewhat difficult and you may require assistance to complete such tasks.

Participants who selected 'Pre-Intermediate', 'Elementary' or 'Beginner' were unable to participate in the study due to meeting the study's exclusion criteria. They were directed to the end of survey exclusion notice.

4. To the best of your knowledge, do you have a physical or intellectual deficit (including vision impairment) which may significantly impair your performance on computer-based tasks?

Participants who selected 'Yes' were unable to participate in the study due to meeting the study's exclusion criteria. They were directed to the end of survey exclusion notice.

APPENDIX J: SURVEY QUESTIONS PERTAINING TO DEMOGRAPHIC

INFORMATION

1. What is your country of birth? (country select box [all countries])

2. What is your country of residence? (country select box [all countries])

3. What is your ethnicity?
   ○ White/Caucasian
   ○ African American
   ○ Hispanic
   ○ Asian
   ○ Pacific Islander
   ○ Native American
   ○ Other

4. What is your highest level of education?
   ○ Primary / Elementary School
   ○ Secondary / High School
   ○ TAFE / Technical College
   ○ Tertiary / University / College Degree
   ○ Post Graduate Studies

5. Which of the following best describes your current employment status?
   ○ Unemployed
   ○ Government benefits/welfare
   ○ Employed full time
   ○ Employed part time
   ○ Employed casually
   ○ Student
   ○ Volunteer

APPENDIX K: SURVEY QUESTIONS PERTAINING TO PSYCHIATRIC

DIAGNOSIS/ES

1. Have you ever been formally *diagnosed* with bipolar disorder?
    ○ Yes
    ○ No
    If 'No' was selected, participants were directed to Question 10.

2. Which bipolar disorder have you been diagnosed with?
    ○ Bipolar 1
    ○ Bipolar 2
    ○ Cyclothymic Disorder
    ○ Bipolar Disorder, not otherwise specified
    ○ Unsure

3. Who has formally diagnosed you with bipolar disorder? (Please select all that apply)
    ○ Psychiatrist
    ○ GP
    ○ Psychologist
    ○ Counsellor
    ○ Other

4. How old were you (in years) when you first received a diagnosis of bipolar disorder?

5. Do you currently consider yourself to be euthymic/well (i.e. not currently depressed/manic/hypomanic)
    ○ Yes
    ○ No
    If 'Yes' was selected, participants were directed to Question 7.

6. What do you consider to be the polarity of your current episode?
    ○ Depressed
    ○ Manic
    ○ Hypomanic
    ○ Mixed
    ○ Unsure
    Following completion of Question 6, participant were then directed to Question 9.

7. What was the polarity of your most recent episode?
    ○ Depressed
    ○ Manic
    ○ Hypomanic
    ○ Mixed
    ○ Unsure

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8. Approximately how long has it been since your previous episode? (in weeks)
Following completion of Question 8, participants were then directed Question 10.

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9. Approximately how long has the duration of your current episode been, to date? (in weeks)

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10. Have you ever been formally *diagnosed* with depression?

    ○ Yes

    ○ No

If 'No' was selected participants were directed to Question 16.

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11. Who has formally diagnosed you with depression? (Please select all that apply)
    ○ Psychiatrist

    ○ GP

    ○ Psychologist

    ○ Counsellor

    ○ Other

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12. How old were you (in years) when you first received a diagnosis of depression?

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13. Do you currently consider yourself to be euthymic/well (i.e. not depressed)

    ○ Yes

    ○ No

If 'No' was selected, participants were directed to Question 15.

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14. How long (in weeks) do you consider yourself to have been depressed?
Following completion of Question 14, participants were then directed to Question 15.

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15. Approximately how long has it been since your previous episode of depression? (in weeks)

16. Have you ever been formally *diagnosed* with any other mental illness/psychiatric illness, apart from depression or bipolar disorder?
   ○ Yes
   ○ No
If 'No' was selected, participants were directed to Question 18.

17. What condition/s have you been diagnosed with?

18. Have you ever been diagnosed with a personality disorder (such as borderline personality disorder as one example), by a mental health professional?

   ○ Yes
   ○ No
   ○ Unsure
Participants who select 'Yes' to Question 18, will be unable to participate in the survey package and the Exclusion message will be shown to participants (see **)

19. Are you currently on any medication for a mental illness/psychiatric illness?

   ○ Yes
   ○ No
   ○ Unsure
If 'No' was selected, participants were directed to Question 21.

20. Please list all medications that you are currently taking and current dosage. (in milligrams)

21. Have you ever been hospitalised for psychiatric care?

   ○ Yes
   ○ No
If 'No' was selected, participants were directed to Question 23.

22. On how many occasions have you been hospitalised for psychiatric care?

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23. Are you currently under the care of any of the following? (please select all that apply)
    ❍ General practitioner (GP)

    ❍ Psychiatrist

    ❍ Psychologist

    ❍ Counsellor

    ❍ Case manager

    ❍ Social worker

    ❍ Other (please specify) _____

APPENDIX L: THE MOOD DISORDER QUESTIONNAIRE

THE MOOD DISORDER QUESTIONNAIRE		
QUESTION 1		
Has there ever been a period of time when you were not your usual self and….		
	Yes	No
…you felt so good or so hyper that other people thought you were not your normal self or you were so hyper that you got into trouble?	○	○
...you were so irritable that you shouted at people or started fights or arguments?	○	○
...you felt much more self-confident than usual?	○	○
...you got much less sleep than usual and found you didn't really miss it?	○	○
...you were much more talkative or spoke much faster than usual?	○	○
…thoughts raced through your head or you couldn't slow your mind down?	○	○
...you were so easily distracted by things around you that you had trouble concentrating or staying on track?	○	○
...you had much more energy than usual?	○	○
...you were much more active or did many more things than usual?	○	○
...you were much more social or outgoing than usual, for example, you telephoned friends in the middle of the night?	○	○
...you were much more interested in sex than usual?	○	○
...you did things that were unusual for you or that other people might have thought were excessive, foolish, or risky?	○	○
...spending money got you or your family into trouble?	○	○
QUESTION 2		
	Yes	No
If you checked YES to more than one of the above, have several of these ever happened during the same period of time?	○	○

QUESTION 3				
	No problem	Minor problem	Moderate problem	Serious problem
How much of a problem did any of these cause you – like being unable to work; having family, money or legal troubles; getting into arguments or fights?	❍	❍	❍	❍
QUESTION 4				
			Yes	No
Have any of your blood relatives (i.e. children, siblings, parents, grandparents, aunts, uncles) had manic-depressive illness or bipolar disorder?			❍	❍
Has a health professional ever told you that you have manic-depressive illness or bipolar disorder?			❍	❍

APPENDIX M: THE ALTMAN SELF-RATING MANIA SCALE

THE ALTMAN SELF-RATING MANIA SCALE

Instructions:
1. There are 5 statements to each question in this questionnaire: read each group of statements carefully.
2. Choose the one statement in each group that best describes the way you have been feeling for the past week.
3. Check the box next to the number/statement selected.
4. Please note: The word "occasionally" when used here means once or twice; "often" means several times or more and "frequently" means most of the time.

Question 1
○ I do not feel happier or more cheerful than usual.
○ I occasionally feel happier or more cheerful than usual.
○ I often feel happier or more cheerful than usual.
○ I feel happier or more cheerful than usual most of the time.
○ I feel happier or more cheerful than usual all of the time.

Question 2
○ I do not feel more self-confident than usual.
○ I occasionally feel more self-confident than usual.
○ I often feel more self-confident than usual.
○ I feel more self-confident than usual.
○ I feel extremely self-confident all of the time.

Question 3
○ I do not need less sleep than usual.
○ I occasionally need less sleep than usual.
○ I often need less sleep than usual.
○ I frequently need less sleep than usual.
○ I can go all day and night without any sleep and still not feel tired.

Question 4
○ I do not talk more than usual
○ I occasionally talk more than usual.
○ I often talk more than usual.
○ I frequently talk more than usual.
○ I talk constantly and cannot be interrupted

Question 5
○ I have not been more active (either socially, sexually, at work, home or school) than usual.
○ I have occasionally been more active than usual.
○ I have often been more active than usual
○ I have frequently been more active than usual.
○ I am constantly active or on the go all the time

APPENDIX N: THE PATIENT HEALTH QUESTIONNAIRE-9

THE PATIENT HEALTH QUESTIONNAIRE-9				
QUESTION 1				
Over the past two weeks, how often have you been bothered by the following:				
	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	❍	❍	❍	❍
Feeling down, depressed or hopeless	❍	❍	❍	❍
Trouble falling asleep, staying asleep or sleeping too much	❍	❍	❍	❍
Feeling tired or having little energy	❍	❍	❍	❍
Poor appetite or overeating	❍	❍	❍	❍
Feeling bad about yourself – or that you are a failure or you have let yourself or your family down	❍	❍	❍	❍
Trouble concentrating on things, such as reading a newspaper or watching television	❍	❍	❍	❍
Moving or speaking so slowly that other people could have noticed. Or, the opposite – being so fidgety or restless that you have been moving around a lot more than usual	❍	❍	❍	❍
Thoughts that you would be better off dead or of hurting yourself in some way	❍	❍	❍	❍
QUESTION 2				
	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
If you checked off any problems, how difficult have those problems made it for you to do your work, take care of things at home or get along with other people	❍	❍	❍	❍

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APPENDIX O: THE DYSFUNCTIONAL ATTITUDES SCALE

THE DYSFUNCTIONAL ATTITUDES SCALE

Instructions:

This questionnaire lists different attitudes or beliefs which people sometimes hold. Read each statement carefully and decide how much you agree or disagree with the statement. For each of the attitudes, indicate to the left of the item the number that best describes how you think. Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements. To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like most of the time.

	Totally agree	Agree very much	Agree slightly	Neutral	Disagree slightly	Disagree very much	Totally disagree
It is difficult to be happy unless one is good looking, intelligent, rich, and creative.	❍	❍	❍	❍	❍	❍	❍
Happiness is more a matter of my attitude towards myself than the way other people feel about me.	❍	❍	❍	❍	❍	❍	❍
People will probably think less of me if I make a mistake.	❍	❍	❍	❍	❍	❍	❍
If I do not do well all the time, people will not respect me.	❍	❍	❍	❍	❍	❍	❍
Taking even a small risk is foolish because the loss is likely to be a disaster.	❍	❍	❍	❍	❍	❍	❍
It is possible to gain another person's respect without being especially talented at anything.	❍	❍	❍	❍	❍	❍	❍
I cannot be happy unless most people I know admire me.	❍	❍	❍	❍	❍	❍	❍
If a person asks for help, it is a sign of weakness.	❍	❍	❍	❍	❍	❍	❍
If I do not do as well as other people, it means I am a weak person.	❍	❍	❍	❍	❍	❍	❍

If I fail at my work, then I am a failure as a person.	○	○	○	○	○	○	○
If you cannot do something well, there is little point in doing it at all.	○	○	○	○	○	○	○
Making mistakes is fine because I can learn from them.	○	○	○	○	○	○	○
If someone disagrees with me, it probably indicates he does not like me.	○	○	○	○	○	○	○
If I fail partly, it is as bad as being a complete failure.	○	○	○	○	○	○	○
If other people know what you are really like, they will think less of you.	○	○	○	○	○	○	○
I am nothing if a person I love doesn't love me.	○	○	○	○	○	○	○
One can get pleasure from an activity regardless of the end result	○	○	○	○	○	○	○
People should have a chance to succeed before doing anything.	○	○	○	○	○	○	○
My value as a person depends greatly on what others think of me.	○	○	○	○	○	○	○
If I don't set the highest standards for myself, I am likely to end up a second-rate person.	○	○	○	○	○	○	○
If I am to be a worthwhile person, I must be the best in at least one way.	○	○	○	○	○	○	○
People who have good ideas are better than those who do not.	○	○	○	○	○	○	○
I should be upset if I make a mistake.	○	○	○	○	○	○	○
My own opinions of myself are more important than others' opinions of me.	○	○	○	○	○	○	○
To be a good, moral, worthwhile person I must help everyone who needs it.	○	○	○	○	○	○	○
If I ask a question, it makes me look stupid.	○	○	○	○	○	○	○
It is awful to be put down by people important to you.	○	○	○	○	○	○	○

If you don't have other people to lean on, you are going to be sad.	❍	❍	❍	❍	❍	❍	❍
I can reach important goals without pushing myself.	❍	❍	❍	❍	❍	❍	❍
It is possible for a person to be scolded and not get upset.	❍	❍	❍	❍	❍	❍	❍
I cannot trust other people because they might be cruel to me.	❍	❍	❍	❍	❍	❍	❍
If others dislike you, you cannot be happy.	❍	❍	❍	❍	❍	❍	❍
It is best to give up your own interests in order to please other people.	❍	❍	❍	❍	❍	❍	❍
My happiness depends more on other people than it does on me.	❍	❍	❍	❍	❍	❍	❍
I do not need the approval of other people in order to be happy.	❍	❍	❍	❍	❍	❍	❍
If a person avoids problems, the problems tend to go away.	❍	❍	❍	❍	❍	❍	❍
I can be happy even if I miss out on many of the good things in life.	❍	❍	❍	❍	❍	❍	❍
What other people think about me is very important.	❍	❍	❍	❍	❍	❍	❍
Being alone leads to unhappiness.	❍	❍	❍	❍	❍	❍	❍
I can find happiness without being loved by another person.	❍	❍	❍	❍	❍	❍	❍

APPENDIX P: THE YOUNG SCHEMA QUESTIONNAIRE–SHORT FORM, VERSION 3

THE YOUNG SCHEMA QUESTIONNAIRE – SHORT FORM, VERSION 3

Instructions:

Listed below are statements that a person might use to describe him or herself. Please read each statement and decide how well it describes you. When there you are not sure, base your answer on what you emotionally feel, not on what you think to be true. Choose the highest rating from 1 to 6 that describes you and write the number in the space before the statement.

	Completely untrue of me	Mostly untrue of me	Slightly more true than untrue	Moderately true of me	Mostly true of me	Describes me perfectly
Most of the time, I haven't had someone to nurture me, share him/herself with me, or care deeply about everything that happens to me.	❍	❍	❍	❍	❍	❍
In general, people have not been there to give me warmth, holding, and affection.	❍	❍	❍	❍	❍	❍
For much of my life, I haven't felt that I am special to someone.	❍	❍	❍	❍	❍	❍
For the most part, I have not had someone who really listens to me, understands me, or is tuned into my true needs and feelings.	❍	❍	❍	❍	❍	❍
I have rarely had a strong person to give me sound advice or direction when I'm not sure what to do.	❍	❍	❍	❍	❍	❍
I find myself clinging to people I'm close to, because I'm afraid they'll leave me.	❍	❍	❍	❍	❍	❍
I need other people so much that I worry about losing them.	❍	❍	❍	❍	❍	❍
I worry that people I feel close to will leave me or abandon me.	❍	❍	❍	❍	❍	❍
When I feel someone I care for pulling away from me, I get desperate.	❍	❍	❍	❍	❍	❍
Sometimes I am so worried about people leaving me that I drive them away.	❍	❍	❍	❍	❍	❍
I feel that people will take advantage of me.	❍	❍	❍	❍	❍	❍
I feel that I cannot let my guard down in the presence of other people, or else they will intentionally hurt me.	❍	❍	❍	❍	❍	❍

THE YOUNG SCHEMA QUESTIONNAIRE – SHORT FORM, VERSION 3

Instructions:

Listed below are statements that a person might use to describe him or herself. Please read each statement and decide how well it describes you. When there you are not sure, base your answer on what you emotionally feel, not on what you think to be true. Choose the highest rating from 1 to 6 that describes you and write the number in the space before the statement.

	Completely untrue of me	Mostly untrue of me	Slightly more true than untrue	Moderately true of me	Mostly true of me	Describes me perfectly
It is only a matter of time before someone betrays me.	❍	❍	❍	❍	❍	❍
I am quite suspicious of other people's motives.	❍	❍	❍	❍	❍	❍

I'm usually on the lookout for people's ulterior motives.	❍	❍	❍	❍	❍	❍
I don't fit in.	❍	❍	❍	❍	❍	❍
I'm fundamentally different from other people.	❍	❍	❍	❍	❍	❍
I don't belong; I'm a loner.	❍	❍	❍	❍	❍	❍
I feel alienated from other people.	❍	❍	❍	❍	❍	❍
I always feel on the outside of groups.	❍	❍	❍	❍	❍	❍
No man/woman I desire could love me one he/she saw my defects.	❍	❍	❍	❍	❍	❍
No one I desire would want to stay close to me if he/she knew the real me.	❍	❍	❍	❍	❍	❍
I'm unworthy of the love, attention, and respect of others.	❍	❍	❍	❍	❍	❍
I feel that I'm not lovable.	❍	❍	❍	❍	❍	❍
I am too unacceptable in very basic ways to reveal myself to other people.	❍	❍	❍	❍	❍	❍
Almost nothing I do at work (or school) is as good as other people can do.	❍	❍	❍	❍	❍	❍
I'm incompetent when it comes to achievement.	❍	❍	❍	❍	❍	❍
Most other people are more capable than I am in areas of work and achievement.	❍	❍	❍	❍	❍	❍

I'm not as talented as most people are at their work.	❍	❍	❍	❍	❍	❍
I'm not as intelligent as most people when it comes to work (or school).	❍	❍	❍	❍	❍	❍
I do not feel capable of getting by on my own in everyday life.	❍	❍	❍	❍	❍	❍
I think of myself as a dependent person, when it comes to everyday functioning.	❍	❍	❍	❍	❍	❍
I lack common sense.	❍	❍	❍	❍	❍	❍
My judgment cannot be relied upon in everyday situations.	❍	❍	❍	❍	❍	❍
I don't feel confident about my ability to solve everyday problems that come up.	❍	❍	❍	❍	❍	❍
I can't seem to escape the feeling that something bad is about to happen.	❍	❍	❍	❍	❍	❍
I feel that a disaster (natural, criminal, financial, or medical) could strike at any moment.	❍	❍	❍	❍	❍	❍
I worry about being attacked.	❍	❍	❍	❍	❍	❍
I worry that I'll lose all my money and become destitute.	❍	❍	❍	❍	❍	❍
I worry that I'm developing a serious illness, even though nothing serious has been diagnosed by a physician.	❍	❍	❍	❍	❍	❍
have not been able to separate myself from my parent(s), the way other people my age seem to.	❍	❍	❍	❍	❍	❍
My parent(s) and I tend to be overinvolved in each other's lives and problems.	❍	❍	❍	❍	❍	❍
It is very difficult for my parent(s) and me to keep intimate details from each other, without feeling betrayed or guilty.	❍	❍	❍	❍	❍	❍
I often feel as if my parent(s) are living through me--I don't have a life of my own.	❍	❍	❍	❍	❍	❍
I often feel that I do not have a separate identity from my parent(s) or partner.	❍	❍	❍	❍	❍	❍
I think that if I do what I want, I'm only asking for trouble.	❍	❍	❍	❍	❍	❍
I feel that I have no choice but to give in to other people's wishes, or else they will retaliate or reject me in some way.	❍	❍	❍	❍	❍	❍
In relationships, I let the other person have the upper hand.	❍	❍	❍	❍	❍	❍
I've always let others make choices for me, so I really don't know	❍	❍	❍	❍	❍	❍

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what I want for myself.						
I have a lot of trouble demanding that my rights be respected and that my feelings be taken into account.	○	○	○	○	○	○
I'm the one who usually ends up taking care of the people I'm close to.	○	○	○	○	○	○
I am a good person because I think of others more than of myself.	○	○	○	○	○	○
I'm so busy doing for the people that I care about, that I have little time for myself.	○	○	○	○	○	○
I've always been the one who listens to everyone else's problems.	○	○	○	○	○	○
Other people see me as doing too much for others and not enough for myself.	○	○	○	○	○	○
I am too self-conscious to show positive feelings to others (e.g., affection, showing I care).	○	○	○	○	○	○
I find it embarrassing to express my feelings to others.	○	○	○	○	○	○
I find it hard to be warm and spontaneous.	○	○	○	○	○	○
I control myself so much that people think I am unemotional.	○	○	○	○	○	○
People see me as uptight emotionally.	○	○	○	○	○	○
I must be the best at most of what I do; I can't accept second best.	○	○	○	○	○	○
I try to do my best; I can't settle for "good enough."	○	○	○	○	○	○
I must meet all my responsibilities.	○	○	○	○	○	○
I feel there is constant pressure for me to achieve and get things done.	○	○	○	○	○	○
I can't let myself off the hook easily or make excuses for my mistakes.	○	○	○	○	○	○
I have a lot of trouble accepting "no" for an answer when I want something from other people.	○	○	○	○	○	○
I'm special and shouldn't have to accept many of the restrictions placed on other people.	○	○	○	○	○	○
I hate to be constrained or kept from doing what I want.	○	○	○	○	○	○
I feel that I shouldn't have to follow the normal rules and conventions other people do.	○	○	○	○	○	○

feel that what I have to offer is of greater value than the contributions of others.	❍	❍	❍	❍	❍	❍
I can't seem to discipline myself to complete routine or boring tasks.	❍	❍	❍	❍	❍	❍
If I can't reach a goal, I become easily frustrated and give up.	❍	❍	❍	❍	❍	❍
I have a very difficult time sacrificing immediate gratification to achieve a long-range goal.	❍	❍	❍	❍	❍	❍
I can't force myself to do things I don't enjoy, even when I know it's for my own good.	❍	❍	❍	❍	❍	❍
I have rarely been able to stick to my resolutions.	❍	❍	❍	❍	❍	❍

APPENDIX Q: THE PRAGMATIC INFERENCE TASK

With respect to the Pragmatic Inference Task, the survey was design to show participants the scenarios on the screen until they pressed the '>>' button. The scenarios were then removed from the view of the participants and four questions, which pertained to each of the scenarios, were then displayed. Participants were unable to press a 'back' button to re-view the scenarios. The question that is italicised relates to the ambiguous causal outcome (either internal or external) of the scenarios that was used to assess attribution style. An 'S' next to a story, denotes the scenario had a successful outcome. In contrast, an 'F' next to the story denotes the scenario had a failure outcome. The instructions on how to complete the Pragmatic Inference Task were presented to participants prior to the first scenario being presented. Scenarios were presented as questions to participants.

THE PRAGMATIC INFERENCE TASK
Instructions: You are going to be asked a series of questions based on hypothetical life scenarios. The scenarios will be presented in the form of a short story. The story will be removed from your vision, at which point four questions relating to the study will be asked of you. It is important for the purpose of this study that you do not write down the story but instead do your best to recall the answers to the questions asked of you.
QUESTION 1
*You decide to open your own dry cleaning shop in a small but growing town near the border. Your store will be the only one of its kind for miles around. In the first year of business, the town's population doubles and your business prospers. Your ad campaign is a big success and reactions from your customers indicate that the cleaning is quality work. Your gross sales exceed expectations. You wonder whether it would be to your advantage to open a chain of stores, so you go to the bank and apply for a loan. As you hoped, the bank approves the loan (**S**).*

What kind of store do you open?
- ❍ Hardware
- ❍ Dry cleaning

In what part of the country is the town located?
- ❍ A. Midwest
- ❍ B. South

Where is the loan obtained?
- ❍ Loan agency
- ❍ Bank

What is the reason for the success of your business?
- ❍ You are a smart businessperson
- ❍ You had no competition

QUESTION 2

You have been looking unsuccessfully for a job as a factory worker. The unemployment rate has risen lately, and jobs are especially tight in your field. Sales have been hurt because of foreign competition. You decide to talk to a friend about the situation. He reminds you that you've had difficulties with management in the past because of tardiness and a poor performance record. Your search for a job is frustrating and you go four weeks without finding a job (**F**).

Why do you discuss your situation with a friend?
- ❍ Need advice
- ❍ Your friend is hiring

How long do you go without finding work?
- ❍ Four weeks
- ❍ Four months

Why do you have trouble finding work?
- ❍ Poor work record
- ❍ Poor job market

What kind of job interests you?
- ❍ Big company
- ❍ Small company

QUESTION 3

You pride yourself on your appearance. You recently spent some money on new clothes and a new hair style. The next day you receive a number of compliments at work, especially from one co-worker. However, this person angers you later on in the day by asking you for a ride home. This is a great inconvenience because this person lives quite a distance from your destination. (**F**).

Why do you receive a compliment from the co-worker?
- ❍ Your appearance is genuinely perceived as worthy of a compliment
- ❍ This person needs a favour from you

Why do you spend money on your appearance?
- ❍ Self-pride
- ❍ You enjoy compliments

Who gives you the most compliments at work?
- ❍ Same sexed people
- ❍ Opposite sexed people

On what do you spend your money?
- ❍ Shoes

○ Hair style

QUESTION 4

A neighbour mentions to you that their teenager is having a drinking problem. You wonder if the neighbour is going to ask you for advice. This neighbour is an independent and headstrong person who rarely seeks advice from others. You are uncomfortable because you do not have any children of your own and you are not very good at counselling people. The neighbour leaves without asking for your advice.

Who comes to you for advice?
  ○ Fellow worker

  ○ Neighbour

What is the nature of the problem?
  ○ Stealing

  ○ Drinking

What gender is the person with the problem?
  ○ Male

  ○ Female

Why doesn't the neighbour ask you for advice?
  ○ This person is the type not to ask for advice

  ○ You are inexperienced in this area

QUESTION 5

You and a co-worker decide to go out one night for a bite to eat. You wonder whether you will have a good time since your co-worker is a moody person. The night starts out poorly when you forget to call a taxi for the both of you and you also fail to make dinner reservations. You and the co-worker wait for an hour at the restaurant and there is still no table. You both decide to go elsewhere for a meal. The food and service is unsatisfying at the other place, especially for the co-worker. On the trip home, the co-worker asks you a lot of questions about how you were able to receive a recent promotion from the boss, and mentions that no one else in the office has received a promotion in over two years. The questioning indicates a hostile tone.

Where do you and the co-worker go?
  ○ To a movie

  ○ To a restaurant

At what time of day does the activity take place?
  ○ Afternoon

  ○ Evening

Why does the co-worker act hostilely toward you?
  ○ The person is jealous of you

  ○ The person is angry that you forgot to call a taxi and make dinner reservations

Who initiates the activity?

❍ You	
❍ The co-worker	

QUESTION 6

You have a date with someone new. You go to a movie and your date does not have much of an opinion about it. And for most of the evening, your date does not say much. You also do not initiate much conversation, and when you do talk, you have a difficult time keeping up your end of the conversation. When the evening is over, your date expresses disappointment about how the evening went.

With whom do you have a date?
   ❍ Close friend

   ❍ New acquaintance

Where do you go on the date?
   ❍ To a movie

   ❍ To dinner

Why does the date go badly?
   ❍ The date was a boring person

   ❍ You were not interesting enough for the person

Where did you go after the date?
   ❍ For a drive

   ❍ No place

QUESTION 7

A lonely, aged person sits next to you on a park bench while you are reading a book and begins to talk to you. You are not surprised by this since strangers are often friendly toward you. After some small talk, you find out that this person is down on hard times and needs help. You and the person talk for quite some time, and it seems to you that this person continues to enjoy your company.

Who starts the conversation with you?
   ❍ A tourist

   ❍ A stranger

Why does this person talk with you so long?
   ❍ You are friendly

   ❍ This person wants your help

What are you doing when you are approached by this individual?
   ❍ Reading a newspaper

   ❍ Reading a book

Why is this person down on hard times?
   ❍ Illness

   ❍ Deserted by family

QUESTION 8

The company you work for is always very busy around holiday time. It is the day before the holiday vacation and everyone in the office is exhausted. On short notice you decide to throw an office party. You prepare an interesting mix of gin and fruit punch, which draws a number of compliments from others. Everyone seems to enjoy themselves. You make friends with a couple new co-workers and many people laugh at your jokes.

Why is the party a success?
   ❍ Your co-workers are in the mood to unwind

   ❍ You know how to throw a good party

What is popular at the party?
   ❍ Liquor

   ❍ Food

At what time of year is the party?
   ❍ Thanksgiving

   ❍ Christmas

Is the party well attended?
   ❍ Yes

   ❍ No

QUESTION 9

You give an important talk on a controversial topic to group of town residents. You present a point of view that in the short run is unpopular but will likely benefit the town over the long-term. The audience reacts negatively, especially to your suggestion that the town ought to purchase more trucks. The next speaker presents a view that is opposite from your own. As you listen to the speech, you notice that this individual is a very fluent and persuasive speaker. It becomes quite obvious to you that the second speaker receives a positive reaction from the audience.

Where do you give the speech?
   ❍ Political convention

   ❍ Town hall meeting

Why does the audience react negatively to your speech?
   ❍ You were an ineffective speaker

   ❍ The second speaker took the less controversial viewpoint

How do you learn about the audience's reaction to the second speaker?
   ❍ Someone tells you

   ❍ You witness it

What is being discussed at the meeting?
   ❍ Road repair

❍ Garbage removal

QUESTION 10

Recently, you haven't done all the work that your boss expects of you. The boss begins to complain about your performance. The job is sometimes difficult for you because it's quite technical and the hours are a burden. Also, you recently discover through the office grapevine that the boss' nephew is very interested in your position.

With whom do you talk about your problems at work?
  ❍ No one

  ❍ Your spouse

What kind of skill does this job require?
  ❍ Manual

  ❍ Technical

Why does your boss complain about your work performance?
  ❍ You have poor technical skills

  ❍ The boss wants you to quit to make room for a relative

What shift do you work?
  ❍ Day

  ❍ Night

QUESTION 11

You take a college course in English Literature because you like to write. One of your assignments is to write a paper on one famous contemporary American author. You choose Kurt Vonnegut, a decision which is met with praise by the teacher who is a big fan of Vonnegut. The teacher tells you that Vonnegut is perhaps the most influential contemporary writer. You work hard on the paper and think it is well written. You are pleased when the paper is returned. The teacher comments that your interpretation of Vonnegut's work is consistent with her own, and you receive an excellent grade.

What kind of course do you take?
  ❍ English literature

  ❍ Writing course

Why do you take the course?
  ❍ Need the credits

  ❍ Pleasure

Why does the teacher like your paper?
  ❍ You are a good writer

  ❍ Your viewpoints are similar to the teachers

Why do you choose to write about Vonnegut?
  ❍ He is your favourite author

❍ The teacher tells you to

QUESTION 12

You recently receive a wage increase at work. While you are a bit surprised by this since you had no prior notice about such a raise, you do feel that you have been a reliable worker. Indeed, others have received wage increases in the past when you did not. The day after you receive this news, a memo is sent to all workers indicating that in the last few months a number of employees have voluntarily left the company. The company's owner offers to be sensitive to suggestions for improving job satisfaction.

What type of income raise do you receive?
    ❍ Bonus money

    ❍ Wage increase

How do you hear about the raise?
    ❍ Memo

    ❍ Told personally

Why do you get the raise?
    ❍ Company wants to prevent further resignations

    ❍ You deserve the raise because of good performance

Who else gets a raise?
    ❍ No one

    ❍ Everyone

APPENDIX R: CHILDHOOD TRAUMATIC EVENTS SCALE

CHILDHOOD TRAUMATIC EVENTS SCALE

Instructions:
For the following questions, answer each item that is relevant. Be as honest as you can. Each question refers to any event that you may have experienced **prior to the age of 17**.

QUESTION 1

Prior to the age of 17, did you experience a death of a very close friend or family member?

❍ Yes

❍ No

If 'No' was Selected, participants were directed to Question 2

How old were you? (in years)

_____

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5   ❍ 6   ❍ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5   ❍ 6   ❍ 7

QUESTION 2

Prior to the age of 17, was there a major upheaval between your parents (such as divorce, separation)?

❍ Yes

❍ No

If 'No' was Selected, participants were directed to Question 3

How old were you? (in years)

_____

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5   ❍ 6   ❍ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5   ❍ 6   ❍ 7

QUESTION 3

Prior to the age of 17, did you have a traumatic sexual experience (raped, molested, etc.)?

❍ Yes

❍ No

| If 'No' was Selected, participants were directed to Question 4 |

| How old were you? (in years)

 _____ |

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7

QUESTION 4

Prior to the age of 17, were you the victim of violence (child abuse, mugged or assaulted - other than sexual)?

◯ Yes

◯ No

If 'No' was Selected, participants were directed to Question 5

How old were you? (in years)

_____

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7

QUESTION 5

Prior to the age of 17, were you extremely ill or injured?

◯ Yes

◯ No

If 'No' was Selected, participants were directed to Question 5

How old were you? (in years)

_____

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6 ◯ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

❍ 1   ❍ 2   ❍ 3   ❍ 4   ❍ 5   ❍ 6   ❍ 7

QUESTION 6

Prior to the age of 17, did you experience any other major upheaval that you think may have shaped your life or personality significantly?
 	
  ○ Yes
 	
  ○ No
 	
If 'No' was Selected, participants were directed to the next measure in the survey package.

How old were you? (in years) _____
What was the event?

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7

APPENDIX S: RECENT TRAUMATIC EVENTS SCALE

RECENT TRAUMATIC EVENTS SCALE

Instructions:
For the following questions, again answer each item that is relevant and again be as honest as you can. Each question refers to any event that you may have experienced **within the last 3 Years**.

QUESTION 1

Within the last 3 years, did you experience a death of a very close friend or family member?

⭕ Yes

⭕ No

If 'No' was Selected, participants were directed to Question 2

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

⭕ 1   ⭕ 2   ⭕ 3   ⭕ 4   ⭕ 5   ⭕ 6   ⭕ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

⭕ 1   ⭕ 2   ⭕ 3   ⭕ 4   ⭕ 5   ⭕ 6   ⭕ 7

QUESTION 2

Within the last 3 years, was there a major upheaval between you and your spouse (such as divorce, separation)?

⭕ Yes

⭕ No

If 'No' was Selected, participants were directed to Question 3

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

⭕ 1   ⭕ 2   ⭕ 3   ⭕ 4   ⭕ 5   ⭕ 6   ⭕ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

⭕ 1   ⭕ 2   ⭕ 3   ⭕ 4   ⭕ 5   ⭕ 6   ⭕ 7

QUESTION 3

Within the last 3 years, did you have a traumatic sexual experience (raped, molested, etc.)?

⭕ Yes

⭕ No

If 'No' was Selected, participants were directed to Question 4

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

QUESTION 4

Within the last 3 years, were you the victim of violence (other than sexual)?

　　　○ Yes

　　　○ No

If 'No' was Selected, participants were directed to Question 5

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal?

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

QUESTION 5

Within the last 3 years, were you extremely ill or injured?

　　　○ Yes

　　　○ No

If 'No' was Selected, participants were directed to Question 6

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

　　　○ 1　　　　○ 2　　　　○ 3　　　　○ 4　　　　○ 5　　　　○ 6　　　　○ 7

QUESTION 6

Within the last three years, has there been a major change in the kind of work you do? (e.g. a new job, promotion, demotion, lateral transfer?)

　　　○ Yes

　　　○ No

If 'No' was Selected, participants were directed to question 7.

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

    ○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

    ○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

QUESTION 7

Within the last 3 years did you experience any other major upheaval that you think may have shaped your life or personality significantly?

○ Yes

○ No

If 'No' was Selected, participants were directed to the next measure in the survey package.

What was the event?
_____
_____
_____
_____

How traumatic was this? (Using a 7-point scale, where 1 = not at all traumatic, 4 = somewhat traumatic, 7 = extremely traumatic)

    ○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

How much did you confide in others about this traumatic experience at the time? (1 =not at all, 7 = a great deal)

    ○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

APPENDIX T: EMOTIONAL STROOP TASK DESIGN AND INSTRUCTIONS

Do you have a history of epilsepsy or seizures (inluding one or more siezures)?

◯ Yes

◯ No

If 'Yes' was selected, participants were unable to complete the stroop or emotional stroop task, due to flashing words potentially inducing a seizure.

Instructions:

You are now going to complete a computer based task, which will show some different coloured text on the screen and you need to respond to the text on screen depending upon what colour is displayed.

  ➢ If you see red text on the screen you need to press the 1;
  ➢ if you see green text you need to press 2;
  ➢ if you see blue text you need to press 9; and
  ➢ if you see yellow text you need to press 0.

What I want you to do now is just have a practice. There are going to be a number of practice trials for you to have a go at, just to learn how to respond. If you feel satisfied after the practice trials that you are ready to go on, the screen will prompt you to press the spacebar to go on with the rest of the experiment.

Stroop Task then administered, followed by the EST.

APPENDIX U: EMOTIONAL STROOP TASK WORDS

Table A.1

Positive, Neutral and Negative Words Included in the EST

Positive	Neutral	Negative
Wonderful	Currency	Dread
Passionate	Handy	Abandoned
Glorious	Residential	Pain
Joy	Pod	Fear
Enjoyment	Tendency	Loss
Happy	Specifically	Suicide
Affectionate	Wooded	Depression

APPENDIX V: END OF SURVEY NOTICE

"Thank you for participating in this study. Your responses are highly valued and will help provide us with a better understanding of the thinking patterns and feelings of individuals with a mood disorder. If you know of anyone who may be interested in participating in this study, please direct them to this survey. Your assistance is greatly appreciated. If you have any questions regarding this study or would like to receive a summary of the research findings, after completion of the study, please contact Principal Investigator, Dr. Karen Hallam (Phone (business hours): +61 or (03) 9919 2586; karen.hallam@vu.edu.au). In the event that you experience any distress as a result of completing the survey, please access the "looking for Help" page on the Lifeline International Website at http://www.lifeline.org.au/About-Lifeline/Lifeline-international/Looking-for-Help/Looking-for-Help, to locate your nearest counselling service. We strongly advise anyone who is having suicidal thoughts to contact LifelIne and seek assistance. If you would like to contact a staff member from the Department of Psychology who is a clinical psychologist not directly involved in this research you may call Associate Professor Gerard Kennedy (Phone (business hours): +61 or (03) 9919 2481; gerard.kennedy@vu.edu.au for confidential advice or assistance".

APPENDIX W: PARTICIPANTS' COUNTRY OF RESIDENCE

Table A.2

Participants' Countries of Residence

	Frequency (*n*)	Percent
Australia	50	33.6
Canada	6	4.0
Egypt	1	0.7
Germany	1	0.7
Haiti	1	0.7
Singapore	13	8.7
South Africa	2	1.3
United Kingdom	28	18.8
United States	47	31.5
Total	149	100.0

APPENDIX X: PARTICIPANTS' ETHNICITIES

Table A.3

Participants' Ethnicities

White/Caucasian	115	77.2
African American	3	2.0
Hispanic	1	.7
Asian	20	13.4
Native American	2	1.3
Pacific Islander	1	.7
Other	7	4.7
Total	149	100.0

APPENDIX Y: COMORBID PSYCHIATRIC DIAGNOSES OF BIPOLAR AND MDD
PARTICIPANTS

Table A.4

Co-morbid Psychiatric Diagnoses of Bipolar and MDD Groups

	Bipolar-depressed (*n*)	Bipolar-euthymic (*n*)	MDD-depressed (*n*)	MDD-euthymic (*n*)
GAD/social anxiety	5	6	11	4
OCD	3	3	4	3
PTSD	2	-	3	-
Panic disorder	2	-	-	1
ASD	-	-	2	-
Substance use	-	1	-	1
Eating disorder	-	1	2	2
ADHD	5	-	2	-

Note: GAD = Generalized Anxiety Disorder. OCD = Obsessive Compulsive Disorder. PTSD = Post-Traumatic Stress Disorder. ASD = Autism Spectrum Disorder. ADHD = Attention Deficit Hyperactivity Disorder.