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Cognitive Therapy for Depression: The Moderating Effect of Personality Beliefs on Homework Adherence and Outcome for Depression.

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ABSTRACT

Cognitive Therapy (CT) is an efficacious treatment for Major Depressive Disorder (MDD) (Butler, Chapman, Forman, & Beck, 2006). Homework (HW) tasks are an integral facet of this therapeutic modality (Beck & Tompkins, 2007), and are believed to be one of the active ingredients in its therapeutic effect (Rees, McEvoy, & Nathan, 2005). The current literature indicates that not all clients adhere to their HW assignments equally, with some evidence to suggest that this may be attributable to problem type (Kazantzis, Deane, & Ronan 2000). MDD is highly comorbid with personality disorders (PD) (George, Milkowitz, Richards, Simoneau & Taylor, 2003) and the beliefs that underpin these syndromes, as conceptualised in cognitive theory, have been anecdotally linked to the variance in HW adherence (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001). This current research is the first to investigate the moderating role personality beliefs have on HW adherence and outcome in CT for depression.

This current study was situated within a larger collaborative research project investigating HW in the treatment of depression, conducted at the School of Psychology, Massey University, Albany, and in partnership with Harvard University and the London Institute of Psychiatry. A final sample of 27 participants experiencing their index episode of MDD were recruited from the wider Auckland region. Participants attended up to 20-sessions of CT for depression, and follow-up sessions at 2- and 6-months, provided by doctoral students. Depression severity was measured at baseline and every session with the *Beck Depression Inventory – Second Edition (BDI-II)*. Personality beliefs were assessed at Session 8 with the *Personality Beliefs Questionnaire – Short Form (PBQ-SF)*. Homework adherence was assessed from Session 2 with the *Homework Rating Scale – Second Edition (HRS-II)*. A prospective longitudinal multi-level modelling design was utilised and data were analysed on the *SPSS* suite. All participants experienced symptom reduction across treatment duration with a mean percentage improvement of 68.1%. A total of 13 (49%) participants endorsed at least one scale of the *PBQ-SF* and 51% ($n=14$) did not. Results indicated that the endorsement of personality beliefs resulted in higher levels of depressive severity at intake, and moderated client rated HW adherence and the *beliefs* factor of the *HRS-II*. Specifically, personality beliefs were related to less adherence with HW tasks and higher residual symptoms of depression at termination. Therapist rated HW had no effect on outcome. The limitations, contributions to the literature and implications for clinical practice are discussed.

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CHAPTER ONE

INTRODUCTION

According to the World Health Organisation (WHO), major depressive disorder (MDD), when categorised as a 'disease' was ranked fourth for burden of ill health worldwide, in the year 2000 (Murray & Lopez, 1996). These same authors also project that this ranking will move to second place by the year 2020. The high rates of relapse, recurrence, and chronicity are, in part, responsible for the scale of burden MDD is responsible for. Some estimate that those experiencing this disorder will have, on average over their lifetime, four depressive episodes each lasting 20 weeks (Judd, 1997). Despite these predictions, there is significant variation in relapse between individuals experiencing their index episode and those who have had more than one episode of MDD. Specifically, relapse rates of 79-80% occur within a three-year period for those with a history of at least three prior episodes. In comparison, relapse rates decrease to 20-30% over the same time frame, for those with no history of relapse following index episode (Scher, Segal & Ingram, 2004). MDD can also be complicated by comorbidity with other disorders, with rates approaching 80% (Kessler et al., 2005). The costs of MDD can be significant to the individual and society, with its high prevalence rates securing its place as one of the most economically burdensome to personal income, healthcare funding and lost work productivity (Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). Prevalence and relapse figures, coupled with the WHO projections and costs to individual and society, underscore the importance of, and provide the impetus for, researching this disorder. It is imperative to not only identify those therapies that will ameliorate the symptoms of MDD, but to also isolate those therapeutic factors and mechanisms that are of most benefit.

Cognitive Therapy (CT) is one such therapeutic intervention that has robust empirical evidence in its ability to ameliorate the symptoms of MDD. This intervention originally conceptualised and initiated by Aaron Beck, was founded on the premise that the meaning an individual ascribes to an event, rather than the event itself, is associated with psychological distress. These meanings, or interpretations of events or situations, are guided by an individuals schemas, or core beliefs - the cognitive structures that are formed, generally in the developing years of the individuals life, to make sense and meaning of their world. When negative events occur in life, these can lead to the development of maladaptive schemas. These schemas can subsequently be activated in present-day situations. Beck proposed a cognitive specificity hypothesis, in which there exists a distinct cognitive profile in each of the psychiatric disorders. He asserts that depressogenic symptoms can be explained in a cognitive framework

termed the *negative cognitive triad*, which is comprised of negative depictions of self, world, and future; and these bias the interpretation of events. Specifically, he proposes the most prominent thoughts found in those experiencing depression centre around loss (Beck, 1976). Therefore, in CT the problem and solution both essentially relate to the clients way of thinking (or cognitions) (Beck, 1976). Clients are guided by the cognitive therapist to systematically assess their beliefs, and the way in which they process information, in order to decrease symptomatology. Biased and maladaptive beliefs are regarded as testable hypotheses where behavioural experiments and cognitive exercises are utilised to appraise their validity, consider alternative explanations, and generate contradictory evidence in order to promote the development of new adaptive beliefs, and therefore minimise psychological distress.

The abundant research on the efficacy and effectiveness of CT for depression has unquestionably shown its significant positive therapeutic effects (Butler, Chapman, Forman, & Beck, 2006). What is not evident is the specific mechanisms by which these effects are generated (Jacobson et al., 1996). Research is more frequently focusing on this question in an attempt to determine whether specific techniques of CT are the active mechanisms, or its effects are due to non-specific therapeutic characteristics inherent across all talking therapies (e.g., the therapeutic alliance). Alternatively, client and/or therapist characteristics may also have a significant effect on outcome. It may also be true, that a specific combination of these factors may interact to beneficial therapeutic effect. One such area that has been the focus of research is the effect of between-session tasks, or homework (HW), on outcome in CT for depression. Indeed, there is a vast literature on this topic, that indicates that HW completion is linked to positive outcome (Burns & Spangler, 2000), and is linked to lower relapse rates of depression (Beck & Tompkins, 2007). However, there is still variation between individuals in their adherence to HW tasks and in reviewing the literature there is no single indicator, (e.g., client, therapist or process) which explains why this variation occurs. Added to this, critics have argued that research focusing on the effects of HW on outcome for depression has been muddied by retrospective ratings that have been aggregated to one time point, and made on unstandardized measures. Furthermore, a standard definition of what constitutes HW has yet to be adopted across research settings. Comparing HW research over time is complicated by these confounding issues.

One factor that has been implicated in HW adherence, and is a core focus of CT, is that of client beliefs. It would seem logical that an individual's belief in their ability to perform a task

would have some effect on whether they complete or avoid the activity, but the literature also shows that the beliefs of perfectionism/unrelenting standards, fear of failure, and need for social acceptance may have some effect in the completion of HW tasks (Persons, 1989). Similar to his conceptualisation of depression, Beck conceptualises personality disorders (PDs) by the specific clusters of beliefs hypervalent in each disorder. This typology of personality schemas was constructed by analysing the similarities and differences in beliefs and behaviours among the various disorders (Pretzer & Beck, 2005). There is support for conceptualising PDs in this way, with some saying it is a more clinically meaningful way of understanding the presentation and mechanisms underlying these syndromes (Bhar, Beck & Butler, 2012). This current study will also link those beliefs discussed by Persons (1989) to those described by Beck in his theory of personality disorders. Personality schemas function on a more continuous and persistent basis (Pretzer & Beck, 2004), over a wide range of contexts, resulting in the individual predictably over-responding in a stereotyped way (Beck & Weishaar, 2005). Some believe the presence of these schema significantly effect the presentation, and treatment trajectory of *Axis I* disorders, as the co-occurring personality beliefs typically amplify and complicate *Axis I* symptoms (Freeman & Rock, 2008). Conversely, *Axis I* difficulties can provoke *Axis II* beliefs into operation (Freeman & Rosenfield, 2002). Observations derived from clinical work indicate that PD clients are viewed as being resistant to change, with one of the ways this is evidenced, is their neglect to complete HW tasks (Freeman & Rosenfield.).

In summary, in this current study, I will draw on the small emerging literature as it relates to beliefs, personality beliefs and HW tasks in CT and investigate whether personality beliefs moderate HW adherence and outcome in CT for depression. I also address some of the limitations discussed above, by basing this current research on prospective ratings, made on a standardised HW measure, which is analysed on a session-by-session basis throughout the course of therapy. The specific research questions the current study is investigating are:

1. *The Homework – Depression Relationship*: Do participant's who complete more homework tasks have lower levels of depression severity at termination of treatment?
2. *Personality Beliefs – Depression Relationship*: Do participant's who endorse personality belief profiles have higher depression severity at intake and at termination of therapy?
3. *The Moderating Effect of Personality Beliefs on the Homework – Depression Relationship*: Does the presence of personality beliefs moderate the homework-depression relationship?

4. *Personality Global Level of Distress – Homework Relationship*: Will higher global levels of distress, as measured by the *PBQ-SF*, be related to lower levels of HW completion?

Overview of Chapters

Chapter 2 provides a discussion specifically related to MDD. It begins by introducing the means by which it is classified and the diagnostic criteria presented in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). It also presents an overview of epidemiology, both worldwide and within New Zealand, and the financial costs to the individual and society. A brief discussion of those predictors of outcome identified in the literature is followed by a summary of the duration, chronicity, recurrence and relapse rates of this disorder. The chapter concludes with an overview of empirically supported treatments for depression, specifically focusing on pharmacotherapy and CT.

Chapter 3 introduces the philosophical, theoretical and scientific foundations of Cognitive Therapy (CT). The chief purpose of this chapter is to provide an understanding of the key tenets of this therapy that directly relate to the subsequent topics addressed in the remainder of this thesis. Specifically, the concepts drawn from the literature include cognitive specificity in mental disorders, cognitive theory, the techniques of CT, and, the active ingredients of CT are discussed in order to provide a context for the following chapter, which introduces homework (HW), a core component of CT.

I begin Chapter 4 by defining the terminology aligned with HW. This is followed by a discussion of the theoretical basis, purpose and importance of HW. A brief review of the literature then introduces the robust empirical support for utilising HW in CT for depression and the means by which compliance and adherence have previously been measured. This latter topic highlights the methodological issues inherent in previous research. This chapter concludes with an in depth discussion of those factors related to HW adherence, and for clarity, organises these under three headings; task, therapist and client factors.

Chapter 5 introduces the topic of personality schemas. I begin with a discussion of the contemporary practices of classifying personality pathology, including the limitations in these approaches, and present an alternative that is embodied in cognitive theory and is adopted in this research; this provides the framework for the remainder of the chapter. Theories of personality build upon the preceding discussion and link to an examination of the importance

and role of schema, or beliefs, in personality. Support for the cognitive theory of personality pathology is then provided. The concept of comorbidity, specifically between depression and personality is then discussed, and when combined with the subsequent section on the impact of personality beliefs on HW adherence, establishes the theoretical rationale for this current study.

The aims of the current study are presented in Chapter 6 and are followed by the research questions under investigation. The research methods are then introduced, which details ethical approval, study context, recruitment of participants, and phases of participant selection. A description of the final participant pool is then listed. In a similar vein, the study's therapists are introduced, which includes a demographic description, phases of training, and the clinical oversight and supervision each received throughout the course of therapy provision. A summary of the treatment protocol is provided, and includes a description of the larger research context in which this current study is embedded. The chapter concludes with the study design, and a description of the measurement instruments utilised.

Chapter 7 presents the analytic procedures, data management and preliminary analyses performed. Analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 19. A comprehensive description of Hierarchical Linear Modelling (HLM) is discussed, and specifies why this methodology was chosen, and emphasises its unique advantages of including time as a unit of analysis, allowing for the investigation of individual and group temporal change trajectories. Coding of time is presented in the subsequent section, as is management of missing data. How the outcome measures were utilised and managed is then addressed. The importance of assumption checks of linearity, normality, and homoscedasticity are considered and the process by which these were undertaken is outlined. The chapter concludes with an introduction to the process of HLM building, and a description of the models utilised in the final analyses.

The results of the study can be found in Chapter 8. These are separated, and presented, in five sections, which mirror the sequence of the previous chapter. First the results of assumption checks are supplied, which include graphical representations of the data trajectories. Next, the results of reliability analyses of the two primary outcome measures (*Beck Depression Inventory-II* and *Homework Rating Scale-II*) are presented as they relate to the participants in

this study. The chapter closes with the outcome of the multi-level analyses conducted, including post-hoc analyses.

This thesis ends with a discussion of the results of the preceding chapter. In the following section I address some of the more important clinical implications of these results, and also present the implications for future research. The chapter closes with the limitations of this study and concluding statements.

CHAPTER TWO

DEPRESSION

Introduction

As this current study centres on the treatment of depression with Cognitive Therapy, this chapter focuses on major depressive disorder (MDD) (also known as unipolar depression) and begins with an introduction to the diagnostic criteria for this disorder. Epidemiology, both globally and within New Zealand, is then considered and is followed by a commentary on the individual and societal costs of this disorder. A review of factors that predict outcome are then presented with a subsequent review of the literature as it pertains to duration, chronicity, recurrence, and relapse of MDD. The chapter then moves to, and closes with, an overview of empirically supported treatments, and focuses on two specific areas, pharmacotherapy and psychotherapy. For the purposes of this research the discussion of psychotherapeutic interventions will be limited to Cognitive Therapy.

Classification and Diagnosis of Depression

The diagnostic criteria for MDD as listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association [APA], 2000), indicates a heterogeneity to this disorder. That is, there will be some variance in the constellation of symptoms present for those who are experiencing MDD, and, these symptoms may persist from weeks to years. Specifically, the diagnostic criteria, as outlined in the DSM-TR-IV (APA, 2000), include the presence of one major depressive episode that has persisted for a minimum of two weeks and involves either depressed mood or the loss of interest or pleasure that is accompanied by four or more other symptoms. These other symptoms include sleep disturbance, variation in weight or appetite, physical agitation or retardation, fatigue or loss of energy, feelings of self-blame or excessive guilt, difficulties in making decisions or concentrating, and suicidal ideation, plan, or attempt. A depressive episode can be classified as mild, moderate, severe, or severe with psychotic features and is assessed on the number and severity of symptoms present; the extent of functional impairment, and level of distress. Overall, depression is associated with significant distress, impaired functioning, relationship difficulties, and an increased risk of suicide.

Depression is frequently complicated by comorbid disorders, and it is believed that depression that occurs without other syndromes is an exception and not the rule (Hirschfeld, 2001). Depression has high comorbidity rates with anxiety disorders (Hirschfeld), eating disorders,

substance use disorders, and personality disorders (Enns, Swenson, McIntyre, Swinson, & Kennedy, 2001). The comorbidity of depression will be discussed later in Chapter 5, specifically as it relates to this current study.

Epidemiology

Approximately 6% of the worldwide population meet the criteria for MDD at any one time, and will have symptoms that persist beyond two-years (Scott & Dickey, 2003). This figure is projected to rise to 15% by the year 2020 (Murray & Lopez, 1996). The 1996 *Global Burden of Disease* study indicated that depression was ranked within the top ten, in terms of worldwide disease burden, but was positioned in the bottom ten in terms of accounting for deaths. It has been estimated that the mortality rate from suicide in the depressed population is 19.7% (Scott & Dickey). Murray and Lopez also reveal, for women in both developing and developed regions, depression is the principle cause of disease burden, with an estimated lifetime risk of 40%, whereas men have a lifetime risk of 30% (Kruijshaar et al., 2005). In 2000, depression was the fourth leading cause of disease burden and it engendered the largest single cause of non-fatal burden, accounting for approximately 12% of all aggregated years lived with disability, worldwide (Üstün, Ayuso-Mateos, Chatterji, & Mathers, 2004). The World Health Organisation (WHO) monitors years of healthy life that are lost due to premature death or disability across a broad range of mental and physical disorders with a measure called the *Disability Adjusted Life Year* (DALY). Their current estimate has MDD accounting for the single greatest cause of DALYs across both physical and mental disorders in the United States in 2002 (WHO, 2004). It was also estimated that MDD was the fourth leading source of DALYs globally in 2002 and was projected by 2030 to be ranked second behind HIV/AIDS. Additionally, in first world nations, it is predicted that by 2030, MDD will be the leading cause of DALYs (Mathers & Loncar, 2006). Current epidemiological studies indicate comparable prevalence rates of depression across different countries (Kennedy, Lam, Nutt, & Thase, 2004). Finally, in primary care settings, it was found that MDD ranked as the third most common reason for appointments (Ekers, Richards, & Gilbody, 2008).

Depression – The New Zealand Context

A World Health Organisation mental health survey ranked New Zealand, the second leading nation (behind the USA) with the highest 12-month prevalence of emotional distress (depression, anxiety, substance use and impulsivity-aggression) (Demyttenaere et al., 2004). Epidemiological data from a recent mental health survey in New Zealand found that the

lifetime prevalence for developing MDD is 16% and the 12-month prevalence 5.7% (Oakley Browne, Wells, & Scott, 2006). Furthermore, the New Zealand Ministry of Health (MoH) completed a survey that included an investigation of the use of primary health care services for those experiencing mood disorders (Ministry of Health, 2008). This survey measured self-reported mental health status, which included doctor-diagnosed health conditions and health care use. This survey found that one in ten adults (10.9%) had been diagnosed with a mood disorder and that the majority of these diagnoses were depression, with a population prevalence of 10.5%. Corresponding to other research, this survey found that women were more likely to receive a diagnosis of MDD than men. Mood disorder prevalence peaked in women in the 25-34-age bracket, and remained stable until the 75 plus age group, where it declines. Men, however, exhibited a peak in prevalence in the 55-64-age group. Scott and Dickey (2003) contend that primary care services diagnose and treat more people with depressive symptoms than are conventionally diagnosed in the secondary services, suggesting an under-representation in the epidemiological figures. Moreover, the literature suggests that the top 10% of primary care service utilisation is accessed by those with current MDD (Hirschfeld, 2001). Nearly half of the adults with a diagnosis of MDD were taking medication for the condition (48.6%), one in eight (13%) were receiving some form of psychotherapy, with 8.9% of these also taking medication; and 45.6% described not having received any form of treatment when the survey was completed.

The Cost of Depression

As previously indicated, the prevalence of depressive disorders worldwide is considerable making this syndrome one of the most financially burdensome both to the individual and society (Klerman & Weissman, 1992; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). On an individual level, the impact of depression can be overwhelming and debilitating; with financial, educational, social, and vocational losses being relatively common for those experiencing the disorder (Kennedy, Abbott, & Paykel, 2003). On the societal level, it can be an economic burden in terms of health funding and lost work productivity. One study investigating the cost of MDD to employers found it was associated with an average of 9.86 sick days per year, and this was meaningfully more than any of the other conditions investigated (Druss, Rosenheck, & Sledge, 2000). Kennedy and colleagues (2004) describe that those experiencing depression are four times more likely to be absent from their employment than those without depression and, it is the largest predictor of absenteeism (Munce, Stansfeld, Blackmore, & Stewart, 2007). Furthermore, depression exceeds all other mental health disorders in

accounting for lost working hours (Scott & Dickey, 2003) and is the leading predictor of reduced work performance (Kessler et al., 2008). One study estimated that depression costs employers in the United States US\$24 billion annually in lost productive work time (Stewart et al., 2003), and in Canada, is estimated to cost C\$2.53 billion (Kennedy et al., 2004).

Predictors of Outcome

Research indicates that various psychosocial, biological, and therapeutic factors mediate clinical outcome in depression. For example, age appears to be a factor in recovery from depression. Results of various studies suggest that younger people have a higher probability of recovery from an index episode of depression than older age groups (Blacker & Clare, 1987; Kennedy et al., 2003; Robbins et al., 1984). However, Warner and associates (1992) found that an early age of onset was predictive of a more prolonged depressive episode. Additionally, severity of index episode has been associated with a prolonged recovery time (Kennedy et al., 2003; Wells, Burnam, Rogers, Hays, & Camp, 1992). Furthermore, Eaton and colleagues (2008) found that several factors predicted a more protracted episode of depression. These predictive factors comprise, being divorced, having prior panic attacks, being a member of a large family structure and being a woman. Moreover, those with double depression – MDD and comorbid dysthymia – also appear to have poorer clinical outcomes (Wells et al.). Finally, physical illness, familial history, comorbidity of other disorders, inpatient status, negative life events, non-endogenous symptoms, the personality characteristic of neuroticism, and inadequate or inappropriate treatment have also been listed as factors which predict poor outcome (Blackburn & Davidson, 1995; Brown & Harris, 1978; Hirschfeld, Klerman, Andreasen, Clayton, & Keller, 1986). Maintenance medication and psychotherapy, especially Cognitive Therapy (CT), have been shown to improve outcome and help prevent recurrence of depression (Kennedy et al.).

Duration, Chronicity, Recurrence and Relapse

As indicated above, depression can be a chronic disorder that presents with an episodic remitting nature and is associated with relapses, and recurrences (Klerman & Weissman, 1992). Studies have found the mean duration of a depressive episode to be between 20 to 30 weeks (Eaton et al., 2008; Üstün et al., 2004).

At this point it is appropriate to define some terms as they apply to outcomes in MDD before continuing to review the literature. If an individual's symptoms change from being

diagnosable as per diagnostic nosology, to a sub-threshold level, the depression is considered to have *remitted* (Boland & Keller, 2002; Frank et al., 1991). If within two-months a remission is followed by a subsequent episode, the individual has *relapsed* into the depressive episode. When an individual is able to sustain a period of non-relapse for a minimum of two months, they are then considered to have *recovered* from depression (Frank et al.). When a full recovery is followed at a later stage by another episode of depression, the individual has had a *recurrence* of depression (Keller, 2003).

Recent prospective research investigating the chronicity of index depressive episode over a 23-year period found, 15% of this cohort had an unremitting course, 35% recovered but this was followed by a recurrence of one or more subsequent episodes, and approximately 50% recovered with no future episodes (Eaton et al., 2008). These figures are similar to previous studies (Kennedy et al., 2003; Shea et al., 1992; Van Londen, Moelnaar, Goekoop, Zwinderman, & Rooijmans, 1998). Research also suggests that the probability of recurrence increases with each incremental year from index episode (Mueller et al., 1999). Cumulatively research indicates that depression is often a long-term disorder with a high level of relapse and recurrence.

Overview of Empirically Supported Treatments for Depression

Empirically supported treatments for depression include pharmacotherapy, some forms of psychotherapy, and stimulant treatments (electroconvulsive therapy [ECT] and transcranial magnetic stimulation [TMS]). At this time, TMS is in its trial phase and is not a mainstream intervention, despite results from a small number of randomised trials indicating its comparability to outcome with antidepressant medication (ADM) (Kennedy et al., 2004). ECT is a well established and effective treatment for depression with response rates of 60-80% (Kennedy et al.). However, ECT is normally offered to those who have chronic, severe major depression that is resistant to pharmacotherapy and which is complicated by psychotic features and/or acute suicidal ideation (Kennedy et al.).

Prior to moving to a more in depth investigation regarding the forms of treatment for MDD, the issue of *severity* will be addressed as this subject is not only relevant, but has also been a point of controversy, conflicting claims, and debate in the literature for the treatment of depression. The main debate, as it relates to this research, centres on the use of ADM and CT in treating MDD. It has been suggested that outcome in the treatment of depression is

moderated by severity (Angst, Scheidegger, & Stabl, 1993). Research also suggests that pharmacological and stimulant treatments have more effect in severe cases of depression (Elkin et al., 1995; Hollon & Shelton, 2001).

The first multisite coordinated study in the field of psychotherapy for depression was initiated by *The National Institute of Mental Health Treatment of Depression Collaborative Research Program* (TDCRP); (Elkin et al., 1989). This study investigated outcome between four treatment conditions: Interpersonal Therapy (IPT), Cognitive Therapy (CT), imipramine hydrochloride plus clinical management, and placebo plus clinical management. In terms of outcome, the two psychotherapies were outperformed by the imipramine condition. While not factoring in level of severity, the two psychotherapies were of equal effectiveness and were not significantly less effective than the imipramine condition. However, when severity levels were considered, IPT was found to be more effective for the more severely impaired than was CT. Additionally, the effectiveness of CT was not meaningfully greater than the placebo condition.

This research was the genesis of the issue of severity in treatment options for depression. Although the DSM stipulates the diagnostic criteria for MDD, and therefore uses a classificatory system that specifies severity of depressive episode, scales have also been developed to provide numerical scores that may accompany this diagnostic system. These measures are useful in monitoring severity of depressive symptoms and recovery, on a continuum from minimal to very severe. Two of the most frequently used severity measures are the Hamilton Rating Scale for Depression (*HRSD*; Hamilton, 1960, 1967), and the Beck Depression Inventory (*BDI-II*; Beck, Steer, & Brown, 1996). The *HRSD* is a clinician rated measure, and the *BDI-II* is a client self-report rating scale. These two measures are often utilised in research as a measure of outcome, as is the case in the TDCRP study above. This research was to have a major impact on the treatment of depression as subsequently both the American Psychiatric Association (APA) and the National Institute for Clinical Excellence (NICE) developed treatment guidelines based on this research, which support the use of ADM, especially the newer selective serotonin reuptake inhibitors (SSRI), as the first line of treatment for moderate to severe depression (APA, 2005; NICE, 2007). There has been a level of controversy since the original publication of these guidelines, some specifically relating to the effectiveness of the CT provided (this will be discussed in more depth in Chapter 3) and

consequently a number researchers have attempted to replicate the TDCRP study in order to investigate the effectiveness of CT for the severely depressed.

One of these studies, a meta-analysis, did not find any correlation between depression severity and antidepressant effects (Kirsch, Scorbora, & Moore, 2002). However, a two-site placebo-controlled randomised trial of moderately to severe depressed outpatients found CT to be as efficacious as ADM, and both outperformed a placebo (DeRubeis et al., 2005). In contrast, Dimidjian and colleagues (2006) found different effects for those who were severely depressed. In their study, ADM and behavioural activation outperformed CT. However, when participant attrition rates in the ADM group were factored in to the analyses, outcomes with ADM were no better than with CT for severe depression. Stewart and Harkness (2012) reanalysed the TDCRP study using a more sophisticated methodology, hierarchical linear modelling, which enables data to be analysed temporally. In their study they found an identical change trajectory and outcome between the active medication and placebo groups. This outcome is similar to previous neuroimaging research which showed placebo and active medication have nearly identical patterns of brain metabolism (Benedetti, Mayberg, Wager, Stohler & Zubieta, 2005). Stewart and Harkness also found that the CT condition had comparable outcomes to the active ADM condition. However, it differed significantly in rate of remission of symptoms in the acute phase of treatment. That is, pharmacotherapy had a faster effect in the first eight weeks of treatment. They note that the data between the four TDCRP sites had been compromised due to the CT condition being unevenly implemented, and therefore, may have implications for their results. These results suggest that pharmacotherapy does not have an advantage, when compared to CT, in outcome for those experiencing depression. Overall, it would appear, there is no strong evidence that supports ADM being more effective than other treatments in treating moderate to severe MDD. These factors are relevant to this present study as 85% of participants reported moderate to severe depression at intake assessment.

Pharmacotherapy

Pharmacotherapy for depression currently represents the predominant form of treatment, and since the introduction of SSRI's, pharmacotherapy treatment for depression has risen from 5% to approximately 50% (Hirschfeld, 2001). However, taking medications to treat depression is not useful for everyone. That is, there is a sector of those who are experiencing MDD, who simply do not respond to medications and therefore their depressive symptoms are

not alleviated (Dimidjian et al., 2006). Additionally, some side effects of ADM often cause patients to prematurely terminate their use. A relevant issue in treating depression with ADM is that of *adherence* to the treatment regime. Comparing SSRIs and tricyclic antidepressants, Anderson and Tomenson (1995) found that 33% of patients discontinued their medications regardless of drug classification. Additionally, Pampallona and colleagues (2002) found similar rates in clinical practice settings. Factors associated with terminating the use of pharmacotherapy for depression are chronicity of symptoms, the time it takes for drug concentration levels to become active, drug side effects and safety; and the calibre of the patient-physician relationship (Demyttenaere, 1997). Finally, many who are offered pharmacotherapy for their depression refuse it for their own personal reasons and therefore, whether through non-response, side effects or personal objections, pharmacotherapy is not the optimal treatment modality for a sector of the depressed population.

Hollon and Shelton (2001) highlight that empirical research and evidence of the efficacy of pharmacotherapy (both short-term and maintenance use) for depression is more extensive than that for psychotherapy interventions, which may, in part, account for its popularity in the treatment of depression. However, prospective studies which have assessed outcome for those treated by general practitioners and psychiatrists have found that those prescribed ADM had worse outcomes than those who were not prescribed them (Brugha, Begginton, MacCarthy, Stuart, & Wykes, 1992; Ronalds, Creed, Stone, Webb, & Tomenson, 1997). In a review of the literature, Moncrieff and Kirsch (2005) could not find comparable research that indicated better outcomes in people prescribed ADM. Additionally, when medication is decreased to a maintenance dose, the rate of relapse is significant, with one study indicating 45%, 59%, and 70% at one, two and three years respectively (Glen, Johnson, & Shepherd, 1984), although this study did not include SSRI medications. More recent studies using the newer SSRI's indicate that, once discontinued, high rates of relapse and recurrence occur (Kim, Lee, Paik, & Kim, 2011). Furthermore, there is no current evidence that suggests, once discontinued, ADM has a preventative effect that reduces future risk of subsequent episodes of depression (Hollon & Shelton, 2001), an important factor when considering the high rates of relapse and recurrence of this disorder.

Two meta-analyses on the effectiveness of ADM in the treatment of depression found they have a clinically significant effect, superior to placebo, only in the most severe cases (Fournier et al., 2010; Kirsch et al., 2008). These authors contend that these findings, coupled with the

rising prevalence of depression necessitate a re-evaluation of treatment methods for this disorder. Furthermore, Turner and colleagues (2008) found selection bias in the publication of ADM trials that has resulted in an overestimation of their effects. Interestingly, the increase in the population using ADM is now having an environmental impact. A recent study indicates that measurable amounts of ADM are entering waterways, via effluent treatment, and have also been found in fish that are being consumed in the United States of America (Schultz et al., 2010). The cumulative long-term impact of these residuals on the population is yet to be established. Finally, some commentators argue that the long-term use of pharmacotherapy for depression hinders a client's ability to develop their own methods of coping as they can thus attribute their difficulties to a physiological *malfunction* and will assign any alleviation of their symptoms to the effect of the medication. They also contend that psychotherapy may have more benefits for clients in the long-term due to the learning experiences provided in the therapeutic arena, and therefore, are able to develop skills to prevent or shorten any future depressive episodes (Beck, Rush, Shaw, & Emery, 1979). Evidence that supports the effectiveness of psychotherapy for depression will be reviewed below.

Psychotherapy

Although various psychotherapies have been found to be effective treatments of depression; for example, Cognitive Analytic Therapy (CAT; Ryle, 1991), Interpersonal Therapy (IPT; Klerman, Weissman, Rounsaville, & Chevron, 1984), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and Cognitive Therapy (CT; Beck, 1976), the following discussion will specifically centre on CT as the focus of this current research.

Cognitive Therapy was developed to reshape cognitive systems in the treatment of depression. It has since been widely researched and is a popular form of therapy for this syndrome. An examination of recent meta-analyses indicates that CT is an effective therapy in the treatment of MDD (Butler, Chapman, Forman, & Beck, 2006), and this effect is present in both naturalistic studies and randomised controlled trails (Schindler, Hiller & Witthöft, 2011). Furthermore, evidence has accumulated indicating it is equally effective, if not more so, than pharmacotherapy and other psychotherapies for depression (Churchill et al., 2001; DeRubeis & Crits-Cristoph, 1998; Dobson, 1989; Gloaguen, Cottraux, Cucherat, & Blackburn, 1998); and has better outcomes; specifically it increases the probability of remission compared to 'no treatment' (Jakobsen, Hansen, Storebø, Simonsen & Gluud, 2011). However, two other meta-analyses found no differences in outcome between CT and other therapies (Cuijpers,

VanStraten, Warmerdam, & Smits, 2008; Wampold, Minami, Baskin, & Tierney, 2002). Nevertheless, a more recent systematic review of meta-analyses found CT was superior in outcome than other psychotherapies in this study (psychodynamic, interpersonal, supportive and “other”) (Tolin, 2010). This advantage was not time limited, with gains maintained or improved at both 6- and 12-month follow-up; and its differential therapeutic efficacy was more pronounced in treating depressive and anxiety disorders (Tolin.).

When considering the debate surrounding treating more severe forms of MDD, CT was found to have a small advantage in treating severe depression (Hollon et al., 1992). Another study compared major independent research studies, one of which was the TDCRP study, and found that CT was equally effective as ADM in the treatment of severe depression (DeRubeis, Gelfand, Tang, & Simons, 1999). Subsequent researchers also questioned the calibre of the CT provided in the TDCRP research and attempted to replicate the study with different therapists across two sites (DeRubeis et al., 2005). In this study, it was found that the site that had a lower level of therapist experience produced CT outcomes inferior to the ADM condition. However, the overall results indicated that CT was as effective as ADM when provided by more experienced therapists in the treatment of severe depression.

As a treatment for depression, research suggests CT is more advantageous than ADM as it has an enduring effect that reduces the probability of a relapse when compared to ADM treatment (Blackburn, Eunson, & Bishop, 1986; Evans et al., 1992; Kovacs, Rush, Beck, & Hollon, 1981; Lynch, Laws & McKenna, 2010; Simons, Murphy, Levine, & Wetzell, 1986; Vittengl, Clark, Dunn & Jarrett, 2007). Additionally, there is evidence that CT has a positive effect in reducing rates of recurrence that clearly surpass the prophylactic effects of ADM (Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998; Paykel et al., 1999; Vittengl et al., 2007). For example, one study found that relapse and recurrence rates could be decreased by up to 50% for those who have had CT for their depression (Hollon et al., 1992). These prophylactic effects are believed to result from CTs ability to disrupt and modify entrenched depressive cognitions; and its emphasis on assisting clients to master these self-therapy skills in their real world settings (Beshai, Dobson, Bockting & Quigley, 2011). In the public health care system finances are stretched in providing services to all those who require services. At first glance it may appear that ADM would stretch the healthcare dollar further, however, a closer inspection may find this not to be the reality. Although CT initially costs more than ADM, Hollon and DeRubeis (2004) found that by the eighth month the practice of maintaining

individuals on ADM brought the costs to over that of providing the standard 20-sessions of CT treatment. When the longer term preventative factors of CT are also considered, i.e., reducing the need for maintenance medication, or future treatment, CT ostensibly appears to be the less financially burdensome option for the healthcare dollar. Despite these differences in outcome when comparing CT to pharmacotherapy and other psychotherapies, what is clear is that CT is an effective treatment for MDD. Taken together, these studies suggest that CT has long-term protective factors, which have an abiding effect, minimising the risk of recurrence and relapse, with an added benefit of being the least financially straining treatment choice for MDD.

Summary

Major depressive disorder is a heterogeneous disorder that is often complicated by comorbidity. The WHO has predicted that by the year 2030 it will be the leading cause of disability in first world nations, and New Zealand is currently ranked second in terms of 12-month prevalence of emotional distress. Additionally, it is argued that epidemiological figures may have underestimated the prevalence of MDD. The impact upon, and costs to, the individual, their families and communities; and society generally, are significant. Multiple factors mediate outcome of MDD and include psychosocial, biological, and therapeutic influences. Research indicates that MDD can have a chronic course and is often associated with a high rate of relapse and recurrence despite therapeutic intervention. Pharmacotherapy is listed in organisational guidelines as an optimal treatment for MDD and overall research indicates it to be an effective treatment option. However, drug side effects or non-response indicate that there are individuals who are unable to use medications as a treatment option. Furthermore, some individuals overtly choose not to use pharmacotherapy as a treatment option. Additionally, once medication use is decreased, or discontinued, relapse rates are significant. Cumulatively, these factors suggest that pharmacotherapy may be an effective treatment option for some, but not all, of the depressed population and its efficacy may be limited to the active treatment phase. That is, it has little effect in preventing relapse once discontinued. Since its introduction as a therapy to treat depression, CT is one of the most widely researched and used psychotherapies. Studies suggest CT is at least as effective as ADM in treating depression and appears to have a protective influence in minimising relapse and recurrence. Additionally, over the long-term CT could be more cost effective than ADM.

Despite the effectiveness of ADM and CT in treating MDD, prevalence rates are rising and outcomes are still relatively poor, with figures approximating 50% being troubled with chronicity and recurrence. These figures emphasise the need for more effective approaches which excel current long-term outcomes. Two areas will be discussed in the following chapters that may have an impact on outcome in MDD when being treated by CT. First, a discussion on homework, or between session tasks; a major ingredient of CT, and how it relates to outcome in treating MDD is presented in Chapter 4. This will be followed by a critical review on the issue of comorbidity, or more specifically, schemas aligned with personality characteristics and their link with MDD, and, their possible impact on treatment outcome, is focused on in Chapter 5. A particular focus will be how personality schemas may impact upon homework completion and how this relates to outcome.

CHAPTER THREE

COGNITIVE THEORY, COGNITIVE THERAPY AND THE TREATMENT OF DEPRESSION

Introduction

It has recently been stated that Cognitive Therapy (CT) is the fastest growing and most researched psychotherapy (Prochaska & Norcross, 2003). As the context for this research, this chapter focuses on the various facets of this therapeutic modality. It begins with a capsule summary of the foundations of CT; how it developed and some of its historical and theoretical influences. This is followed by a brief outline of cognitive theory and how psychopathology is conceptualised. The principles of CT are then discussed, which includes a description of the personal theories of meaning making and the three levels of thoughts, which, according to cognitive theory, define the human cognitive system. A brief description of the strategies and techniques of CT is then given, which is followed by an overview of the cognitive theory of depression. Beck's theory of cognitive specificity is then described, focusing on the cognitive themes that are specific to the presentation of depression. Research indicates a large variability in outcome in CT for depression, therefore studies have increasingly focused on the active ingredients in CT, and a sample of these studies are subsequently discussed. This chapter ends with a commentary on the four categories into which this research falls: non-specific characteristics, technical aspects, client characteristics, and competence of therapists.

Foundations of Cognitive Therapy

Originally trained in psychoanalysis, Beck was attempting to validate and provide empirical support for Freud's psychoanalytic conceptualisation of depression, specifically that depression is a manifestation of retroflected hostility. In Beck's analysis of client's thoughts he observed their cognitive processing was negatively biased (Beck, 2008). Moreover, his patient's dreams embodied the same cognitive themes being expressed in therapy, namely, low self-esteem. These apparent inconsistencies with the psychoanalytic conceptualisation prompted further intensive study by Beck of the cognitions that are linked with depression. This resulted in his reformulation of depression as a condition characterised by a pronounced negative bias in cognition. As a consequence of these new insights Beck was inspired to develop an effective therapy, that he termed *Cognitive Therapy*. Not only was a new psychotherapy developed, Beck and his colleagues were the first to publish a detailed manual for the treatment of a psychiatric illness (Weishaar, 1993). As Beck continued to develop and refine his cognitive model of psychopathology and therapy, he drew on, and integrated, the writings and theories from multiple sources.

Although Aaron Beck is considered to be the father of CT, Blackburn (1986) argues that, rather than being a revolution of the theory of psychotherapy, the emergence of CT has, rather, been a progressive evolution encompassing the ideas and techniques from as early as the first and second centuries AD. For example, some of CTs theoretical ancestry can be traced back to the stoic Greek philosophers, Epictetus and Aurelius who both spoke of the influence of how events are interpreted, or judged, and the agency an individual perceives they have in changing the consequences of such events. Thus, an individual's view of events is central to behaviour (Blackburn & Davidson, 1995). Philosopher Immanuel Kant's work is also credited as being a forerunner to modern day CT with his emphasis on unconscious subjective experience. Kant differentiated between things-in-themselves (*noumena*) - the unknowable, and *phenomena*, experiences that are subject to interpretation. *Noumena* and *phenomena* are then filtered through an individual's prior knowledge in order to interpret and make meaning of events. Therefore, this epistemology argues that we are unable to know things as they are, we can only know our rendering of events and our construction of self (Kant, 1965). Not surprising given Beck's primary training, CT was also influenced by Freud's structural theory, which organises the hierarchy of cognition into primary and secondary systems. Basically, this theory proposes that all cognitive activity centres around the systematic interplay between the three structures that constitute the mind (or cognition): the id, the ego, and the superego (Schamess, 2008). Thus, it is a theory that defines the organisation of the mind, and the interaction between each of its constituents. However, CT can be differentiated from the psycho-analytic therapies by its focus on working with difficulties experienced in the here-and-now, rather than the past. Additionally, rather than focusing on unconscious cognitive activities, CT emphasises working with accessible cognitions (Beck, 2005). George Kelly (1955) has also influenced CTs theoretical underpinnings, specifically regarding his *personal construct theory* which highlights the significance of beliefs in changing behaviour. Beck's equivalent of personal constructs are the underlying assumptions in his cognitive model of the level of thoughts (Beck, Rush, Shaw, & Emery, 1979).

The terms Cognitive-Behaviour Therapy (CBT) and Cognitive Therapy (CT) are often used interchangeably to describe the same therapeutic modality. However, CBT and CT are not the same, and have differences in both their methods and tradition (Beck, 2005; Hollon & Beck, 2004). CT resulted from the pioneering work of Aaron Beck, whereas CBT emerged in the 1980's by introducing cognitive components into behaviour therapy and was founded on the behavioural / social learning model (Goldfried, 2003; Öst, 2007). Many consider CT as a

cognitive-behavioural intervention as it has incorporated both of these principles into therapy sessions (Kendall & Kriss, 1983). However, the rationale for the use of behavioural strategies is to produce cognitive change by eliciting evidence for alternative understandings, and therefore emphasis is placed on the cognitive aspects of psychopathology and its treatment. Failure to make the distinction between these two psychotherapies has been repeated in research and publications since CT was erroneously labelled as CBT in the TDCRP treatment of depression study, previously discussed in Chapter 2 (Elkin, Parloff, Hadley, & Autry, 1985).

The Theory of Cognitive Therapy

While analysing the content of dreams of depressed and non-depressed clients (Beck & Ward, 1961), and interviews with 50 depressed clients (Beck, 1963) Beck found evidence that appeared to contradict psychoanalytic theory and this evidence subsequently became the core feature of his cognitive theory of depression. His theory of depression argues that this syndrome is manifested in a general negative cognitive bias, evidenced by systematic distortions in the form and content of thinking, pessimism, and low self-concept. In his cognitive theory, Beck emphasises the importance of faulty cognitive processes in the development and maintenance of psychopathology, and also as the mechanism by which symptomatic improvement can be achieved (Beck, 2008).

Beck's theory of cognitive primacy, or biased processing, states that the way an event is interpreted determines an individual's emotions or feelings (Beck, 1997). Therefore, when interpretations of events or internal stimuli are based on biased or unrealistic cognitions they distort both how experiences are constructed and interpreted, and this negatively impacts upon feelings and behaviour. These biases are termed cognitive errors and include, amongst others, overgeneralisations, dichotomous thinking and personalisations. The interpretation of an event is dictated by the individual's cognitive processing mechanisms. There is a reciprocal relationship between affect and cognition that is systematically reinforcing, with each having the potential to amplify the other and thereby increase cognitive and emotional distress (Dobson & Dozois, 2001). Beck believed that each of the psychological disorders distort cognitive processing in unique and specific ways, and therefore can be differentiated by the cognitive specificity of these thoughts (Beck & Weishaar, 2005). Therefore, CT conceptualises an individual's difficulties in cognitive terms and according to this view, focuses on changing those thoughts that engender and maintain a disorder (Barton, 2000).

Cognitive Specificity

In his cognitive specificity hypothesis, Beck proposes that there is a clear and unique cognitive profile evident in each of the psychiatric disorders (Beck, 1976; 2005). For example, loss and devaluation are the proposed cognitive themes of depression, while in anxiety disorders, individuals have beliefs that centre around threat and vulnerability (Beck, 2005). According to this theory, if an individual has a vulnerability for developing depression, and experiences, or perceives a loss, he or she will begin to negatively appraise events. Experiences are perceived as either being due to a personal defect or deprivation (Beck, 1976). The individual beholds him or herself as deficient, inadequate, and unworthy, and that the future will bring no help for their suffering. As current difficulties are perceived to be the result of personal defects, the individual becomes increasingly self critical which activates negative beliefs from which the emotional, behavioural and physiological symptoms of depression emanate. A feedback model between affect, thoughts, behaviours and the physiological, is thus established with elements that are mutually reinforcing, and if left unchecked, take the individual on a continuous downward spiral.

The cognitive specificity hypothesis for depression has been confirmed in several studies where depression was differentiated from anxiety. Greenberg and Beck (1989), found that depressed individual's had higher scores in the loss-defeat subscales of the *Cognitive Checklist for Depression and Anxiety* than a comparison group experiencing anxiety. In addition, studies have found that depressed individuals had higher scores on Beck's Hopelessness Scale than those with anxiety (Clark & Beck, 1989; 1999). Moreover, a qualitative investigation of the thought content of depressed and anxious participants found that depressives had a higher expectancy of a negative outcome and a lower expectancy of a positive outcome regarding future life events than did those with anxiety (Ghahramanlou-Holloway, Wenzel, Lou, & Beck, 2007). Finally, Westra and Kuiper (1997) found that the four groups in their study could be differentiated by the content specific self-descriptors used by the participants. Adjectives used in the depressed group pertained to hopelessness, loss, and failure; whereas, anxious participant's self-descriptors centred around social threat. In contrast, bulimics' self-descriptors were uniquely associated to food and weight concerns, and the *Type A* personality descriptors related to issues of achievement.

Since his seminal work on depression, Beck has used his cognitive theory to try to understand other disorders (Beck, 2005). He has used clinical data for different disorders in order to

pinpoint the predominant cognitive features that characterise each disorder, developed instruments to test his clinical observations, formulated cognitive conceptualisation systems and, finally, devised therapy guidelines for different disorders. Beck has recently extended his work to the personality disorders (PDs) and believes each of the PDs can be discriminated by their particular set of dysfunctional core beliefs (Beck et al., 2001; Butler, Brown, Beck, & Grisham, 2002). This will be discussed more fully in a following chapter, which focuses on the role of schemas in personality psychopathology.

The Cognitive Theory of Depression

As previously discussed, Beck developed his cognitive conceptualisation of depression based on his clinical observations of individuals experiencing this syndrome. He asserts that three specific components explain the development and presence of depression: (1) The negative cognitive triad, (2) core beliefs, or schemas, and (3) faulty information processing, or cognitive errors (Beck et al., 1979; Beck, 2008).

The negative cognitive triad is comprised of depressotypic cognitive patterns that dispose an individual to consider self, future, and world (or experiences) in a negative way. Self is regarded as inadequate, defective, alone and worthless. The future is seen to hold continual difficulties and is viewed with pessimism. The world is lacking in pleasure, and will not bring any form of gratification to the individual (Beck & Weishaar, 2005). The other symptoms of depression are therefore derivatives of these negative cognitive systems.

Underlying the cognitive triad are schemas, these are those stable cognitive systems on which interpretations of situations are made. Cognitive theory proposes that a predisposition to depression is established in those early learning experiences during childhood and adolescence where negative and rigid beliefs of self, future, and world are established. These negative impressions, or schema, remain latent until primed by particular situations which parallel those experiences where the negative schemas evolved (Beck et al., 1979). Once re-activated, the unique cognitive matrix of negative schemas interact with the corresponding systems of negative information processing which augments depression (Scher, Segal, & Ingram, 2004). Schemas screen, differentiate, and encode the stimuli an individual encounters; and experiences are systematically classified and appraised through this unique system of core beliefs (Beck et al.). It is hypothesised that the role schemas play in depression is through their tendency toward consistency, which leads to the biased selection of incoming

data and faulty interpretations of information in accord with these pre-existing beliefs. The cognitive theory of depression asserts that in mild depression the individual maintains their ability to view negative thoughts with some objectivity, but when depressive symptoms increase, thinking is increasingly governed by negative ideas. According to the cognitive model of depression, individuals have a set of core beliefs regarding the self, others, and the world. These core beliefs manifest in the form of conditional, or underlying, assumptions (“if – then” statements or rules about how things “should” be) (Beck et al.). When a critical incident, or stressor, occurs, an inability to maintain the ideals / principles of the conditional assumptions mobilises latent core beliefs which then activate negative automatic thoughts (NATs). As previously discussed a NAT is the negative self talk linked with affective distress, maladaptive behaviours and physiological reactions that are instrumental in psychological symptomatology. Therefore, there is an interaction between a person’s early experiences, coupled with core beliefs, or schemas, and the critical incident, which creates an elaborate maintenance system of NATs, mood and behaviours, and these have a bidirectional relationship with the environment (Khan-Bourne & Brown, 2008).

Faulty information processing pertains to those errors in thinking which maintain an individual’s beliefs regarding the validity of their negative thoughts; the depressed person will hold to their negative beliefs regardless of whether there is evidence to the contrary. Beck and colleagues (1979) list various forms of erroneous information processing, which include, among others, *selective abstraction* (drawing a conclusion based on one of several elements), *overgeneralisations* (making global inferences from a single instance), *dichotomous thinking* (black and white thinking with no shades of grey), and *arbitrary inference* (making a judgment based on insufficient evidence). When events or stressors activate negative schema, they impact upon information processing systems, mobilising the individual’s dysfunctional beliefs and assumptions, and thereby distort cognitive representations of self, world, and future. Overall, those experiencing depression tend to frame their experiences using generalised assessments that are extreme, negative, unconditional, unqualified, and judgemental (Beck et al.). The major assumption in the cognitive theory of depression is that by modifying depressogenic thinking patterns, there will be an improvement in the symptoms of this syndrome whether they be cognitive, behavioural, affective, or physiological.

Since its development in 1967, a significant body of research has found support for the cognitive theory of depression (Beck, 2005). For example, a major review of 220 studies of the

cognitive model was conducted in 1985 (Hollon, Kendall & Lumry, 1986). This review investigated the empirical evidence for the three elements of the cognitive theory of depression just discussed. This review of the research found 91% support for the cognitive model of depression.

Principles of Cognitive Therapy

As already discussed, cognitive theory regards the cognitive system as the key factor in psychological disorders. Cognitions (thoughts or images) can be regarded as those functions which involve perceptions, interpretations about experiences, and beliefs about the materialisation and level of control of future events (Alford & Beck, 1997), and includes the process of identifying and predicting the connections among events, that is, the meanings assigned to events (Beck & Weishaar, 2005). These meanings have been termed *personal theories* as they are the mechanisms by which an individual constructs their reality (Alford & Beck, 1997). There is an interplay between the cognitive system and the affective, physiological, and motivational systems in the processing of information flowing from the social and physical environment. Maladaptive responses occur when a situation is misinterpreted (Beck & Weishaar, 2005). Therefore, according to this theory, the amelioration of emotional disturbance is attained through eliciting and modifying the specific cognitions that induce negative reactions.

Beck (1976), states that the central premise of the cognitive model of emotional disorders is that the meaning an individual attributes to an event, rather than the event itself, is what determines the emotional response. Interpretation of the meanings of events emanate from the interplay of core beliefs, assumptions, and automatic thoughts that developed through an individual's learning history and experiences with others (Beck & Tompkins, 2007).

Cognitive theory argues that three distinct, but interrelated layers, or levels, of thoughts define the human cognitive system. On the deepest level are the schemas, or core beliefs. Schemas guide information processing, interpretation of events or situations, and behaviour. They are typically developed and associated with negative events that occur during childhood and adolescence (Kellogg & Young, 2008). They provide the framework for understanding life and the world in general. They are the source of information and interpretation of all life events. Because these cognitive structures are so important to the organisation of the individual's world, in times of mental stress any distortions in these structures are magnified,

in both content and structure (Kellogg & Young). These distortions act to protect the schemas which therefore remain unchallenged as being biased or maladaptive (Kellogg & Young.). Schemas, or core beliefs, are stable cognitive structures in which beliefs about self, world, and others are manifest. These core structures embody elaborate systems of thought processes which influence how events and experiences are perceived and understood. They transform incoming data to fit and align with their preconceived beliefs and therefore reinforce these schema (Blackburn & Twaddle, 1996). Dysfunctional beliefs, and the more enduring schemas, underlie and primarily fuel cognitive errors. When schemas are activated they distort information processing and generate the cognitive context aligned with the disorder the individual is experiencing (Beck, 2005).

The middle level of thoughts that further organise an individual's understanding of events, are the underlying assumptions (UA) (Beck, 1995). These attitudes, rules and assumptions reflect the core beliefs held by an individual, and influence thoughts, beliefs and behaviours. They are closer to conscious awareness than the core beliefs, however they are so fundamental to how the world is perceived, and the way that information is processed, that people are, in general, unaware of them.

The outer level thoughts, termed automatic thoughts (AT), are those thoughts which occur automatically and are not generated through the process of logical thinking (Blackburn & Twaddle, 1996). ATs are the internal cognitive system that relates to an individual's evaluation of self, perceptions of how others evaluate self, and predictions about self. These thoughts occur automatically without any prior reflection (Beck, 1997). When an event occurs that threatens a negative core belief, negative automatic thoughts are activated. These are the superficial representations of the core beliefs and are the words or images that are spontaneous reactions to activating events, that go on to produce behavioural and affective responses (Beck, 1995).

Strategies and Techniques of Cognitive Therapy

Cognitive Therapy has been described as an active, directive, time-limited, structured, and problem oriented psychotherapy, which focuses on present-day difficulties and does not emphasise the need to return to childhood events (Beck et al., 1979). The techniques of CT are primarily aimed at altering cognitive errors and distortions in information processing; and modifying the schemas, or core beliefs, which stimulate perceptual errors (Beck & Weishaar,

2005). CT uses a multiplicity of interventions, which include the development and practicing of new behaviours, evaluating erroneous thinking, and developing new adaptive and rational self talk skills (Khan-Bourne & Brown, 2008). In his model, Beck promotes the idea of the client being their own personal scientist where evidence to support or refute maladaptive cognitions is gathered via experiments, and then evaluated to determine whether the belief is valid and useful (Kellogg & Young, 2008).

The techniques used in CT aim to identify, test, and adjust, distorted or biased beliefs, which underlie psychological distress (Beck et al., 1979). CT emphasises empirical hypothesis testing of the automatic thoughts, assumptions and conclusions of the client by formulating the biased, dysfunctional beliefs about self, world, and future into hypotheses, the validity of which is systematically tested, and thinking is realigned with reality (Beck et al.). Thus, by becoming aware of these dysfunctional beliefs, adopting alternative ways of thinking, and correcting faulty thinking processes, the affective state and behavioural patterns are also changed, leading to clinical improvement of psychological distress. Because the information processing systems develop in the early years of life, making faulty interpretations of events is generally deeply ingrained. Therefore, the role of the cognitive therapist is first to help the client develop an awareness of their unique thinking style by using techniques that help to identify, test, and adjust, the distorted or biased beliefs that underlie their psychological distress (Beck et al.). Therefore, the goal of CT is to replace distorted cognitions with more adaptive and realistic ways of thinking. It uses a psycho-educational approach where learning experiences are devised in which the individual can: (1) learn to identify automatic thoughts, (2) understand their idiosyncratic relationships between cognition, mood, and behaviour, (3) test the legitimacy of their ATs, (4) replace distorted thoughts with more realistic alternatives, and (5) identify and modify maladaptive underlying assumptions, core beliefs or schema, which predispose clients to practice faulty thinking (Dobson & Dozois, 2001). Essentially, CT teaches clients how to problem solve based upon their own learning experiences while in therapy. The advantages of using such a problem solving approach is that much of the responsibility for change is removed from the therapist as it encourages clients to more fully engage and be active in the process of working through their problems and, consequently, they learn the techniques to help resolve current, and any future, difficulties (Beck, 1976). In this way, CT promotes the idea of the client being their own therapist and personal scientist.

Active Ingredients of Cognitive Therapy

As discussed in the previous chapter there is robust evidence that indicates CT is an effective treatment of depression. What is not clear is why the extent of improvement has a considerable variability between clients (Dobson, 1989; Roth & Fonagy, 1996; Scott, 1996). For instance, Barton (2000), states that figures from clinical settings indicate that only approximately 50% of client's will complete a full course of CT, have improvements in their symptoms, and then maintain these improvements over the ensuing two years. As a result of these differences in outcome, studies continue to focus on identifying those variables that moderate the effectiveness, and predict outcome, in CT (Whisman, 1993).

Greenberg and Pinsof (1985) argue that therapeutic treatments need to identify the principle active components that effect change. By specifying such factors, scientific research is made more robust in its ability to replicate those necessary conditions in further studies (Whisman, 1993). Additionally, by identifying the active elements, theories can be further developed when it becomes clear how, and under what conditions positive therapeutic outcomes are obtained (Whisman.). Through these research endeavours, treatment effectiveness can be maximised by adapting therapeutic techniques, improving therapist training, and instituting new interventions. Moreover, the identification of the critical ingredients in a particular psychotherapy increases understanding of the common causal mechanisms of outcome variables (e.g., depression). In investigations seeking to identify the active ingredients of therapeutic treatment, researchers have attempted to isolate the mediators and moderators of change in CT for depression. A mediator is the specific mechanism through which the independent variable was able to impact upon the dependent variable being investigated (Baron & Kenny, 1986). Moderators of change are those variables that predict treatment outcome, and influence the magnitude and/or direction of the relationship between the independent variable and dependent variable (Baron & Kenny.).

Beck and his associates state that the active ingredients that create change in CT are those interventions that specifically target maladaptive cognitive structures, or schema, this being the *cognitive mediation* hypothesis (Beck et al., 1979). However, some believe that due to the multifaceted nature of CT any number of its various techniques and ingredients could account for its efficacy (Jacobson et al., 1996). Others state that a critical ingredient of CT for depression is its emphasis on encouraging the client to become active in the early stages of treatment and this results in immediate positive reinforcement from their environment. This

activation hypothesis (Jacobson et al.) appears to have some empirical support as it has been found that most change during CT occurs during the first four weeks (Illardi & Craighead, 1995; Rush, Beck, Kovacs & Hollon, 1977) when therapy predominantly focuses on activating the client. In a slightly different vein, Illardi and Craighead (1994), argue that cognitive change may not be the active ingredient in CT as the use of specific cognitive methods and techniques designed to promote less depressogenic thinking are typically not introduced until after several sessions in therapy. They concluded that the change that occurs within the first four weeks could not be due to modifying cognitive processes. However, Beck introduced behavioural techniques into CT as he believed their primary power to effect change stems from the cognitive learning the experiences provide (Bedrosian & Beck, 1980). Additionally, CT is typically provided twice weekly in the first four weeks (Beck et al., 1979; J.S. Beck, 1995), and therefore specific cognitive change techniques, such as the Five Part Model, and Thought Records have been introduced by the second to third weeks, or from sessions four to five. Additionally, cognitive techniques such as the Five Part Model (a model that investigates thoughts, feelings, physical reactions and behaviours in the context of a situation) are typically utilised in discussing homework assignments from the second session, which suggests that Illardi and Craighead's argument may not be as compelling as it first seems.

Another hypothesis regarding the active ingredients of CT posits that clients learn new coping skills in dealing with depressogenic thinking and depression eliciting events. This *coping skills* theory (Jacobson et al., 1996) does not adhere to the belief that cognitive structures are altered, rather it assumes that it is the new strategies for coping with stress and NATs that is the active ingredient. In the Jacobson et al study (1996) a component analysis of CT was conducted by randomly assigning 150 outpatients with major depression to three treatment groups: (1) behavioural activation (BA) ingredients of CT, (2) BA and the teaching of skills to modify automatic thoughts (AT) while eliminating those facets of CT which target core schema, and, (3) the full CT treatment. Behavioural activation strategies in the CT treatment of depression include the use of goal setting, self-monitoring, activity scheduling, problem solving and graded task assignments. Results indicated that the complete CT condition did not produce better outcomes at termination or six-month follow-up than either of the component conditions. Furthermore, both the BA and AT conditions were equally effective as CT in modifying negative thinking. The authors believe these findings challenge the cognitive theory of depression as posited by Beck and associates, and raise questions regarding the added benefit of the cognitive components of CT. However, it is difficult to conceive that those in the BA group who focused on goal setting, self-monitoring, problem solving, and the other

strategies employed, would do so without eliciting and changing those thoughts, attitudes, and beliefs that would impede engagement with such activities. Likewise, the strategies employed in the AT group specifically focused on modifying maladaptive beliefs, which provides support for the *cognitive mediation* hypothesis, rather than contradicts it.

In contrast to the findings of the study by Jacobson and colleagues, research on sudden gains in CT suggest that cognitive change does play a role in its effectiveness. A sudden gain is when there has been a decrease of at least seven Beck Depression Inventory (BDI) points from one session (pregain session) to the next (Tang, Luborsky & Andrusyna, 2002). Two empirical studies have established that cognitive changes are associated with sudden gains and outcome in CT for depression (Tang & DeRubeis, 1999; Tang, DeRubeis, Beberman, & Pham, 2005). In one study, Tang and DeRubeis (1999) found the average magnitude of a sudden gain was 11 BDI points. Results indicated that there was a substantial cognitive change in the pre-gain session. Their definition of cognitive change included modifications to beliefs or schemas related to depression, and the learning of new cognitive skills and techniques (Tang & DeRubeis.). Similarly, a later study by Tang and associates found that the sudden gain was preceded by cognitive change in the pre-gain session (Tang et al., 2005). These studies indicate that cognitive change precedes the rapid symptomatic improvements in depression as evidenced by a sudden gain. The findings from these studies are consistent with Beck and colleagues (1979) cognitive theory of depression, indicating the cognitive techniques of CT are active ingredients. More recently a meta-analysis of sudden gains in psychotherapy found those who experienced sudden gains had greater symptom reduction from pre- to post-treatment, symptom reduction at the time of the sudden gain was stable across treatment duration, and the effect size of sudden gains was larger in CT than other therapies (Hedges's $g= 0.74$ vs 0.23) (Aderka, Nickerson, Bøe, & Hofmann, 2012). This meta-analysis also found that sudden gains in primary symptoms (e.g., depression) did not result in reductions of secondary symptoms (e.g., personality pathology). The authors suggest that sudden gains may only occur in those symptoms the therapeutic intervention directly targets. Finally, results of a study using the same sample as this current research found 42.9% of participants experienced a sudden gain in the early phase of CT for depression (Foster, 2011).

The moderators of change that have been examined in CT include the nonspecific, the technical aspects of therapy, client characteristics, and therapist competence (Whisman, 1993) these are discussed below.

Non-Specific Characteristics

Although the theoretical concepts on which the various forms of psychotherapy are based differ, agreement is occurring across therapeutic approaches regarding the non-specific process factors that are significant in favourable outcomes in psychotherapy (Pos, Greenberg, Goldman, & Korman, 2003). For example, some of the process variables posited to be important elements instrumental in achieving positive outcome include the therapeutic alliance, client's depth of experiencing, and their capacity to take part in therapy (Pos et al., 2003).

It has been proposed that the therapeutic alliance has an important role as a mechanism of change in CT (Burns & Nolen-Hoeksema, 1992). Results from one study suggested that a strong therapeutic alliance and the consistent application of CT techniques may be active ingredients in the early stages of therapy for positive change to occur (Tang & DeRubeis, 1999).

The Rogerian therapist variables empathy, non-possessive warmth, positive regard, and genuineness, have also been found to have a stable association on outcome results in CT (Keijsers, Schaap, & Hoogduin, 2000). It has also been suggested that these variables may actually overlap with the therapeutic alliance (Keijsers et al.).

Technical Aspects

Investigators have discussed the possible moderating role of the technical aspects of CT. Specifically, adherence, or the extent to which therapists apply the techniques that are particular to CT (Dobson & Shaw, 1988; Shaw & Dobson, 1988).

CT acknowledges that a 50-minute session is limited in the changes it can accomplish in a person's depressive symptoms and emphasises the client should learn to be their own therapist and not be a passive recipient of therapy. CT, therefore, does not simply focus on what occurs in-session, but places attention and importance to the client's functioning outside of the therapeutic context. Between session tasks, or homework, are an integral technical facet of CT, and these tasks aim to extend therapy beyond the 50-minute session and provide opportunities to generalise what occurs in-session to the individual's natural environment (Beck & Tompkins, 2007). Homework often focuses on testing the accuracy of beliefs in various ways and in different environments with the aim that maladaptive beliefs will thus be changed, and therefore reduce the likelihood of future distress in previously problematic

situations. Studies have shown that the completion of homework assignments is an active ingredient of CT, and is a moderator that produces better outcomes (see review by Kazantzis, Deane, & Ronan, 2000). The role of homework assignments in CT will be discussed in more detail in Chapter 4.

Client Characteristics

After excluding those experiencing psychotic symptoms, there is limited evidence that specific types of clients have better or worse outcomes in CT when compared to other types of psychotherapies. In other words, research has yet to identify client characteristics that are useful in selecting one treatment over another (Hollon & Beck, 2004).

Some data suggests that clients' readiness to talk about their difficulties and to disclose personal information is significant in treatment outcome. Additionally, the client's self perceived readiness to change, prior to being exposed to the techniques of CT has importance to outcome (Keijsers et al., 2000). Furthermore, some have hypothesised that psychotherapies have more effectiveness when applied to clients who are functioning well in the realm in which the therapy effects its clinical assistance, for example the ability to access cognitions is required for successful CT (Sotsky et al., 1991). One study tested this hypothesis and found no relationship between participants' initial cognitive dysfunction and outcome in CT (Hardy et al., 2001).

Studies have also focused on the socio-demographic characteristics – age, gender, ethnicity, intelligence, education, and income - of depressed participants receiving CT. Dobson (1989), found no effect in outcome due to age of participants. Other studies have examined the effect of age, gender, education, and marital status and found marital status was the only client characteristic associated with outcome. That is, single, separated, divorced or widowed participants did not respond as well as those who were married (Jarrett, Eaves, Gannemann & Rush, 1991; Sotsky et al., 1991; Van, Schoevers, Dekker, 2008). Finally, the client characteristics of ethnicity, intelligence, and level of income, have not been found to predict outcome in CT (Persons, Burns, & Perloff, 1988; Scott, 2001).

Competence of Therapist's

Kazantzis (2003) reviewed the literature on therapist competence and proposes that it collectively shows that a competent therapist exhibits four abilities. First, they align with a theoretical framework that directs therapeutic work. Second, competent therapists are skilled

in developing a therapeutic alliance and engaging the client in therapy. Third, they display skill in designing treatment that will meet the goals of the client according to the therapeutic model's treatment manual. Finally, competent therapists recognise when, and when not, to use therapeutic interventions.

Some studies have found a link between therapist competence and outcome in CT for depression. For example, Burns & Nolen-Hoeksema (1992) found that clients treated by novice therapists did not show as much improvement in their symptomatology as those with experienced therapists. Additionally, as mentioned earlier some argued that CT was not competently delivered by the therapists across the three treatment sites in the TDCRP study (DeRubeis et al., 2005; Hollon & Beck, 2004; Jacobson & Hollon, 1996), which resulted in its inferior outcome to ADM and IPT. In an attempt to replicate the conditions of the TDCRP study, DeRubeis and colleagues (2005) found differences in outcome between their two treatment sites. They believed that these differences could be attributed to therapist skill levels. The site with the more experienced therapists produced outcomes equivalent to ADM. However, in the site with the less experienced therapists, outcomes were inferior to ADM. More recently, competency of trainee cognitive therapists was assessed in an outpatient setting (Forand, Evans, Haglin & Fishman, 2011), and these results were compared to published randomised controlled trials (RCTs). Specifically, the trainees comprised psychology students either completing their clinical internship or were postdoctoral therapists, who delivered non-manualised CT to clients with depression or anxiety disorders. In those treated for depression 68.8% improved and 42.9% met criteria for recovery, with effect sizes comparable to published RCTs using more experienced cognitive therapists; they therefore concluded CT can reliably be delivered by trainee therapists. However, they also found that trainee therapists were less effective with those presenting with depressive symptoms in the severe range. Moreover, some evidence suggests that therapist experience and competence is more evident in treating those with complexities in their depression (e.g., high levels of anxiety, chronic depression [dysthymia], and earlier age of onset). Notably, one study found no evidence that experience or competence had a negative effect in those who presented with comorbid personality disorders (Strunk, Brotman, DeRubeis, & Hollon, 2010).

Finally, there is some evidence to suggest that the client's perception of the therapist being skilful and self-confident has an effect on CT outcome (Keijsers et al., 2000). Combined, these

studies suggest that therapist competence has a moderating effect in CT outcome for depression, especially for those with more severe and complex presentations.

Summary

This chapter discussed various facets of CT, from its theoretical development through to its active ingredients. According to cognitive theory, faulty cognitive processes are, in essence, primarily indicated in the establishment and perpetuation of psychopathology; and according to this view, psychotherapy must focus on correcting these faulty cognitions. Beck believes that psychological distress is not so much created by events, but rather, by the meaning an event is given by the individual. This meaning making occurs through an interplay of schemas, underlying assumptions, and negative automatic thoughts, which developed in a person's early learning history. Schemas underlie, activate, and bias cognitive processing which give rise to NATs. The rules, attitudes, and assumptions found in the intermediate beliefs are the information processing errors that link the schemas and NATs. Cognitive Therapy uses various techniques that are aimed at correcting cognitive errors, faulty information processing and modifying maladaptive schemas. It is a psychotherapy that promotes hypothesis testing of cognitive errors and encourages the client to become their own therapist.

According to cognitive theory the combination of the negative cognitive triad, maladaptive schemas, and faulty information processing give rise to depressive symptomatology. Moreover, Beck argues that depression can be differentiated from other psychopathology by its cognitive theme of loss, which leads to the negative evaluation of events, as is commonly found in those experiencing this syndrome. Beck's theory of the cognitive specificity of psychopathology has been extended to other disorders, and more recently he has developed schema profiles for the personality disorders, which is discussed in detail in Chapter 5. Despite research showing CT to be an efficacious therapy, current effectiveness research indicates only 50% of client's will show improvements, and maintain these for two years post-therapy. Therefore, researchers have tried to identify those factors of CT that moderate its effectiveness and predict outcome. The literature indicates there is support for Beck's cognitive mediation hypothesis, and that those interventions that specifically target cognitive change are the active ingredients of CT. It is also signalled in the literature that the therapeutic alliance and the *Rogerian* therapist variables have a moderating role on outcome in CT. Research focusing on the technical aspects of CT suggests that adherence to the techniques of CT, and being able to competently apply those techniques, impact on CT

outcome. With the exception of marital status, research has not found support for any specific client characteristics that impact on outcome in CT for depression. Moreover, there is some support that more experienced cognitive therapists have better outcomes than novice therapists, especially in the more severe presentations of depression. Finally, CT outcome studies have shown overwhelming support for the moderating role of homework, or between-session tasks. This is the focus of the following chapter, which not only provides a discussion of the literature as it relates to outcome in CT, but also includes a critical commentary of the limitations in previous research.

CHAPTER FOUR **HOMEWORK**

Introduction

The following chapter briefly defines homework (HW) and provides a summary of the terminology used in the existing literature. This is followed by a summary of the theory related to using HW assignments, including its purpose and importance in treatment. An overview of empirical support for using HW in CT is then provided, which leads to a discussion on how HW has been assessed, and includes recommendations for future research. The chapter ends with a discussion of those factors, specifically task, therapist and client variables, which have been linked to HW completion.

Definition of Homework

Psychotherapy is frequently supplemented with the assigning of homework (Kazantzis & Ronan, 2006). These extra-treatment assignments consist of planned, therapeutically strategic activities that align with a client's treatment goals in order to effect, or reinforce, therapeutic change. Homework is considered a key component of CT (Beck, 1976; Beck et al., 1979), is listed as one of its eight guiding principles (Blackburn & Twaddle, 1996), and is considered an effective mechanism by which skills and knowledge developed in-session, can be practiced in, and generalised to, the client's natural environment (Beck et al.). Additionally, by attempting a homework assignment in a difficult situation the client is exposed to learning at an experiential level, incorporating both cognitive and emotional learning, which increases the likelihood that the problematic behaviours will diminish (Garland & Scott, 2002). Furthermore, homework provides opportunities for the client to develop new skills in real-life situations and enables the individual to practice the techniques of CT prior to therapy ending, which is important to being able to successfully manage any future difficulties (Coon & Thompson, 2003; Garland & Scott.). Homework covers a broad range of activities from gathering information, observing, bibliotherapy, monitoring thoughts, scheduling activities, testing beliefs and developing new skills (Kazantzis, Lampropoulos, & Deane, 2005). In the context of this present research, homework is defined as any between session activity collaboratively designed by therapist and client to contribute to the goals of therapy, with the aim that it will, in some way, be therapeutically beneficial (Alford & Beck, 1997; Beck et al.).

Homework Terminology

A review of the homework literature highlights there is no single term that describes this therapeutic tool. Terms that have been used to describe homework activities include *between-session tasks* (Neimeyer & Feixas, 1990), *between session practice* (Barlow, O'Brien, & Last, 1984), *extra-therapy assignments* (Kornblith, Rehm, O'Hara, & Lamparski, 1983), *in vivo behavioural practice assignments* (Ingram & Salzberg, 1990), *home based practice* (Schmidt & Woolaway-Bickel, 2000), *show that I can tasks* (Hudson & Kendall, 2002), *self help assignments* (Burns, 1989), *home practice activities* (Blanchard et al., 1991), *behavioural assignments or between-session tasks* (Fehm & Mrose, 2008), *between session self help* (Freeman & Rosenfield, 2002), and *extra-treatment practice assignments* (Kazdin & Mascitelli, 1982). For the purposes of this research, the term *homework* will be used as this represents the more frequently employed expression in the empirical literature to delineate between session activities.

Theoretical Basis, Purpose, and, Importance of Homework

Supplementing therapeutic sessions with between-session tasks, or homework (HW) has been identified as one of the most common clinical strategies used across therapeutic modalities (Kazdin & Mascitelli, 1982). Homework assignments are recommended as a standard practice in CT for depression as they are viewed as an essential activating facet of treatment (Beck et al., 1979; Rush, 1983). Underscoring this point, Beck and colleagues state that HW is “an integral, vital component of treatment”, and is not “just an elective, adjunct procedure” (1979, p. 272). The theory of change in CT emphasises that the key targets are the negative thought processes, behaviours and affect regulation that underlie depressive episodes (Beck et al.), and must be consistent with the conceptualisation of the client’s presenting difficulties (Kazantzis, Deane & Ronan, 2004). Accordingly, both in-session interventions and between-session HW tasks focus on reducing negative thinking and therefore alleviate the symptoms of depression. Tasks commonly assigned as HW include exposure exercises, mastering relaxation techniques, behavioural experiments, cognitive restructuring and monitoring target behaviours (Woods, Chambless, & Steketee, 2002). Some have speculated that without the use of HW in the treatment of depression, clients would gain little more than what could be expected from the nonspecific factors that all therapeutic relationships are founded on (Thase & Callan, 2006).

The purpose of HW assignments is to target therapy goals by identifying those activities that will facilitate the gathering of information and generalise new learning from therapy sessions into the client's natural environment where the problems occur (Beck et al., 1979). These therapeutic tasks are designed to target problematic emotions, behaviours, cognitions, relationships and any other stressors in real-life situations, thereby providing the client with experiential learning and a vehicle for developing new behaviours. Clients are therefore able to gain confidence in their skill development (Beck & Tompkins, 2007). Homework activities also provide opportunities to extend the therapeutic hour throughout the clients week, and therefore provide opportunities to reinforce in-session learning by applying new skills in their real life, and thereby, improve functioning (Kazantzis & Lampropoulos, 2002). Assigning HW tasks also provides the therapist with opportunities to evaluate motivation for therapy. Compliance or noncompliance to tasks can indicate a client's willingness to invest their personal time and resources in attaining their therapeutic goals (Freeman & Rosenfield, 2002; Newman & Fingerhut, 2005). Finally, homework assignments provide a link between sessions, ensuring continuity in therapy rather than a series of discrete therapeutic experiences (Freeman & Rosenfield.).

A principle that guides the nature of the therapeutic alliance in CT is the expectation the client will be active and involved in their therapy. HW is the mechanism by which client's can be actively working between sessions towards their treatment goals (Rees, McEvoy & Nathan, 2005). It is here that client's master new techniques and strategies, generalising their newly learnt skill sets into their real worlds, increasing their sense of self-efficacy and decreasing their reliance on their therapist (Addis & Jacobson, 2000); and by doing so, decrease their vulnerability to relapse (Detweiler & Whisman, 1999).

Empirical Support for Homework in Psychotherapy Outcome

In a review of the homework literature Thase and Callan (2006) set out to identify the causal pathway of how change is attained. They felt that the literature to date more strongly indicated that people improved because they completed homework tasks, rather than the opposing hypothesis, that people who are more likely to have an improvement in their depressive symptoms would have a higher probability of completing their HW assignments. The literature clearly shows support for their hypothesis, specifically, HW compliance facilitates the amelioration of symptomatology and compliance predicts positive treatment outcomes for depression in CT (Bryant, Simons & Thase, 1999; Burns and Spangler, 2000;

Startup & Edmonds, 1994). Moreover, it is believed that the self-therapy skills acquired through HW tasks may explain the lower rates of relapse found in CT when compared to medication in the treatment of depression (Hollon et al., 2005).

Correlational research findings indicate a link between HW compliance and positive treatment outcomes for depression. For example, in a retrospective correlational study, Persons, Burns and Perloff (1988) found that reduction in depressive symptomatology was directly linked to those who consistently completed their HW assignments, and this improvement was three times greater than those who did not engage in HW activities. Specifically, mean *Beck Depression Inventory* reduction was 16.6 points for those who completed HW assignments. They also found that this effect was greater for those who initially had high levels of depression (as measured by the *Beck Depression Inventory*; BDI >20). Underscoring this point, this outcome has been replicated by other investigators (e.g., Burns and Nolen-Hoeksema, 1992). Additionally, by using structural equation modelling (SEM) Burns and Spangler (2000) established that a potential causal relationship on depression outcome resulted from HW compliance, and is therefore sequential, rather than depression improvement leading to increased HW completion. Moreover, outcome findings indicate that there is a correlation between early treatment termination and HW noncompliance (Burns & Nolen-Hoeksema.).

Although studies that have utilised a correlational design have consistently indicated that compliance with HW is predictive of outcome in CT for depression, experimental research has produced conflicting outcomes. For example, some studies have found that HW actively enhances improvement in symptomatology (Harmon, Nelson & Hayes, 1980; Kazdin & Mascitelli, 1982; Marks et al., 1988). And yet, other studies found no HW effect on outcome of any significance (Blanchard et al., 1991; Neimeyer & Feixas, 1990). Some have argued that the designs of these latter studies did not have adequate sensitivity and would therefore find no effect (Kazantzis & Lampropoulos, 2002). A meta-analysis (which bypasses the issue of design sensitivity by drawing on multiple studies) using 27 experimental and correlational studies, found that HW compliance produced more positive treatment outcome than psychotherapy without HW assignments (Kazantzis et al., 2000). The effect size for those studies focusing on depression outcome was $r = .22$ (a low effect). Additionally, this meta-analysis found, in correlational research, that the relationship between HW compliance and therapy outcome was not significantly affected by source of rating (client, therapist, or

independent observer), or when the ratings were completed (retrospectively, incrementally as therapy occurs). This meta-analysis utilised studies focusing on both depressed and anxious populations, however found the effect on outcome was larger for the depressed populations. An updated meta-analysis on the effect of HW on outcome, utilised studies published between January 2000 and September 2008 (Mausbach, Moore, Roesch, Cardenas, & Patterson, 2010). Results indicated HW compliance was associated with improved outcome, with an effect size of $r = .24$ for depression. Unlike the Kazantzis et al study, results found that source of HW rating was a moderating factor with client ratings having a larger effect ($r = .32$) compared to therapist ($r = .24$) or independent observer ($r = .16$). Timing of ratings also had a moderating effect. Specifically, retrospective ratings had a larger effect size ($r = .36$) than prospective ratings ($r = .19$), and the authors suggest this may be due to halo effects biasing rating accuracy.

Assessing Homework Compliance and Adherence

In discussing HW compliance it is relevant to discuss what this means and how it differs from adherence, and how it is influenced by who is measuring it, and, as alluded to above, when, and, how, the ratings are being made.

In the earlier HW studies, compliance referred to the *quantity* of HW completed. However, cognitive theory also emphasises that learning, or skill development, are essential in effecting change, which obviously links to *quality* of learning. Aligned to this, the HW literature has more recently focused on what compliance is and what factors are involved. For example, it has been argued that *quality* of homework compliance is more clinically relevant and is a stronger predictor of treatment outcome than *quantity* (Schmidt & Woolaway-Bickel, 2000). Further, Rees and colleagues found an association between accuracy (or *quality*) in completing thought records and reductions in anxio- and depressio-genic cognitions (Rees, McEvoy, Juniper, Nathan & Smith, 2003). Similarly, Schmidt and Woolaway-Bickel found evidence in their study that indicated it was *quality*, and not *quantity*, of homework completed that was a more accurate predictor of outcome in a group of people with panic disorder. It would, therefore, appear that there are two factors involved in the measurement of HW. Therefore, two terms will be used to differentiate these factors, and which align with previous studies (e.g., Bjornholdt, 2006). Homework *compliance* will refer to the *quantity* of the task completed; while *adherence* refers to the *quantity and quality* of task completion.

Some research does suggest that the predictive power of HW on outcome may be moderated by the rater source, i.e., client, therapist, or independent observer (Mausbach et al., 2010). In one review of the literature, it was found that 72% of studies were based on compliance data from a single source, or rater (e.g., client, therapist or observer) (Kazantzis et al., 2004). This may be problematic in that client's self reports may be inaccurate in that they may over-rate, or exaggerate, their compliance with HW tasks (Worthington, 1986), with some positing this may be due to the client not wanting to disappoint their therapist, with whom they have built a working alliance (DiMatteo & DiNicola, 1982). Or alternatively, they may base their ratings on current subjective emotional state or positive change in symptomatology, and therefore over-report compliance (Bryant et al., 1999). Schmidt and Woolaway-Bickel (2000) found clients self-report was less predictive of outcome than clinician ratings, however another investigation found that the use of client self-report can be reliable when used in the context of CT for depression (Neimeyer, Kazantzis, Kassler, Baker, & Fletcher, 2008). Therapists may likewise be susceptible to these halo effect distortions, when rating client's who are showing improvements (Bryant et al.). Therefore, more recent psychotherapy research stresses the need for information from both the client and therapist in process research (Orlinsky, Ronnestad, & Willutzki, 2004). This has also been supported by an earlier HW focused meta-analysis that indicated that the source of data is a moderating factor (Kazantzis et al., 2000).

In one of the most comprehensive reviews of the homework literature, Thase and Callan (2006) list several methodological issues that have impacted upon the veracity of previous studies. The use of retrospective ratings taken from measures of questionable reliability and validity are listed as one such issue. Retrospective ratings are vulnerable to perceptual biases (Gaynor, Lawrence, & Nelson-Gray, 2006). For example a study by Hoelscher and colleagues (1984) found support for this with 60% of participants acknowledging over-reporting HW compliance in order to limit any discord with their therapist. Moreover, retrospective ratings are vulnerable to halo effects, where a positive treatment outcome may influence the patient or therapist to over-estimate homework compliance and adherence, and therefore have limitations in their veracity (Kazantzis, Ronan, & Deane, 2001). For example, Gaynor et al., found evidence to support this in their study involving adolescents experiencing depression. Those who responded well to CT over-estimated their homework adherence, while those who had a modest treatment response, tended to make underestimations. They, therefore, recommend that future research prospectively collect and measure both the quality and quantity of homework tasks, and that this data is collected at regular intervals, so research can

also investigate the temporal relationships as there are some indications that adherence and compliance is not necessarily a linear function in therapy (Addis & Jacobson, 2000). Specifically, Burns and Nolen-Hoeksema (1992) recommend that research focused on HW as a function of outcome, should utilise session-by-session ratings, throughout the course of therapy.

Added to findings regarding source and timing of ratings, more recently the homework literature has also begun to discuss the means of measuring and assessing compliance and adherence. Commentators have pointed out that early homework research has been limited in its utility due to focussing on the *quantity* of homework completed, and yet ignoring how well it was done or the *quality* of homework completed. Some have argued that this may be a more appropriate and useful measure (Neimeyer & Feixas, 1990; Primacoff, Epstein, & Covi, 1986). In addition, most previous research has been based on an aggregated HW score held constant across time. Some argue that by aggregating data, there is an assumption that compliance with HW tasks is a static factor, or at the very least, that variability across treatment is so minimal that an average across time is a useful summary (Gaynor et al., 2006). However, Addis and Jacobson (2000) found large variability in therapist ratings of HW compliance, in early and middle phase sessions. These findings indicate that HW compliance is not stable across time and therefore the sum of an aggregated measure is questionable (Gaynor et al.).

In summary, commentators are indicating that future homework focused research requires a standardised way to measure adherence, that is not based on a single source global measure, and that clearly delineates the constructs of *quality* and *quantity* (Kazantzis et al., 2004). Additionally, studies need to move on from aggregated measures, recognise the temporal instability in adherence, and begin to focus on why people do not comply with HW tasks and why there are changes in adherence across time (Gaynor et al., 2006). The next section of this chapter discusses factors that may be related to compliance and adherence in HW tasks.

Factors Related to Homework Compliance

Although HW completion has been linked to symptom improvement in CT for depression, there is variability between clients in the degree to which HW tasks are completed. For example, Bryant, Simons, and Thase (1999) reported that up to 90% of depressed participants attempted to complete some, or all, of their HW tasks, while 10% refused to attempt any facet

of the tasks. They also found that within the 90% who did try to complete their HW, the majority did so half-heartedly, and in a piecemeal way without fully completing the tasks. Due to these differences researchers have investigated the possibility of confounding third variables that may be correlated with both compliance and outcome (Primakoff et al., 1986). For example, client learned resourcefulness (Murphy, Simons, Wetzel & Lustman, 1984) was correlated with greater symptom improvement, but unfortunately it was not determined whether this characteristic affected homework compliance and outcome as this analysis was not completed. Therefore, research that is focused on HW and outcome, must consider whether there are other variables that moderate HW adherence. Consideration will now be given to the factors that contribute to an individual's ability to adhere to, and be compliant with, assigned tasks. These factors fit into three broad categories; (1) task factors, (2) therapist factors, and (3) client factors (Detweiler & Whisman, 1999).

Task Factors

As the HW literature continues to expand, the use of a systemised HW protocol has been emphasised as a mechanism to improve adherence and compliance (Gonzalez, Schmidt, & DeLaune, 2006; Kazantzis, MacEwan, & Dattilio, 2005). Such systems have been linked to increased client improvement (Detweiler-Bedell & Whisman, 2005). These systems, or protocols, include discussing the rationale of the assignment, collaboratively developing the actual task, and what, if any, are the predicted barriers to completion (Gonzalez, et al.; Kazantzis et al.). An earlier protocol, designed by Shelton and Levy (1981), detailed when, where, time frame, and number of times a client needed to engage in the HW task prior to the next therapy session. They believed that specifically discussing these factors would activate the client's motivation for completing HW tasks and guarantee subsequent compliance. In other words, the clarity of how a HW task is described, and its applicability to the client's presenting problems are important factors to consider in HW adherence. It seems obvious that a vague and illogical task would likely be met with some resistance (Beck et al., 1979; Startup & Edmonds, 1994; Tompkins, 2002).

The literature does provide some support that the careful designing and assigning of HW tasks is associated with positive outcomes in CT (Detweiller-Bedel & Whisman, 2005; Startup & Edmonds, 1994). This necessitates that discussion of HW is integrated into each session (Freeman & Rosenfield, 2002), as a regular agenda item to be reviewed at the beginning of each session with time allocated at the end to assigning a new task (Coon & Gallagher-

Thompson, 2002). There is also some evidence that discussing or reviewing HW assignments allocated in the previous session, predicts compliance to HW in the subsequent week (Bryant et al., 1999; Worthington, 1986). It is believed that the active mechanism in reviewing HW is communicating its importance to positive therapeutic outcome for the client.

There has also been some evidence to suggest that the type of HW task assigned moderates compliance and symptom change (Kazantzis, Deane & Ronan, 2000). Subsequent research found that HW tasks that were behavioural in nature (e.g., pleasant activity scheduling, exposure) were more effective in the treatment of depression (Rees et al., 2005). However, Thase and Callan (2006) found that the primary task factor that predicted HW compliance was the client's perception regarding the *difficulty* of the task, which is in keeping with earlier research that found that client's must believe they have the requisite abilities to complete tasks assigned (Tompkins, 2002).

Phase of therapy has also been linked to homework compliance. For example, Worthington (1986) found clients were more compliant with completing homework assignments in the early phase of therapy, there was a drop in compliance in the middle phase and there was no difference at termination. This finding also links to the previous discussion regarding timing of ratings and the empirical use of raw data in analyses. That is, aggregating HW ratings may oversimplify data, limiting the ability to observe changes over the course of therapy.

Therapist Factors

The role of the therapist has also been discussed in the HW literature as a therapy process factor that impacts upon a person's compliance with task completion. In trying to determine whether any specific therapist behaviours were associated with a client's HW compliance Mahrer and colleagues examined session transcripts (Mahrer, Gagnon, Fairweather, Boulet & Herring, 1994). This analysis identified six aspects of therapist behaviours that were associated with client commitment to complete the task. These included: (1) pursuing a client's suggestions, (2) a conversation regarding the client's willingness and preparedness to complete the task, (3) being specific in defining the task, (4) encouraging the client, (5) practicing the task, or aspects of it, in session, and (6) obtaining a *contractual* assurance that the task will be completed or attempted from the client. In addition there are those features in the therapists manner and abilities that augment the client's ability to perform the task. For example, their ability to form and maintain an effective therapeutic relationship, and their

ability to positively reinforce adherence with homework tasks (Tompkins, 2002). Specifically, the therapeutic alliance has empirically been associated to HW compliance and adherence in CT (Dunn, Morrison, & Bentall, 2006), that is, there is more HW compliance in a higher quality alliance.

The therapist's level of competence has also been implicated in HW completion. For example, Bryant and colleagues (1999) utilised the *Cognitive Therapy Scale* (CTS; Young & Beck, 1980) to define and measure therapist skills. Although HW is one of the specific competencies in the CTS it was the therapist's *General Skills* that predicted client compliance with HW, and *Specific Skills* did not. These findings differ to a recent study investigating therapist competence in assigning HW, which also utilised the CTS (Ryum, Stiles, Svartberg & McCullough, 2010). Results of this study found therapist competence in assigning, monitoring and reviewing HW was associated with symptom improvement. However, this study was focused on *Cluster C* personality disorders, and it could be that the higher level of complexity inherent in these disorders may require increased therapist skills. Moreover, analyses were based on competence ratings from one time point and it is not clear whether this rating point was representative of all sessions.

Additional therapist factors that have been found to predict HW compliance, which also align with using a systemised protocol, are reviewing HW, predicting difficulties and then discussing them in session (Bryant et al., 1999). Providing a rationale for HW assignments did not. Added to this, the NIMH TDCRP study completed by Shaw and colleagues (1999) identified that therapist competence in agenda setting and assigning HW accounted for 19% of the variance in outcome amongst their sample. This study also utilised the CTS as their measure of competency. Subsequent research has also indicated that assessing therapist competence in HW assignment is recommended in any investigative studies on the role of HW in CT (see also Bryant et al.; Conoley, Padula, Payton & Daniels, 1994; Scott, 2001).

Another study investigating therapist characteristics of HW compliance, focused on whether setting specific goals and discussing potential barriers to task completion was related to treatment outcomes (Detweiller-Bedell & Whisman, 2005). This study found that discussing barriers to HW and setting client goals related to better treatment outcome. Additionally, this research found that including a written prompt was positively associated with outcome.

Finally, it appears that the therapeutic orientation of the therapist is a factor in client adherence and compliance with HW tasks. For example, a study which surveyed practitioners use of HW assignments in their clinical practice found that Cognitive Therapists, reported giving more thought to, and using HW more frequently, and being more committed to therapeutically using the time between sessions than other therapeutic modalities (Kazantzis, Lampropoulos, & Deane, 2005). Additionally, Cognitive Therapists have more positive attitudes about HW assignments than their psychodynamic contemporaries (Fehm & Kazantzis, 2004).

Client Factors

Many studies have focused on trying to identify client specific factors that impact upon adherence to HW assignments. Amongst these, research has demonstrated the following outcomes. Firstly, the level of collaboration, or client involvement, in deciding and designing the task to be completed, has a positive effect on outcome in depression at two-year follow-up (Detweiler-Bedell & Whisman, 2005). Added to this, when the HW assignment is perceived to have a logical and credible link to the treatment rationale, clients are more likely to complete the tasks, as they are viewed as relevant pathways to symptom improvement (Addis & Jacobson, 2000). Moreover, clients who perceived they had a positive relationship with their therapists were more likely to adhere to agreed treatment, including completing HW (Primacoff et al., 1986).

Client's level of motivation has also been investigated. Although client willingness to try a new coping strategy at pre-treatment predicted the degree of symptom reduction at treatment termination, it did not have an association with client reports of HW adherence (Burns & Nolen-Hoeksema, 1992; Burns & Spangler, 2000).

It has also been hypothesised that severity of pre-treatment depressive symptoms may be related to HW adherence. For example Rees, McEvoy, and Nathan (2005) discuss whether pre-treatment symptom severity moderates the amount of HW clients complete and outcome, or whether it is purely the HW alone that leads to improvement, regardless of depressive severity. This was the focus of an earlier investigation by Burns and Spangler (2000), who found no effect of depressive severity on HW compliance. Other authors have found no evidence that baseline depressive severity predicted compliance with HW tasks, and assert

that completion of between session tasks positively effects outcome in CT for depression and is unrelated to pre-treatment severity of symptoms (Rees et al.).

Similarly, adherence to HW tasks has not been linked to any specific client characteristics. This included such variables as age, gender and ethnicity (Coon & Thompson, 2003; Woods et al., 2002).

Client beliefs have often been linked with HW noncompliance. For example, social learning theory posits that the costs and benefits of engaging in a HW task are highly individualised and are activated by the meaning applied to the activity (Niemeyer, 1985). The cost is the difficulty and/or level of distress that could be engendered by the activity, whereas the benefit, is the gain, understanding and/or development of skills that are foreseen (Webb & Sheeran, 2005). Furthermore, J.S. Beck (1995, 2005) has conceptualised barriers to HW completion as arising from the client's maladaptive beliefs, or their beliefs about their ability to perform the prescribed task. Finally, Russo (1987) contends that negative beliefs are the genesis of HW noncompliance (see also Bryant, Simons & Thase, 1999). It would seem that, based on this theory, it would be more probable that clients would undertake those tasks that they felt in some way confident to complete, and would then necessarily, avoid those in which they were not. These beliefs, or schemas, may manifest themselves in those ways identified by Persons (1989), that is, unrelenting standards, perfectionism, intolerance to failure and an increased desire for social acceptance. Although these belief based obstacles are plausible and make psychological sense when considered in cognitive theory and clinical experiences, they have not been tested empirically, with operationally defined ratings in a prospective design (Thase & Callan, 2006).

There is some research that suggests that the effect of HW completion on therapy outcome may be moderated by problem type, and this may account for some of the variance in the HW outcome literature. For example, it is suggested that there is a difference of homework effects for those who are experiencing depression and those who are anxious (Kazantzis et al., 2000; Primacoff et al., 1986). A meta-analysis of the effect of homework on outcome in CT found there was a difference in the magnitude of the effect for those presenting with depression and anxiety disorders (Kazantzis et al., 2000). Specifically, outcome was better in those treatments that targeted depression, and not anxiety, possibly indicating that homework in CT treatment of anxiety disorders is less influential than in depressive disorders.

This provides some support for the clinical status (or problem type) moderator hypothesis; however the researchers warn that this does not provide clear support and further analyses need to be conducted in order to determine whether specific types of difficulties and syndromes clients present with, will have an impact on HW compliance, or if homework is more useful for some disorders than others (see also Thase & Callan, 2006).

Summary

To summarise, HW are those out of session activities designed to augment therapy, and are listed as a key ingredient in CT. Moreover, studies have found HW compliance facilitates symptom improvement in CT for depression. While earlier studies predominantly focused on the quantity of HW completed, or compliance, the focus has now turned to measuring both quantity and quality, defined in this present study as adherence. Additionally earlier research was limited due to data being based on an aggregated HW score taken from retrospective ratings; or taken from a single time point, by either client or therapist. It is therefore recommended that research focus on measuring adherence by both client and therapist, using session-by-session ratings that have not been aggregated.

Despite the clear link between HW and outcome, studies have been unable to identify why there is variability in HW adherence. Research has considered task, therapist, and client factors that may be linked to adherence. For example, a systemised protocol for integrating HW into each session has been linked to an improvement of adherence. Therapist's competence has also accounted for some variance in HW adherence, as has the therapeutic modality of the therapist, with those practicing CT using HW tasks more frequently. As to client factors, pre-treatment symptom severity has not been linked to HW adherence, nor has any specific client demographic. The impact of client beliefs as barriers to HW adherence has been discussed in the literature, however, at this time, has little empirical support. Finally, there is some, albeit limited, support that problem type may in some way impact on HW adherence.

This current study aims to address some of the limitations from previous HW focused research. It will utilise session-by-session adherence (quality and quantity) self-ratings through therapy from a client focused homework rating scale. The systemised protocol designed by Kazantzis et al., (2005) was used by therapists in designing, assigning and reviewing HW in each session as a means of limiting variability between therapists. Although

client factors, including problem type, have been investigated, with some studies showing their effect on outcome, there is little research specifically investigating their importance as they relate to HW adherence, and even less, relating to beliefs and personality structure.

The following chapter will discuss these final two points (beliefs and problem type) in more detail as they relate to the beliefs that have been linked, according to cognitive theory, to personality disorders.

CHAPTER FIVE

PERSONALITY SCHEMAS

Introduction

This chapter focuses on the area of personality pathology and the cognitive theory of personality disorders. It will first describe the classification systems for these syndromes, with emphasis placed on their limitations. This is followed by a brief outline of personality theory which links to a discussion on Beck's cognitive theory of personality, and the role of beliefs, or schemas, in these syndromes. Clinical and empirical support for this theory is then outlined. This chapter closes with a review of the literature regarding the treatment of depression with comorbid personality syndromes, or more specifically, personality beliefs, and how these may impact upon HW compliance in CT, the focus of this current study.

Classifying and Assessing Personality Pathology

Personality disorders (PDs) are coded as *Axis II* disorders in the multi-axial classificatory system found in the DSM-IV-TR (APA, 2000). They are defined as enduring, pervasive, and inflexible inner experiences and behaviours that are not aligned with a cultural context; and which result in significant difficulties relationally, vocationally, or socially. Personality disorders can be distinguished from the acute episodic nature of *Axis I* disorders by their chronicity, pervasiveness and rigidity (J.S. Beck, 1996). The DSM-IV-TR uses a categorical approach in defining PDs, but some argue that they could be better defined and understood using a dimensional model (Francis & Widiger, 1986; Widiger & Mullins-Sweatt, 2010; Widiger, Trull, Hurt, Clarkin & Francis, 1987). Some of the disadvantages to the categorical approach include, complexities in determining diagnoses due to disorder comorbidity and the diagnostic overlap frequently observed in PDs (Hopwood, Thomas, Markon, Wright, & Krueger, 2012). Second, there is an absence of clear thresholds that would distinguish those with or without a specific disorder. For example, diagnoses are made by identifying the criteria that are present in the individual from a prototypical list. Therefore, two people can have the same PD diagnosis and yet have very different presentations due to the cluster of profile criteria they meet. Third, agreement has not yet been reached on how to appropriately conceptualise each disorder (Beck, Freeman, Davis, & Associates, 2004). Additionally, the categorical approach represents PDs as equivocally discrete syndromes, which ignores other methods of formulating and measuring them. Furthermore, the use of categorical methods in defining PDs is not believed to be helpful in treatment planning (Sperry, 2003). The arguments to support this assertion are, (1) no specific treatment criteria are highlighted, and (2) some criteria highlight character

attributes whilst others are more temperament focused. Therefore, because the diagnostic criteria are neither clearly identified, or weighted, they have little veracity in formulating treatment planning (Sperry, 2006). The complexity of classifying and assessing personality disorders is reflected in the overwhelming number of structured interviews, questionnaires and screening tools available to clinicians. For example, Tyrer and colleagues (2007) found in excess of 60 assessment tools that specifically focus on identifying the presence of PDs.

It is due to these limitations of the categorical nosology of the DSM-IV-TR, that it is recommended that the more reliable dimensional approach be used in order that treatment can become more specific, and therefore more effective (Heumann & Morey, 1990; Pilkonis, Heape, Ruddy, & Serrao, 1991; Trull, Widiger, & Guthrie, 1990). With the expected publication of the DSM-5 in 2013, it is hoped that the limitations of the previous system will have been addressed, with a new diagnostic system that reflects: (1) current PD research, (2) greater clinical utility, and (3) is parsimonious (Leising & Zimmermann, 2011). These same commentators add that the new diagnostic system should encompass both a descriptive and evaluative criteria. The descriptive criteria should be based on analyses of those stable dispositional tendencies inherent with each PD. For example, identifying those *thoughts* (emphasis added), feelings, and behaviours that cluster together within each personality type. Indeed, beliefs, or *thoughts*, are indirectly referred to in some of the DSM-IV-TR personality disorder criterion. For example, in Dependent Personality Disorder, the behaviour of “difficulty expressing disagreement with others” is described as resulting from a fear (belief) of “loss of support or approval.” In a new diagnostic system the evaluative criteria believed to have the most utility would be the consequences that result from the dispositions.

One alternative dimensional method would be to quantify the traits that are inherent in each PD on a continuum from normal to pathological which then removes the arbitrary boundaries between each syndrome and with normal personality (Pfohl, 1999). Another alternative, which has applicability to the present study, and alluded to above, is to utilise the cognitive schemas that are aligned with the specific disorders (Sperry, 2006), as some believe this to be a more clinically valid approach (Arntz, 1999; Bhar, Beck & Butler, 2012). That is, schemas also represent enduring generalised patterns that originate early in life and negatively impact upon a person’s capacity to live adaptively (Riso & McBride, 2007). Schemas can be differentiated from the DSM-IV-TR criteria by their dimensional, and not categorical, stance, and emphasis on cognitive, affective, and behavioural impacts rather than a medicalised psychopathology

(Riso & McBride.). Of relevance, the DSM-5 workgroup have recently indicated they are considering revising the descriptive criteria for PDs to include several domains of functioning, including *cognitions*, emotions, and behaviours (Skodal, Bender, Morey, Clark, Oldham, Alarcon et al., 2011).

Theories of Personality

Studying personality and the development of the related theories can be traced back to classical scholars such as Hippocrates, Plato, and Aristotle (Hall & Lindzey, 1978). Over thousands of years people have sought to clearly define the substance of personality by systematically studying human behaviours and attempting to explain this theoretically. Therefore, as Hall and Lindzey indicate, personality can only be defined by the specific concepts embedded within the theoretical framework the observer is using. That is, it is a concrete list of descriptive terms and / or a set of scores embedded within a theory that characterise the individual. They also note that this characterisation is generally centred around observable behaviours (Hall & Lindzey.). The work of Schneider (1923) was the genesis of solidifying and categorising unique and discrete disordered personality. In his work, he identified ten such personality types believed to be distinct from other psychopathology. However, it was not until the publication of the DSM-III in 1980 that PDs were officially recognised and categorised as *Axis II* disorders. The theories of personality typology and disordered personality are too numerous to review in this study (for a review see Crowne, 2009; and Boyle, Matthews & Saklofske, 2008), I will therefore limit my discussion to two similar theories, one of which is directly relevant to this research.

One such theory, and therapeutic modality, developed by Young (1990, 1994) describes the PDs in the form of belief structures which form the templates for processing life experiences (Young, 1990). He terms these defining structures as *Early Maladaptive Schemas (EMS)*. Young's thesis is that these develop early in a person's life, and are built upon over their life-span. Further, he believes these to be pervasive, inflexible and rigid; and impact upon the individual's behaviours, emotions, and general functioning (Young, 1994). He proposes a matrix of 16 EMS, which fit into six specific areas of vulnerability (e.g., *Instability & Disconnection, Impaired Autonomy, Undesirability, Restricted Self-expression, Restricted Gratification, and Impaired Limits*) (Young & Lindemann, 2002) and, are therefore, not specifically related to the PD categories listed in the DSM-IV-TR. This theory was developed twelve years ago, however, it is only in recent years that research investigating the validity of Young's matrix of EMS, and its effectiveness as a therapy (*Schema Therapy*) has begun

emerging (Giesen-Bloo et al., 2006; Hahusseau & Pelissolo, 2006; Martin & Young, 2010). Although these studies suggest schema therapy has some positive effect, the number and nature of these studies is still insufficient to validate this as an effective therapy for PDs. Added to this, the validity of the 16 maladaptive schemas is yet to be verified and despite its title, this self-report measure includes items that describe beliefs *and* behaviours, and is therefore, not a pure measure of schemas. Therefore, this current research is not guided by Young's theory of personality, schema structures and subtypes, rather it will focus on an alternate theory that uses beliefs to define and describe personality.

In keeping with its theoretical framework, the cognitive theory of personality disorders hypothesises it is the individual's beliefs, or schemas, that guide information processing and determine the observable behaviours that align with PDs (Beck et al., 1990). As these beliefs typically develop in early childhood and reflect internalised concepts of self and others; they form the basic elements of personality, and become pervasive rather than situationally bound, that is, they remain active and hypervalent (Alford & Beck, 1997); and, are therefore, more resistant to modification (Beck et al., 2004; J.S. Beck, 1995). Added to this, they also govern general functioning and perpetuate PD related behaviours (Beck et al., 2004). As this current study focuses on this theory, the remainder of this chapter is dedicated to discussing this in more detail.

The Role of Schemas in the Cognitive Theory of Personality

A prominent factor in the cognitive theory of PDs, is its emphasis on the function of maladaptive schemas, or beliefs (Beck et al., 2001). Beck and colleagues (1979) term the content of cognitive schemas as *beliefs* (although schemas and beliefs will be used interchangeably in this review). These embody the individual's perceptions of themselves, others, and the world. In the healthy personality, beliefs are stable, adaptive, and rational. For those with PDs their core beliefs are negative, extreme, rigid, pervasive, and can appear irrational (Beck, 1999). Therefore, when a schema is activated, it is applied globally as a meaning-making template, even when there is evidence that suggests their perceptions are inaccurate. These perceptual biases tend to obstruct the individual's ability to accurately process information and react adaptively (J.S. Beck, 1996). As these beliefs cause internal distress, the individual develops strategies that will prevent distressing schema being activated, or if activated, techniques that will help them cope. Judith Beck (1996) argues that although client's presenting with depression also hold extreme, negative beliefs, these are

only activated during the acute phase of the disorder and will remit when depressive symptoms diminish, allowing their positive schemas to prevail and, are therefore, not as generalised, inflexible, and prominent as PD related beliefs.

Beck, Freeman, and associates (1990) proposed a cognitive model of PDs that can be discriminated by the specific and unique content of schemas that they believe maintain PDs (see also Pretzer & Beck, 2005). The cognitive conceptualisation is that each PD embodies a content-specific, idiosyncratic set of schemas that effectively forms the cognitive profile. For example, Avoidant PD clients' beliefs centre on their unloveability and vulnerability. Those with a Dependent PD believe they are helpless, weak, and incompetent and will align themselves with a strong figure who will provide the means for their survival and happiness (see Table 5.1 for a list of the cognitive conceptualisations for each personality disorder). This prototypic belief matrix was subsequently incorporated into a self-report measure of personality beliefs (*Personality Beliefs Questionnaire* [PBQ]; Beck & Beck, 1991). A discussion of this measure will be presented later and in Chapter 6.

Support for the Cognitive Theory of Personality Disorders

To date, research has indicated ways in which PDs may be understood cognitively. For example, increased presence of dysfunctional attitudes were found in those diagnosed with a PD (Illardi & Craighead, 1999; O'Leary, Cowdry, Gardner, Leibenluft, Lucas, & deJong-Meyer 1991); the level of PD relevant traits was predicted by the endorsement of relevant beliefs (Arntz, Dietzel, & Dreessen, 1999; Ball & Cecero, 2001), and those with a specific PD were found to preferentially select the beliefs predicted to be consistent in the disorder (Arntz et al.; Beck et al., 2001).

Two early studies provide limited support for Beck's hypothesis that dysfunctional cognitions are a factor in PDs (Gasperini, Provenza, Ronchi, Scherillo, Bellodi, & Smeraldi, 1989; O'Leary et al., 1991). Furthermore, more recent studies have produced results which more strongly support Beck's theory that specific sets of beliefs are related to each of the PDs, and were strongly associated with the corresponding PD, with support being found for Borderline (Arntz et al., 1999), Avoidant, Dependent, Obsessive-Compulsive, Narcissistic and Paranoid (Beck et al., 2001). In another study that examined Beck's cognitive theory of PDs using the *PBQ*, the authors found strong relationships between PDs and the preferentially endorsed thought clusters on the *PBQ* that theoretically corresponded to these (Nelson-Gray, Huprich, Kissling, & Ketchum, 2004). Results of this study also suggest that there is an association between

symptoms of PDs and dysfunctional thinking and that it could usefully be employed as a measure to identify those thoughts or patterns of thinking, that could be a focus of CT, but not as a diagnostic measure of specific PD (Nelson-Gray et al.).

As stated above, research indicates the *PBQ* is not useful in providing a specific PD diagnosis, especially as the DSM-IV-TR uses a categorical approach that is predominantly based on behavioural manifestations of the PDs (Nelson-Gray et al., 2004). However, Arntz (1999) argues that schema content measures (e.g., *PBQ*) may form a more valid approach to operationalise PDs than the behavioural-strategic typology used in the DSM-IV-TR. His rationale for this is based upon the pervasiveness of maladaptive schemas and their relationship to the faulty information processing characteristics of PDs. Overall, the literature shows support for the cognitive theory of PDs, and the *PBQ* as a useful instrument in identifying specific beliefs, or schema profiles, that can aid the therapist in their conceptualisation and treatment of individuals.

Personality Beliefs Measures and Outcome

Only three studies have been found that utilised the *PBQ* in CT outcome research. One study focused on depression and Obsessive-Compulsive PD, and utilised the *PBQ* as a pre – post measure (Ng, 2005). Brown and colleagues (2004) also used the *PBQ* as an outcome measure in the treatment of Borderline PD. Finally, and of significance to the current research, the only study to have investigated the role of beliefs on the treatment outcome for depression suggested that while PDs did not predict response to therapy, the beliefs aligned with avoidant and paranoid PDs predicted worse outcome in the treatment of depression (Kuyken et al., 2001), suggesting the moderating role of beliefs aligned with personality on treatment outcome. In addition to the above, one further study was identified that investigated the influence of personality beliefs on treatment outcome (Weertman, Arntz, Schouten, & Dreesen, 2005). Although this study was concerned with the impact of personality beliefs on outcome in CT for anxiety, and utilised an unstandardized variant of the *PBQ* as the outcome measure (*Personality Disorder Belief Questionnaire*), their results are worth noting. Their findings indicated less improvement across therapy and higher residual anxiety symptoms at treatment termination for those who endorsed one or more personality belief cluster. No published study has been identified that utilises the *PBQ-SF* as an outcome predictor in the treatment of depression, or any other disorder.

Table 5.1

Cognitive Theory of Personality Disorders Belief and Behavioural Strategies Matrix

Personality Disorder	Main Beliefs	Main Behavioural Strategy
Avoidant	"It's terrible to be rejected, put down." "If people know the 'real' me, they will reject me." "I can't tolerate unpleasant feelings."	Avoid evaluative situations Avoid unpleasant feelings or thoughts
Dependent	"I need people to survive, be happy." "I need to have a steady flow of support, encouragement." "I am incompetent and unable to cope."	Cultivate dependent relationships
Passive-Aggressive	"Others interfere with my freedom of action." "Control by others is intolerable." "I have to do things my own way."	Passive resistance Surface submissiveness Evade, circumvent rules
Obsessive-Compulsive	"I know what's best." "Details are crucial." "People should do better, try harder."	Apply rules Perfectionism Evaluate, control "Shoulds," criticise, punish
Paranoid	"Others' motives are suspect." "I must always be on guard." "I cannot trust people."	Be wary Look for hidden motives Accuse Counterattack
Antisocial	"I'm entitled to <i>break</i> rules." "Others are patsies, wimps." "I'm better than others."	Attack, rob Deceive, manipulate
Borderline	"I can't cope on my own." "I need someone to rely on." "I cannot bear unpleasant feelings." "If I rely on someone I'll be mistreated, found wanting, and abandoned." "The worst possible thing would be to be abandoned." "It's impossible for me to control myself." "I deserve to be punished."	Subjugate own needs to maintain connection Protest dramatically, threaten, and/or become punitive toward those that signal possible rejection Relieve tension through self-mutilation and self destructive behaviour Attempt suicide as an escape
Narcissistic	"Since I'm special, I <i>deserve</i> special rules." "I am above the rules." "I am better than others."	Use others Transcend rules Manipulate Compete
Histrionic	"People are there to serve or admire me." "People have no right to deny me my just deserts." "I can go by my feeling."	Use dramatics, charm; temper tantrums, crying; suicide gestures
Schizoid	"Others are unrewarding." "Relationships are messy, undesirable."	Stay away
Schizotypal	(Idiographic, odd, superstitious, magical thinking; for instance, beliefs in clairvoyance, telepathy, or "sixth sense" are central in the belief structure.) "It's better to be isolated from others."	Watch for and neutralize malevolent attention from others. Be vigilant for supernatural forces or events

Source: Beck et al., 2004

Personality Disorders, Personality Beliefs, and Depression

As briefly discussed in Chapter 2, PDs are highly comorbid with depression. Estimates have ranged from 18% to 95% (Skodol, Stout, McGlashan, Grilo, Gunderson, Shea et al., 1999), although reported prevalence rates typically fall between 40% and 74% (George, Milkowitz, Richards, Simoneau & Taylor, 2003). Furthermore, it is not unusual for clients to present with more than one PD (Millon, 1997). In these instances, the PDs neither present simultaneously or as a blended homogenous amalgam, but rather present as discrete disorders that manifest separately (Sperry, 2006). It has been suggested that PD related maladaptive patterns create a vulnerability to developing depression (Pretzer & Beck, 1996). Additionally, it is not typical for people with personality problems to present for treatment with this as the main complaint. Rather, symptomatic issues relating to depression, anxiety, or situational stressors typically compel the individual to access help (Beck et al., 2004; Freeman & Rock, 2008). Interestingly, the results of a recent study involving 98 participants supports this, finding the negative mood state of depression was the priming influence in participants accessing the negatively-valent personality schemas (Farmer & Chapman, 2012). Added to this, they also found the level of distress aligned with negative thoughts was solely attributable to negative mood and not PD related features. Finally, in their sample, those interventions that specifically targeted mood via emotion or behavioural change were effective in reducing thought-related distress.

Effects of Comorbid Personality Disorders on the Treatment of Depression

Previous studies have suggested that client's who have a comorbid PD with their depression have different treatment response patterns than those who present only with depression (Hardy, Barkham, Shapiro, Stiles, Rees, & Reynolds, 1995). However equivalent treatment responses have been found when clients received CT, but poorer outcomes when treated with other therapeutic modalities (Dreessen & Arntz, 1998; Hardy et al.). Some have argued these results indicate people who present with PDs will respond better to the structured nature of CT (Hardy et al.). Research has also indicated that when depressed clients present with a comorbid PD their initial symptom severity is higher than in those with depression alone (Kuyken, Kurzer, DeRubeis, Beck & Brown, 2001; Shea et al., 1990). Furthermore, this population also experience an increased frequency of depressive episodes, higher levels of distress, and symptomatology (Diguier, Barber, & Luborsky, 1993; Farmer & Nelson-Gray, 1990; Shea, Glass, Pilkonis, Watkins, & Docherty, 1987).

Kuyken, and colleagues, (2001) found it was not the presence of a diagnosed PD that influenced outcome, but rather, the presence of Avoidant and Paranoid beliefs that negatively impacted outcome in CT for depression. In regards to this finding, they suggest that client PD beliefs in some way moderate CTs effectiveness for depression. Although they are unclear as to what specific mechanisms were responsible for these differences in outcome, they do suggest that disorder-specific beliefs may interfere with the completion of homework (HW) assignments and it is via this moderator that outcome is impacted. Added to this, while reviewing outcome studies for depression, Mulder (2002) found that the presence of comorbid PDs were linked to worse outcomes in 15 studies, somewhat worse outcome in five, and no difference in treatment outcome in seven studies. Cumulatively research seems to be ambiguous as to the effects on treatment outcome for depression when a comorbid PD is present. However, in those studies where a negative effect on outcome is present, no clear evidence indicates whether it is the PD *per se*, PD related *beliefs*, or another factor that moderates outcome. Nevertheless, research has found the dysfunctional cognitions of PDs are rigid and unremitting despite the remission of a depressive episode (Ilardi & Craighead, 1999).

Homework and Personality Beliefs

As discussed in an earlier chapter, psychological obstacles to HW completion observed in the treatment of depression include perfectionism/unrelenting standards, fear of failure, procrastination, forgetting and desire for social acceptance (Persons, 1989). These cognitions may act independently, or be connected to beliefs about the future, the world, other people, or self. These beliefs are common in those experiencing depression and are believed to directly influence engagement with HW activities (Kazantzis, MacEwan, & Dattilio, 2005). However, these beliefs are not limited to depression and it could be argued that they are common cognitions in some of the PDs. For example, beliefs about perfectionism/unrelenting standards are found in Obsessive-Compulsive personality disorder, and *forgetting* is one of the strategies used to cover up a fear of not being able to complete the task perfectly (Beck et al., 2004). Additionally, fear of failure and procrastination are often found in Obsessive-Compulsive and Avoidant personality disorders. Finally, a desire for social acceptance is exhibited in the beliefs of Avoidant, Dependent, Narcissistic, and Histrionic personality disorders. Interestingly, Avoidant PD was implicated in the Kuyken and colleagues (2001) study discussed earlier, and their question regarding the significance of specific PD beliefs in moderating outcome.

Commentators have discussed the possibility that those people who present for treatment who have a PD may have difficulties in completing HW assigned during their treatment that are specifically related to their presentation (Freeman & Rosenfield, 2002). They also argue, from their clinical experience, that clients with a PD are often perceived as resistant in therapy because of a failure to perform homework tasks. The reasons which could explain the noncompliance in this population would be varied and likely linked to the traits aligned with their presenting syndrome. More precisely, and aligned with cognitive theory, it is possible the cognitive aspects of PDs, specifically their rigid and pervasive beliefs, may be more salient task interfering behaviours that need to be considered when working with this population and assigning between session tasks. Therefore, and as in the treatment of depression, personality belief structures may be a significant moderator of HW compliance. Additionally, Beck and Tompkins (2007) believe that client's who have chronic difficulties will, in all probability, have habitual dysfunctional beliefs that impedes their ability to engage in treatment, which includes HW assignments. Sperry (2006) asserts that those with PDs are recognised as having difficulty complying with treatment interventions, including HW assignments, and believes that this is due to the intractability of their maladaptive beliefs and concomitant behaviour problems. It should be noted that although much of the discussion to this point has referred to PDs, that this current research is not focused on these specifically, rather it is investigating the *beliefs* that are nested within these, as conceptualised in cognitive theory. However, it is relevant to describe these beliefs within the DSM-IV-TR nomenclature as the most parsimonious way of orienting the reader to this subject matter.

Although discussion of this topic is limited, specific PDs have been anecdotally and empirically linked to failure to complete HW assignments in the literature. For example, Edelman and Chambless (1995) discuss the likelihood that people with an Avoidant PD would act in accordance with this condition, and avoid any activities that were not in their usual routine. Therefore, they argue, that HW assignments would not be completed. In fact, the outcomes of their study indicate that those exhibiting Avoidant PD traits adhered to their HW assignments to the same level as other participants in the study (Social Phobia and Generalised Anxiety Disorder). Newman and Fingerhut (2005) also state that the symptom cluster associated with Avoidant PD impedes their ability to complete HW assignments. Specifically, their intractable and rigid fears of failure or of being reproached, are triggered and amplified when assigned HW tasks and by failing to complete the assigned task they limit the risk of making mistakes and, therefore, being exposed as incompetent. Additionally, their

need to avoid uncomfortable thoughts and feelings inhibits their ability to initiate or complete HW tasks due to their need to distract themselves (Beck et al., 2004; Bienenfeld, 2007).

Similarly, it is said that those with an Obsessive-Compulsive PD are often reluctant to engage in HW tasks, as they too, fear making mistakes, and are reluctant to engage in activities if they believe they cannot guarantee they will be able to perform the task perfectly (Gabbard & Newman, 2005). It is therefore, according to their beliefs, less harmful to not do the HW than to make a mistake (Bienenfeld, 2007). Furthermore, Beck and colleagues (2004) state that those with Obsessive-Compulsive PD beliefs will often act out their need for control, either directly or in a passive-aggressive manner, by not completing their HW assignments. For example, they may directly challenge the relevancy of the task, assert that it is asinine, or agree to it and then when followed up, state that they forgot or did not have the time to complete it (Beck et al., 2004).

As a counterpoint, Edelman and Chambless (1995) found that those who fitted the Dependent PD criteria were more *likely* to complete their homework (measured as both quality and quantity) than those without dependent traits. These results, however, need to be considered in combination with the focus of the original project - group therapy for social phobia. The researchers suggest that the environment in which the study was conducted (i.e., group therapy), may have been a factor whereby reporting to the group may have activated the belief systems of the Dependent PD / socially phobic, which in turn fostered their compliance with homework tasks. As stated earlier, those with a Dependent PD are typically cooperative and intend to please the therapist, however, they may have difficulty in completing their HW assignments due to their beliefs about inadequacy; or if they become fearful the therapeutic pace is too fast, meaning that their goals will be reached and therefore therapy will end. By not completing their HW, perceivably, therapy sessions may continue and they can remain in relationship with their therapist (Beck et al., 2004).

As to Paranoid PD, Edelman and Chambless (1995), found those with this syndrome, failed to complete their homework assignments more often than others in their group. They question whether their naturally suspicious stance may have been an obstacle to trusting their therapist's intentions of assigning between session tasks. This research may provide some support for Kuyken and colleagues (2001) hypothesis that the belief structures of this

population mediate outcome in CT, and their question whether this is through non-completion of HW.

Finally, it is also anecdotally asserted that Borderline PD client's have a tendency to be noncompliant in completing HW tasks (Pretzer & Beck, 2004). However, this assertion has not been tested or supported in empirical studies.

More specific studies investigating individual characteristics that may predict HW compliance determined that HW completion was independent of PDs (Woods et al., 2002). However, this study did not investigate personality beliefs and was focused on Obsessive-Compulsive PD and panic disorder with agoraphobia. They also drew attention to the methodological limitations in the measurement of *compliance* that limits the validity of their study.

Overall, the literature indicates anecdotally, with some limited empirical support, that those with PDs are more difficult to work with therapeutically and this is believed to be due to the interfering nature of rigid belief systems; and more specifically, the impact of these beliefs on treatment compliance as it relates to HW assignments.

Summary

In keeping with cognitive theory, personality disorders have been conceptualised as specific clusters of beliefs that remain hypervalent and impact upon an individual's behaviours. The literature presents some support for this theory, especially when assessed with belief specific measures. Personality disorders are highly comorbid with depression, and it has been found that the negative mood state aligned with depression acts as a priming mechanism to the rigid schemas aligned with PDs. Different treatment response has been observed in treating depression with a comorbid PD and some have attributed these differences to the moderating impact of the belief systems aligned with personality. Added to this there has been some discussion of the significance of beliefs as interfering with adherence to HW tasks. Although the beliefs mentioned in the literature are commonly witnessed in those experiencing a depressive episode, they are also aligned with the cognitive theory of PDs, as indicated in Beck and colleagues (2004) personality beliefs matrix. A small number of studies have been conducted investigating the impact of PDs on HW adherence and treatment outcome; although some differences have been found, the major theoretical and clinical importance of these studies has been the generation of hypotheses for future testing. In relation to this

current research, it draws upon the cognitive theory of personality disorders, by specifically utilising the beliefs aligned with these, and investigates whether these have a moderating effect on HW completion and on outcome in CT for depression.

The following chapter presents the current study, its research questions and procedures. This is followed by a presentation of the measurement instruments and the analytic methodology used.

CHAPTER SIX

THE PRESENT STUDY

Introduction

This chapter outlines the objectives of the current study, including the research questions being investigated. This is followed by an introduction of the procedures this research followed, including ethical approval, sample selection and sample characteristics; and the treatment protocol. The chapter concludes with a description of the measures utilised in this study with a discussion of their psychometric properties.

General Aim

As the preceding chapters have established MDD is predicted to be the leading cause of disability in first world nations by the year 2030. Although pharmacotherapy and CT have been found to be effective treatments of MDD, approximately 50% of those treated will have difficulties with chronicity and recurrence of this disorder. One factor possibly complicating the treatment of depression is the presence of comorbid personality belief structures. Commentators suggest that the pervasiveness and rigidity of personality belief structures inhibits treatment. Multiple studies have found that HW completion improves treatment outcome for depression, and Ronan and Kazantzis (2006) argue that the HW literature has now progressed to the stage where future research should focus on those client, therapist and therapy factors that assist or impede HW effectiveness. In addition, rather than attempting to strengthen outcome in CT for depression, research is now focusing on identifying those client characteristics or disorder related variables that reliably predict therapeutic outcome. Such research is significant, as by identifying these variables therapy can be adjusted in order to reduce non-response and augment better outcome. Client beliefs have been empirically linked to the variability between individuals in the extent of HW completed and personality schemas have been anecdotally linked with HW compliance. Although the discussions regarding personality related beliefs and their relationship to HW completion have been grounded in theory and observed in clinical work, there is little empirical support in the existing literature that supports these claims. Therefore, this research will investigate whether personality beliefs, or schemas, as measured by the *PBQ-SF*, affects the quantity and quality of HW completed and whether this moderates outcome for depression in CT.

Research Questions

- (1) *The Homework – Depression Relationship*: Do participant's who complete more homework tasks have lower levels of depression severity at termination of treatment?

- (2) *Personality Beliefs – Depression Relationship*: Do participant's who endorse personality belief profiles have higher depression severity at intake and at termination of therapy?
- (3) *The Moderating Effect of Personality Beliefs on the Homework – Depression relationship*: Does the presence of personality beliefs moderate the homework-depression relationship?
- (4) *Personality Global Level of Distress – Homework Relationship*: Will higher global levels of distress, as measured by the *PBQ-SF*, be related to lower levels of HW completion?

Method

Ethical Approval

The Health Research Council (HRC) National Ethics Committee granted ethics approval for this research on 3 September 2006 (Northern X Regional Ethics Committee NTX/06/07/085). Low risk approval was also granted by the Massey University Ethics Committee (MUHEC).

Context

The current research occurred within the context of a prospective clinical study investigating the effectiveness of a newly designed homework protocol (Kazantzis et al., 2005) over a 20-session course of CT for first episode depression. The overall research project was titled the *Cognitive Behavioural Therapy Homework Project (CBTHP)* and formed part of a collaborative international study involving Harvard University and the London Institute of Psychiatry. The study was based at the Centre for Psychology Clinic, Massey University, Albany, Auckland, New Zealand.

Participant Recruitment

Participants for this study were recruited via advertisements placed in Auckland region newspapers, and in the Student Health Centres at both Massey and Auckland Universities (see Appendix A and B for examples). Participants were required to be aged between 18 and 65 years, and were experiencing their first episode of Major Depressive Disorder (MDD) as classified by the DSM-IV-TR. In addition, participants were required to be proficient in the English language. Applicants were excluded if they were currently taking psychotropic or Central Nervous System (CNS) acting substances, experiencing psychosis or Borderline Personality Disorder (BPD), currently engaged in another form of therapy or there were imminent issues of risk that could not be managed in an outpatient context. All applicants who did not meet the above criteria were referred to an alternative appropriate service. Participation in this study was voluntary and therapy was provided without charge.

Phases of Participant Selection

The initial applicant pool for the *CBTHP* comprised 251 people. These applicants completed a 30-minute telephone interview facilitated by a postgraduate clinical psychology student to ascertain whether inclusion criteria were met (see Appendix C for interview format). Of the original applicants, only 65 met the preliminary entry criteria and were progressed to the next assessment phase, which consisted of an onsite assessment. Prior to attending the onsite assessment, each participant was sent, via email, an information hand-out describing the study (Appendix D) and a consent form (Appendix E). The onsite assessment included completing the *Composite International Diagnostic Interview (CIDI)*; Robins, Wing, Wittchen, Helzer, Babor, Burke et al., 1989); the *Beck Depression Inventory (BDI-II)*; Beck, Steer & Brown, 1996); *Attributional Style Questionnaire (ASQ)*; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982); and demographic profile (see Appendix F). Applicants, at this point submitted their signed consent form. Applicants were also screened by the study's therapists, using a semi-structured interview format (Appendix G) in order to confirm that the criteria for MDD was met. Following this interview, therapists also completed the *Suitability for Cognitive Therapy Scale (SCTS)*; Safran & Segal, 1990) and the *Social and Occupational Functioning Assessment Scale (SOFAS)*; Goldman, Skodal & Lave, 1992). Of the 65 applicants, 37 did not meet the criteria (see above for entry criteria) required to progress through to the therapy phase, and these were also provided with contact details of alternative services who could be of assistance. The total sample pool, therefore, consisted of 28 clients who entered the active therapy phase, however, one client discontinued therapy prior to completing the *PBQ-SF* (the focus of this research) leaving a final sample of 27 participants ($N=27$) for this present study.

Participants

The final sample comprised 17 females (63%) and 10 males (37%), with an average age of 45, ranging from 20 to 62 years. Of these, 23 identified as *European/Caucasian* (85%), and 4 as *Other* (15%). Table 6.1 presents participant demographic information.

Table 6.1

Sample Demographics

		N	%
<u>Gender</u>			
	Female	17	63
	Male	10	37
<u>Age at Intake*</u>			
	20 - 29	3	11
	30 – 39	7	26
	40 – 49	8	30
	50 – 59	5	19
	60 - 65	4	14
<u>Ethnicity</u>			
	NZ European / Caucasian	23	85
	Other	4	15
<u>Relationship Status</u>			
	Single	4	15
	Dating	1	3
	Married	11	41
	Defacto	5	19
	Divorced / Separated	5	19
	Widow / Widower	1	3
<u>Employment Status</u>			
	Full-time	10	37
	Part-time	6	22
	Other	11	41
<u>Depression Severity</u>			
	Minimal (score 0-13)	1	3
	Mild (score 14-19)	3	11
	Moderate (score 20-28)	10	37
	Severe (score 29-63)	13	49
<u>Personality Beliefs Endorsed</u>			
	Yes	13	49
	No	14	51
<u>PBQ-SF Level of Distress**</u>			
	20-39	5	19
	40-59	6	22
	60-79	3	11
	80-99	5	19
	100-119	5	19
	120-139	2	7
	140-159	0	0
	160-179	1	1

Note: Total percentages have been rounded.

* Mean age = 45-years, range = 20-62-years

** Higher numbers correspond to higher global levels of distress

Therapists

Seven female post-graduate, Doctor of Clinical Psychology students, provided manualised CT in this study. Of these therapists, three were aged in their 20's, two in their 40's, and two in their 50's. All were of European / Caucasian ethnicity. One therapist provided therapy to two participants, three worked with three participants, two therapists saw four participants and one provided therapy to nine participants. The author of the current research also held the role of therapist in the overarching study.

Therapists initially entered a training phase that entailed attending two week-long Cognitive Therapy block courses provided at Massey University. The first block course was a generalised Cognitive Therapy training and the second was specifically focused on CT for depression. These courses were intended to augment their clinical training. Additionally, therapists also attended a two-day workshop provided by Dr. Nikolaos Kazantzis on a homework protocol intended to increase HW engagement (see Kazantzis, MacEwan & Dattilio, 2005 for a full discussion on this protocol and Appendix H for a brief overview). This training required therapists to provide two videoed therapy role-plays that showed the protocol being administered with 100% accuracy as measured by the *Homework Adherence and Competence Scale (HAACS; Kazantzis, Wedge, & Dobson, 2005)* (Appendix I).

Whilst providing therapy, the therapists were required to attend weekly supervision sessions with a registered Clinical Psychologist. The Supervisor also randomly selected recorded therapy sessions of the individual therapists and rated these using the *Cognitive Therapy Scale (CTS; Young & Beck, 1980)*. The CTS is an observer measure of therapist competence in delivering CT. Therapists were required to obtain three ratings greater than 40 before being permitted to work with three or more therapy clients. All therapists had met this requirement by their second client. The clinical supervisor also assessed therapists at four subsequent points over the course of therapy to ensure their level of competency did not deteriorate and therefore continued to meet the requirements for the research project. Additionally, independent observers, who were trained in rating homework protocol compliance using the *HAACS (Kazantzis, Wedge & Dobson, 2005)*, also randomly selected and rated therapy sessions in order to ensure continued adherence to, and competence with, homework administration. Any identified issues were conveyed to the Clinical Supervisor and were discussed and corrected in weekly supervision sessions.

Treatment

In line with previous CT outcome studies, treatment consisted of 20 sessions of CT, comprising 50-minutes each. Therapy was conducted twice weekly for the first four weeks, and then weekly for the remaining 12-sessions. Participants were also offered post-treatment booster sessions at 2- and 6-months. Ongoing recruitment and CT was provided from 2007 to 2009. Each session was digitally recorded and saved to a DVD. Prior to therapy commencing participants completed the *BDI-II* and the *Homework Rating Scale – Second Edition* (HRS-II; Kazantzis et al., 2005 – see Appendix J), the therapists completed the *HRS-II* at the end of each session. Additionally, at sessions 5, 8, 20, and both follow-up sessions the *ASQ* was completed. The *PBQ-SF* was also completed by participants at session 8.

Seventy per cent of participants completed the full 20-sessions of CT, while eight participants (30%) completed 9 to 19 sessions. The mean number of treatment sessions was 18. Although previous studies have considered those who receive a minimum of 12-sessions of CT as ‘completers’ (e.g., Hollon et al., 1992; Murphy et al., 1984; Rush, Beck et al., 1977) this study will include participants who attended a minimum of eight sessions as this was the point the *PBQ-SF* was administered. Additionally, due to the limited number of participants who attended the 2- and 6-month booster sessions, and the current study’s specific focus on HW adherence which was difficult to measure in the booster sessions, the current research will include data to termination of therapy only. Table 6.2 presents data as it relates to the number of sessions participants attended.

As this study was conducted within a larger study focusing on a homework protocol, there was a great level of emphasis placed on assigning and reviewing homework within each session. The *HAACS* (Appendix I) outlines the protocol developed by Kazantzis, Wedge and Dobson (2005). The protocol can be understood as following three distinct phases: (1) *Review* previous sessions homework assignment(s); (2) *Design* session specific homework task(s) collaboratively with client, and (3) *Assign* homework in such a way that identifies any real or perceived barriers to completion and problem-solving these in order to improve the likelihood of completion. In order to help participants remember the specifics of each task a self-carboning *Homework Assignment Form* (Appendix K) was completed, with one copy going home with the participant and the other remaining with the therapist.

Table 6.2

Session at which therapy was terminated

Termination Phase	N	%
Session 9	1	4
Session 11	1	4
Session 13	2	7
Session 14	1	4
Session 17	1	4
Session 18	1	4
Session 19	1	4
Session 20	19	70

Note: Percentages may not total 100 due to rounding.

Design

The current study uses a longitudinal prospective design among a client sample being treated for first episode depression in order to examine the influence of personality related beliefs on HW adherence and treatment outcome in CT.

Measurement Instruments***Beck Depression Inventory - Revised (BDI-II; Beck, Steer & Brown, 1996).***

The revised *BDI-II* is an adolescent and adult self-report measure that assesses the affective, cognitive, behavioural and motivational signs of depressive symptomatology, as defined in the DSM-IV, and according to Beck's cognitive theory of depression. It lists 21-items which are rated on a four point scale ranging from 0 (symptom is absent) to 3 (severe level), with items selected that correspond to the rater's state in the previous two weeks. Total scores are calculated by adding together the ratings over the 21 items with a range of 0 to 63; higher scores indicate increased severity of depressive symptoms. Ranges of severity are 0-13 *minimal*, 14-19 *mild*, 20-28 *moderate*, and 29-63 *severe*. It is a widely used measure in clinical settings (Quilty, McBride & Bagby, 2008) and is the most common measure used in research studies (Nezu, Ronan, & Meadows, 2002).

The *BDI-II* has demonstrated good psychometric properties in both psychiatric and non-psychiatric populations (Beck et al., 1996). It has been found to be a highly reliable measure with internal consistency coefficient alphas of $\alpha=.92$ for outpatient samples and $\alpha=.93$ for college students. Test re-test reliability on a sample of outpatients over a period of one week

was found to be $\alpha=.93$ (Beck et al.). Dozois, Dobson and Ahnberg (1998), found a strong convergent validity ($\alpha=.93$) with the previous version of the *BDI* in their evaluation of this measure with a large sample of undergraduate students. Although the test authors caution that this measure was not intended to be used diagnostically, the revised version has enhanced clinical sensitivity, with the items more aligned to DSM-IV-TR criteria (Dozois et al.).

Participants were asked to complete the *BDI-II* at intake assessment and then prior to each therapy and booster sessions. Table 6.1 lists a breakdown of participants who fitted within each severity range. The *BDI-II* functions as dependent measure in this current study.

Homework Rating Scale – Second Edition (HRS-II; Kazantzis, Deane, & Ronan, 2004)

The *HRS-II* is a questionnaire designed to measure client, therapist and task characteristics correlated with clients completing their HW (Appendix J). The *HRS-II* is a 12-item client and therapist self-report measure with ratings being made on a five point Likert scale from 0 (not at all) to 4 (extremely), and each item relates to the extent the client and therapist agree with each statement. It is intended to measure the factors involved in the process of homework design, completing the task, and reviewing the experience of attempting or completing the assignment. The construction of this measure was made in reference to the acknowledged theoretical and empirical factors that exist within the homework literature (Kazantzis, Deane, Ronan, & L'Abate, 2005).

Factor analysis of this measure found four subscales, or factors, which are listed in Table 6.3 (Kazantzis et al., 2006).

A preliminary study of the psychometric properties of this measure indicates therapists and clients differ in their understanding of the HW tasks, with low correlations between these two groups (Kazantzis et al., 2006), this may indicate differences in how clients and therapists conceptualise HW. Psychometric properties of this measure are excellent, with internal consistency alphas of $\alpha=.87$ for the client version and $\alpha=.84$ for the therapist version (Kazantzis, et al.). Further, another study found internal consistency Cronbach's alpha of $\alpha=.75$ for the client version (Connolly, 2008).

Table 6.3

Factor structure of the HRS-II as reported by Kazantzis et al. 2006

Factor	Description of Items from the HRS-II
Behaviour	Quantity
	Quality
Synthesis / Consequence	Match with therapy goals
	Progress
	Difficulty
	Sense of pleasure
	Sense of mastery
Beliefs	Rationale
	Comprehension
	Specificity
	Collaboration
Situation	Obstacles

In the current study the *HRS-II* was completed at the beginning of sessions 2 – 20 by both therapist and client. Participants and therapists completed the measure independently of each other, and without consultation. Client ratings were based on their subjective experience of each task, and completed prior to each session. Therapists based their ratings on the data from the HW review portion of each therapy session and completed the *HRS-II* at the end of each session, this being consistent with previous studies (see Addis & Jacobson, 2000; Clarke, Hops, Lewinsohn, Andrews, Seeley, & Williams, 1992; Gaynor et al., 2006). Homework completion was assessed during the provision of therapy and longitudinally through the entirety of treatment. This minimised any chance of halo effects.

Personality Beliefs Questionnaire – Short Form (PBQ-SF; Butler, Beck & Cohen, 2007)

The *Personality Beliefs Questionnaire (PBQ)* was developed based on Beck and colleagues cognitive theory of personality disorders (PDs). Drawing from clinical experiences and PD theory, Beck et al., (1990) presented a list of the schemas represented in the *Axis II* disorders (DSM-III). These schemas were then integrated to form a client self-report measure, the *Personality Beliefs Questionnaire (PBQ)*; Beck & Beck, 1991; Beck et al., 2004). The *PBQ-SF* is a shortened version of the *PBQ* comprising 65-items for 10 of the PDs listed in the DSM-III (Avoidant, Dependent, Passive-Aggressive, Obsessive-Compulsive, Antisocial, Narcissistic,

Histrionic, Schizoid, Borderline and Paranoid), with each scale consisting of seven beliefs. Self-report response options on each of the items range from 0 (I don't believe it at all) to 4 (I totally believe it). Scores may be reflected as a general distress factor, and/or cluster to form a personality belief profile.

The development of the *PBQ-SF* was conducted in a two-stage process. Data were collated from 920 outpatients investigating the criterion validity of the scales in the first stage. Good internal consistency was found for the scales ($\alpha = .79$ -.91) and those with the corresponding PD tended to score higher on those criterion specific scales, compared to those with other PDs or no PD (Butler et al., 2007). This investigation was then followed by the second stage, where the scales were completed by a new independent sample which comprised a further 160 outpatients. The second stage involved an analysis of the internal consistency, reliability, and construct validity of the measure. This analysis found estimates of internal consistency in the good range (Avoidant $\alpha=.81$, Dependent $\alpha=.89$, Passive-Aggressive $\alpha=.85$, Obsessive-Compulsive $\alpha=.90$, Antisocial $\alpha=.85$, Narcissistic $\alpha=.81$, Histrionic $\alpha=.87$, Schizoid $\alpha=.83$, Borderline, $\alpha=.90$, and Paranoid $\alpha=.92$). Test re-test coefficients over a four-week period were in the adequate-to-good range (Avoidant $\alpha=.67$, Dependent $\alpha=.80$, Passive-Aggressive $\alpha=.80$, Obsessive-Compulsive $\alpha=.82$, Antisocial $\alpha=.57$, Narcissistic $\alpha=.74$, Histrionic $\alpha=.78$, Schizoid $\alpha=.74$, and Paranoid $\alpha=.72$). Additionally, results indicated good construct validity in that the overall *PBQ-SF* profile was associated with general psychological distress, while elevations in the individual scales were correlated to disorder-specific profiles. The criterion validity of this scale was unable to be evaluated due to some limitations in the study's design. More recently an exploratory factor analysis of the *PBQ-SF* was conducted on a sample of 438 depressed outpatients with comorbid PDs (Fournier, DeRubeis, & Beck, 2011). Results indicated the presence of seven factors (Dependent/Avoidant, Obsessive-Compulsive, Narcissistic, Passive-Aggressive, Paranoid, Histrionic, and Schizoid), and provides further support for the cognitive theory of PD and the utility of this measure in the context of research. Finally, several studies have also found differences between pre- and post-treatment scores, indicating this measure is sensitive to treatment related change (Brown, Newman, Charlesworth, Crits-Cristoph & Beck, 2004; Kuyken et al., 2001; Ng, 2005). Overall, the psychometric properties of the *PBQ-SF* indicate it has utility as a measure of personality beliefs and of general distress. Its psychometric properties appear robust enough to allow it to be used for research purposes.

The *PBQ-SF* was completed by participants, at one time point, in session 8. A total of 13 (49%) participants endorsed at least one scale of the *PBQ-SF* and 14 (51%) did not (see Table 6.1).

The Cognitive Therapy Scale (CTS; Young and Beck, 1980)

The *CTS* is a scale that evaluates the cognitive therapist's level of competence in providing CT and was originally designed for use in CT for depression (Vallis, Shaw, Dobson, 1986). Ratings are made by expert clinicians while observing, or listening to, video- or audio-recordings of therapy sessions, or alternatively, while observing a 'live' session. Items include ability to form a therapeutic alliance, structuring of sessions aligned to CT, and therapeutic interventions; including assigning HW tasks. It assesses 11 skill dimensions using a 7-point Likert scale with a total score range of 0-66. The total score provides an overall estimate of the therapist's skills and abilities in providing CT (i.e., the higher the score the more proficient the therapist). The *CTS* has strong internal consistency ($\alpha = .95$). Item-total correlations range from $\alpha = .58$ to $\alpha = .92$ with an average of $\alpha = .72$ (Dobson, Shaw & Vallis, 1985). Inter-rater reliability ranges from moderate ($\alpha = .54$) to strong ($\alpha = .87$), with an average across 21-sessions of therapy of $\alpha = .69$. It has a strong inter-rater reliability of $\alpha = .94$ for total scores.

As stated earlier in this chapter, all therapists were assessed for competency with the *CTS* by a registered Clinical Psychologist proficient in CT (i.e., is a university tutor in the Post Graduate Diploma of Cognitive Therapy). Ratings were conducted, using the *CTS*, randomly throughout the course of therapy provision. A cut-off competency score of 40 was pre-determined as the minimum a therapist could score while providing therapy.

A summary of the measures completed in the overarching depression study are presented in Table 6.4, with those measures utilised in this current study indicated in bold.

Table 6.4

Measures utilised in the homework and depression study

Measure	Completed by	Session
Beck Depression Inventory II (BDI-II)	Client	0-20
Social & Occupational Functioning Assessment Scale (SOFAS)	Therapist	0, 5, 8, 20
Homework Rating Scale II (HRS-II)	Client	2-20
	Therapist Independent Observers	2-20 Random sessions
Personality Beliefs Questionnaire – Short Form (PBQ-SF)	Client	8
Attributional Style Questionnaire (ASQ)	Client	0, 5, 8, 20, 21
Homework Adherence & Competence Scale (HAACS)	Independent Observers	2-10
Cognitive Therapy Scale (CTS)	Clinical Supervisor	Random sessions

Summary

This chapter provided an overview of the aim of this current study and the questions being investigated. A review of the measures utilised was also provided. In the following chapter I introduce the statistical methodology utilised, how data were managed and coded; and the preliminary analyses performed. It also provides a detailed description of the multi-level models built in order to answer my research questions.

CHAPTER SEVEN
**STATISTICAL ANALYSIS PROCEDURES, DATA MANAGEMENT AND PRELIMINARY
ANALYSES**

Introduction

This chapter presents the procedures employed in this study, and begins with a discussion of hierarchical linear modelling (also known as multi-level modelling), the methodology chosen to analyse the data set. This is followed by a discussion of how the data were utilised, including the procedure for coding time, management of missing data, and the management of the measures employed. Assumption checks and data shape are then considered. Specifically, the assumptions of normality, homoscedasticity, and linearity are tested. This is followed by graphical representations of raw data and reliability analyses of the two primary measures in this study. This chapter closes with a description of each of the models developed and employed in the final analyses.

Data Analysis

Analyses in the present study were conducted using IBM *Statistical Package for Social Sciences (SPSS)* for Mac, Version 19 statistical software (SPSS, Inc., 2010).

Multilevel Analysis

Psychotherapy process research has frequently focused on establishing whether a treatment is effective for the population under investigation. Multiple studies have established that CT is an efficacious and effective treatment of MDD, what is not clear is how individuals change from pre-therapy to termination of treatment. Added to this, research has not clearly established the optimal treatment conditions, the mechanisms of why CT is effective, and for whom it is effective. In order to answer these questions it has been suggested that process research should attend to the change trajectories in the interval between pre- and post-treatment in order to identify mediators and moderators of change (Laurenceau, Hayes, & Feldman, 2007). It is therefore necessary to utilise those research design methodologies that enable the individual and treatment group change process to be systematically studied, as this can reveal differences between those for whom the treatment is effective, and those for whom it is not. In order to better understand change over time, it is necessary to analyse repeated measures longitudinally with an appropriate methodology (Laurenceau et al.). HLM

is a methodology that enables the investigation of individual and group change variability with the covariates that are predicted to impact upon the shape and rate of change.

Hierarchical Linear Modelling (HLM; Bryk & Raudenbush, 1987; Raudenbush & Bryk, 2002), also known as multilevel regression (Field, 2009), or multilevel modelling (Heck, Thomas & Tabata, 2010), is an analytic procedure which enables investigation into individual change trajectories over time in repeated measure studies. It examines the reliability of measures in their capacity to gauge levels of change, examining the correlates of change, and testing hypotheses regarding the effects of other variables on change trajectories (Bryk & Raudenbush.; Raudenbush & Bryk.). HLM is the analytic approach chosen for the current study.

Bryk and Raudenbush (1987) outline several important inadequacies of previous research assessing individual change. First, such research is typically based on measures developed to discriminate between participants at a fixed time point. Therefore, their ability to assess rate of change within groups is seldom taken into account in their design. Typically, the statistical procedures used to analyse these measures, (e.g., standardising to a mean score), removes the possibility of finding individual change trajectories. Furthermore, most research focusing on change has used data from two time points, (e.g., pre-test and post-test), they argue that two time points does not yield sufficient information to study change as the shape of change is always limited to a linear form. Added to this, they state that when data has been collected from multiple time points, it is usually analysed as a series of discrete designs with two time points.

HLM has been described as a “regression of regressions” (Arnold, 1992, p.61) as it comprises a two-level regression analysis to longitudinal data, where the levels are specified as the measurement occasions nested within participants (Maas & Hox, 2005). In the first level, analyses are conducted for every individual and are modelled by a unique set of parameters, that is, it investigates *within* individual change over time. The regression parameters from the first level are then applied in the second model (*Level 2*) as the outcome variables of interest in a series of regressions, which centres on *between* individual change (Singer & Willett, 2003).

Data analysis with HLM treats times as a continuous variable and is therefore advantageous when analysing change-over-time data with variation in completion points. More specifically,

as it relates to this study, when there was variation in the number of therapy sessions attended through client attrition (Hedeker & Gibbons, 2006). It is also beneficial when the temporal spacing is irregular (Kwok, Underhill, Berry, Wen, Elliott, & Yoon, 2008). For example, in the current study, therapy was conducted bi-weekly and then weekly. Additionally, HLM allows for the covariates of analysis to be time-variant (Singer & Willett, 2003). Although the *PBQ-SF* data will be considered as static due to the single collection point, data from the *HRS-II* and *BDI-II* can be analysed for changes over time, and allows for the possibility that these changes are not equal. Therefore, the advantages of HLM as an analytic tool include, making causal inferences (when the requisite statistical conditions have been met), establishing individual- and group-level variation, modelling variations of coefficients across groups and making predictions for new groups, and finally, is advantageous when working with smaller sample sizes due to the number of data waves utilised (Gelman & Hill, 2007).

Singer and Willett (2003) discuss three methodological requirements in the use of multilevel analysis. A minimum of three waves of data must be present, with more elaborate models possible with increased data availability (this current study has 21 data waves). Added to this, Kreft and de Leeuw (1998) state that for increased statistical power there should be a minimum of 20 'groups' in the higher-level variable (27 'groups' are included in this study). Additionally, a practical means of measuring time must be available, which provides the metric of analysis for the data collected. For example, number of therapy sessions, or age, are metrics of time. In this study, time was coded by therapy session, and the procedure by which this was done is discussed below. The final requirement is the presence of an outcome measure that spans the data waves and changes systematically over time. This study utilised the *BDI-II* as the dependent variable, and as previously discussed, this was completed by participants at every session.

The use of HLM in this study enables an investigation into the temporal variations in HW adherence (as measured by the *HRS-II*) and symptom change (as measured by the *BDI-II*), and also enables an investigation into whether any variations are linked to the presence of personality schema profiles and their concomitant effects on outcome.

Data Preparation and Management

Coding Time

As previously discussed, treatment was provided twice-weekly for the first eight sessions, and thereafter, weekly. This obviously indicates that there is some variance in time between sessions, therefore some consideration of how to code time needed to be made in order to meaningfully capture the chronological distance between sessions and the changes that occurred. Two options were considered in finding the best way to illustrate and measure time. Firstly, treatment could conceivably be coded by session number to indicate waves of therapy (e.g., Baseline Assessment, Session 1, 2, 3, ...), however, this does not account for the changes in time between treatment as participants progressed to weekly sessions. In order to more meaningfully capture the variably spaced measurement occasions, time was coded as 0 for intake/baseline, and 0.5, 1, 1.5, 2, 2.5 4 for the first eight sessions, and sessions nine through 20 as 5, 6, 7, ... 16. As booster sessions are not utilised in the current study, they have not been added to this data set and did not need to be accounted for, or considered, in coding.

Missing Data

In longitudinal research it is important to consider the relevance and analytic implications of missing data. One advantage of HLM is that incomplete data does not compromise analyses, provided data is missing randomly (Maas & Snijders, 2003). Singer and Willett (2003) note that with multilevel analysis, the work completed by Little (1995) in considering missing data sets has the most relevance. Little outlines three types of missing data: (1) *missing completely at random* (MCAR); (2) *covariate dependent dropout* (CDD); and (3) *missing at random* (MAR). MCAR refers to missing data having no association to observed or unobserved values, and are therefore completely random in their absence. Missing data is considered CDD when it is linked in some way to unobserved data, that is, it is not randomly missing. Finally, data are considered MAR when their absence is related to observed data, but not unobserved data. Missing data were considered and analysed for significance utilising SPSS's expectation-maximisation (EM) method. Significance between missing data and observed values for MCAR was determined at $p < .001$. Of the three measures used in this present research, one had one or more waves of missing data (*HRS-II*). Table 7.1 presents an analysis of missing data values, including frequency and percentage values.

After considering data in this present study the assumption that missing data were MCAR was made. This assumption was considered the most likely, both quantitatively and qualitatively, as when analysing and viewing the missing data, not only was it statistically insignificant ($p < .001$), but it had been provided in earlier and later occasions, did not seem to be linked to any other variables, and it was therefore considered missing due to an oversight in completing the specific measures. As can be seen in Table 7.1, percentage values of missing data is minimal and below that of the 5% cut-off suggested by Heck and colleagues (2010). When utilising the analytic methodology of HLM, it is recommended that missing data are replaced using case imputation (Allison, 2002; Tabachnick & Fidell, 2007). Therefore, replacement figures were imputed using *EM* and included into the data set for all further analyses.

Table 7.1
Missing Data and Little's MCAR's test of significance

<i>HRS Client Quantity</i>				
	Missing Items	Total Items	Percentage Missing	Little's MCAR Test
Sessions 9, 16, 19	3	464	0.6	Non-significant
<i>HRS Client Quality</i>				
	Missing Items	Total Items	Percentage Missing	Little's MCAR Test
Sessions 9, 16, 19	3	464	0.6	Non-significant
<i>HRS Therapist Quantity</i>				
	Missing Items	Total Items	Percentage Missing	Little's MCAR Test
Sessions 11, 13, 16, 17, 19	5	462	1.1	Non-significant
<i>HRS Therapist Quality</i>				
	Missing Items	Total Items	Percentage Missing	Little's MCAR Test
Sessions 11, 13, 16, 17, 19	5	462	1.1	Non-significant

Management of Measures

BDI-II Management

All total individual *BDI-II* scores from sessions 2 -20 were entered as the primary dependent variable. Scores were utilised from session two onward due to the fact that homework ratings were taken from this session and then throughout the course of therapy. This provided the most parsimonious and statistically robust way to compare session ratings. Additionally, *BDI-II* level of severity scores, as outlined in the clinical manual and listed in Table 6.1, were also utilised in the comparative analyses outlined in Chapter 8.

HRS-II Management

As the focus of this current study investigates the impact of client related personality beliefs on homework adherence and depression outcome, and due to the low correlations of client and therapist HW ratings (as discussed in Chapter 6), only the client version of the *HRS-II* was used for the primary analyses in this research. However, therapist ratings were utilised in *post-hoc* analyses for comparative purposes. Items 1 and 2, which measure *quantity* and *quality* of homework completion (termed *adherence* for the purposes of this study), were entered as the measures of homework in the primary analyses. Although conceivably these scales may have been combined to form the *Behaviour* factor of the *HRS-II* (see Chapter 6), the decision to keep them as separate predictors was based on two considerations. First, as discussed in Chapter 5, research focusing on homework's impact on treatment outcome needs to clearly delineate the constructs of *quantity* and *quality*. Second, by delineating these constructs, research would be more specific in identifying the active factor, if present, and therefore more precise in the discussion of the clinical relevance of HW on therapy outcome. However, *post hoc* analyses were carried out with *quantity* and *quality* multiplied together, creating an interaction effect (Field, 2009), for comparative purposes. Additionally, as one of primary focuses of this research is investigating the effect of personality beliefs on homework adherence in the treatment of depression, *post hoc* analyses were also conducted using the client rated *Beliefs* factor of the *HRS-II* (e.g., Rationale, Comprehension, Specificity and Collaboration).

PBQ-SF Management

As this measure was only administered once, and after treatment had commenced, a number of assumptions have been made in the use of this data. First, as the focus of therapy was the treatment of depression, and not personality related pathology or beliefs, this research will assume that had the *PBQ-SF* been administered at the beginning of treatment those who endorsed beliefs at Session 8, would have done so at baseline. Similarly, the global level of distress, although conceivably may have been higher when treatment began, will be assumed to be constant throughout treatment. Third, and as discussed in Chapter 3, research has indicated that most of the change in the treatment of depression has occurred within the first eight sessions (the *PBQ-SF* was completed at session 8). In regards to this third point, a study based on the same participants as this current research supports previous findings with results indicating nearly half experienced a sudden gain by Session 8 (Foster, 2011). Added to this, the findings of Aderka and colleagues (2012) indicate that sudden gains only occur in the

primary symptoms the treatment is targeting. Therefore, the assumption in this study is that the beliefs aligned with depression will have decreased, while the rigid and inflexible belief structures aligned with personality will remain constant throughout treatment and the *PBQ-SF* data will therefore be utilised in this way. Furthermore, a study focusing on reliability of measures in process focused research found that ratings completed at Session 8 were more reliable than those completed at Sessions 2, 5, or 11 (Weiss, Marmar, & Horowitz, 1988) providing further support for the utility of the *PBQ-SF* in this current study.

Mulder (2002) argues that both dimensional and categorical scores should be used as predictors when the nature of a study focuses on personality pathology. Despite the fact that the present study is investigating the impact of personality beliefs on HW adherence and depression outcome, Mulder's assertions were considered relevant in order to allow for the comorbidity of depression, and by using dimensional data, it allowed for investigating the impact of beliefs in subclinical cases. Additionally, statistical analyses of dimensional variables are believed to provide greater statistical power than those that focus on categorical data (Shahar, Blatt, Zuroff, & Pilkonis, 2003). Therefore, the data from the *PBQ-SF* as been entered as a personality beliefs endorsed / not endorsed categorical variable, which also allowed for comorbidity of personality beliefs as per cognitive theory. However, the global level of distress factor has been entered as a dimensional variable.

Finally, the three clusters (e.g., A, B or C) of PDs as defined in the DSM-IV-TR may have conceivably been utilised as the units of analysis, for this study. However, as this study does not focus on PDs *per se*, but rather, on the beliefs specifically aligned with each syndrome, it was not considered parsimonious, or theoretically appropriate, to cluster together disorders with disparate belief systems.

CTS Management

The total competency score will be utilised in this study as it is the most reliable item on this measure and to also parallel this current research with previous studies. For example, the research completed by Bryant and colleagues (1999) discussed in Chapter 4, found the *General Skills* were associated with HW compliance, and the *Specific Skills* were not. Due to the random nature of the timing of ratings, and the uneven distribution of ratings amongst therapists, an average of each therapist's competency ratings was calculated and this was entered into the data set as the unit of analysis.

Assumption Checks

Before proceeding to multi-level analyses, assumption checks of linearity, normality, and homoscedasticity are required (Singer & Willett, 2003). These refer to residuals being normally distributed and having straight-line relationships with the predicted DV scores, and that the variance of the residuals is the same for all predicted scores (Tabachnick & Fidell, 2007). A visual inspection, as recommended by Tabachnick and Fidell, of each of the variables residual plots is initially required to ascertain whether data is normally distributed (Pallant, 2007; Singer & Willett, 2003). The method for carrying out these initial analyses were followed as outlined in Pallant (2007). In assessing the assumption of normality, the residuals of *The Normal Probability Plots* (P-P Plots) were scrutinised for the presence of a diagonal line. Additionally, scatterplots were also examined for the presence of standardised residuals that were generally placed in the centre of the plot and not dispersed at either the top or bottom. Linearity was assumed when the residuals in the scatterplots evidenced a generally rectangular placement. Finally, the assumption of homoscedasticity was accepted when the residuals in the scatterplots were generally located equidistant across the graph, and evidenced little, or no, skewing.

Data Shape Trajectory and Linearity

Establishing the change trajectory of the DV (*BDI-II*) is also necessary before multi-level model building can commence. Specifically, and associated with linearity discussed above, is the change trajectory linear, as previously assumed, or quadratic or curvilinear in shape? Singer and Willett (2003) suggest an initial examination of each participant's change trajectories over the course of therapy should be undertaken. This is modelled in Chapter 8, Figure 8.2.

Assessing Variance and Graphical Representations of Data

Assessing variance in the principle variables is also a preliminary step prior to multi-level modelling. Specifically, if adequate variance is not present the significance of results is compromised and indicates further analyses using HLM is not warranted. Added to this, it is recommended that variance in data be scrutinised in graphical form. By depicting data in this way, any changes over time, patterns to changes and relationships between variables can be observed (Heck et al., 2010; Singer & Willett, 2003). Therefore, graphs can give information to substantiate the development of multi-level analyses. Raw data were used to graphically depict the change trajectories of participants *BDI-II* and *HRS-II* (*quantity* and *quality*) scores across treatment. Additionally, the differences between *BDI-II* scores for those that endorsed

personality beliefs and those that did not, is also represented in order to observe whether differences between these two groups was demonstrated.

Reliability Analyses

Reliability analyses were conducted for the two primary measures used in this present study in order to confirm each scales reliability with the sample being investigated, and to strengthen the veracity of the results of this research. Although the *BDI-II* has previously been shown to be a reliable measure (see Chapter 6), it was important to confirm this with the participants in this study. Additionally, the *HRS-II* is a relatively new measure, and it is therefore important to confirm its reliability in order to ensure the results of this study are robust. These analyses were conducted by forming individual data sets at each time point and the measures were completed using the reliability analysis function in *SPSS*. These are presented in the following chapter outlining the study's results.

Hierarchical Linear Model Building

The Singer and Willett (2003) and Heck and colleagues (2010) texts guided the process of hierarchical linear model building (*Note: HLM and multi-level model building terms are used interchangeably*) used in this study. As the name suggests, this methodology requires that multiple models are generated which, in a step-wise fashion, expand on each other. An introduction to the models used in this study is outlined below, with the results presented in Chapter 8. As discussed at the beginning of this chapter, *Level 1* regression analyses focus on within-individual temporal change. Therefore, regressions are executed for each person in the *Level 1* Model. Specifically, at *Level 1*, outcome varies within subjects over time as a function of a person-specific growth curve. These regression parameters (intercepts and slopes) are then applied to between-individual (group level) change in the *Level 2* Model. In other words, at *Level 2*, the person-specific change parameters are considered to vary randomly across subjects, as a function of their treatment. These parameters correspond to a random intercept and slope for each subject. The model then culminates in a final regression that amalgamates the two levels.

Each regression, at both *Level 1* and *2* of the model, comprise two elements. The first being, *fixed effects*, which describes both *initial status* (π_{0i}) and *rate of change* (π_{2i}). Initial status fixed effects refer to the average temporal change trajectories for each participant at *Level 1* (γ_{00}), the difference in intercepts between participants (γ_{01}) and the difference in intercepts

between participants while controlling for additional predictors (γ_{02}). As the title implies the rate of change fixed effect describes the rate of change for participants scores. The γ_{10} parameter is an estimate of the rate of change for the average participant, the γ_{11} describes the difference in rate of change between individuals, and the γ_{12} estimates rate of change between participants while controlling for the modelled predictor. The second element is the random effects or variance components. This refers to the error, or variance, the model has not explained. The first parameter (σ^2_{ϵ}) describes the intra-individual *Level 1* variance. The σ^2_0 shows the initial status inter-individual variance in the sample, while the σ^2_1 describes the variance of inter-individual rate of change. Finally, the σ^0_1 parameter describes the covariance of *Level 2* predictors. In order to further reduce the random effects, additional variables can be systematically introduced into the subsequent model. As the two levels focus on intra- and inter-individual change, those variables that are introduced to reduce variance, will do so at the level (i.e., 1 or 2) where they are having an effect. The pseudo- R^2 statistics assess the proportional reduction in residual variance as predictors are added to the models. In effect, these statistics calculate the amount of reduction in variance explained by each predictor. The magnitude of the decrease in variance equates to the improvement of model fit (e.g., large decline indicates the predictor has a large effect; small or zero indicates they do not) (Singer & Willett, 2003). The *Akaike Information Criteria* (AIC) and *Schwarz's Bayesian Information Criteria* (BIC) are useful in comparing subsequent models where a decrease in values closer to zero indicates better fitting models (Guo & Hussey, 1999). The AIC is a measure that corrects for the number of parameters that have been estimated (Field, 2009) (e.g., fixed effects and variance components). Finally, the BIC, while similar to AIC, is more conservative in that it more stringently corrects for the number of parameters being estimated and also corrects for sample size (Field, 2009). The syntax for the following models are attached in Appendix L.

Model A

The first model, also known as the *Unconditional Means Model*, centres on the DV only without the addition of other predictor variables (Heck et al., 2010) in order to ascertain whether variability exists both within, and between participants over time. Data from this model can be used to compare reductions in variance on intra- and inter-individual changes as additional models are specified. Additionally, this model serves as a test of the Null Hypothesis (Field, 2009; Heck et al., 2010), that is, if variability is not above zero, there is no justification to continue with multilevel analyses.

Model B

Model B (Unconditional Growth Model) expands *Model A* by the addition of time. Therefore, *BDI-II* data and time were modelled in order to ascertain whether the change trajectory was still non-zero. These fixed effects provide data on initial status and rate of change (Heck et al., 2010). They also provide data on the variance components that detail what, if any, variability can be explained in change trajectories by the addition of time. If the variance between *Models A* and *B* has reduced, this indicates time is accounting for some of the difference in *BDI-II* scores. If, after specifying *Model B*, there are residual variance components, additional models may be added with new predictor variables that aim to reduce the level of variance in order to explain whether they are having an impact on change and outcome.

Model C

Homework adherence was added in *Model C* as the predictor of interest in order to ascertain whether any of the variance in *Model B* can be further explained by these factors. Ultimately this, and subsequent models, are an extension of the previous two models (*A* and *B*). The decision to keep homework adherence (*quantity* and *quality*) as separate predictors has previously been outlined in this chapter.

Model D

The predictor, personality beliefs, is added and controlled for in *Model D*. Two options of this measure were available: (1) global level of distress; and (2) the presence of any endorsed personality beliefs over the cut-off of 1.00. These two options were entered, and the one retained, and referred to as *Model D*, was the one that explained the most variance (see Appendix M to review the data from the rejected model). The final *Model D* shows the effect of homework adherence (*quantity* and *quality*) on *BDI-II* scores over the course of treatment, while controlling for personality beliefs. If an effect is present after adding this new predictor, then it indicates personality beliefs are moderating the relationship between homework adherence and depression severity.

Post-hoc Analyses and Model E

As there was variation yet to be explained in the previous model, further predictors were added in *post hoc* analyses, these being linked to previous research, and discussed in the preceding chapters, with the aim of ascertaining whether any effect could be found in the current data. These predictors were therapist rated homework adherence, the interaction

effect of client rated HW *quantity* and *quality*, the *Beliefs* factor of the *HRS-II*, participant marital status, gender, age, severity of depression, and therapist competency. Severity of depression was entered in keeping with the listed conventions of the *BDI-II* (Table 6.1). Therapist competency was based on the average *CTS* score of each therapist over time, and consequently was entered as a *Level 2* time-invariant predictor.

Summary

This chapter described the limitations of previous therapy process research, and detailed the theory and advantages of using a HLM methodology. Added to this, it described the processes adopted in managing data and preliminary analyses. It concluded with a description of the models designed to test the research questions being investigated in this study. The results of the preliminary analyses and the multi-level models are provided in the following chapter.

CHAPTER EIGHT **RESULTS**

Introduction

The purpose of this chapter is to present the results of the analyses completed in this study. The first analyses presented are the assumption checks of normality, homoscedasticity, and linearity of the data. Graphical representations of the raw data of the *BDI-II*, *HRS-II* (client *quantity* and *quality*), and *PBQ-SF* are then depicted, and assessments of data set variability are discussed. Results of the reliability analyses of the *BDI-II* and *HRS-II* are then presented, which is followed by the multi-level *Models A-D*, which investigate the primary research questions. Specifically these analyses aimed to answer the following questions. Do participant's who complete more HW tasks have lower levels of depression severity at termination of treatment? Do participant's who endorse personality belief profiles have higher depression severity at intake and at termination of therapy? Does the presence of personality beliefs moderate the homework-depression relationship? And, will higher global levels of distress, as measured by the *PBQ-SF*, be related to lower levels of HW completion? *Post-hoc* analyses are represented in three alternative Models (*C* and *D*), and the chapter ends with *Model E*, which presents an analysis of additional predictors in an attempt to account for some of the variance unexplained in primary *Model D*.

Assumption Checks

A regression analysis of the *BDI-II*, over time, was performed, with the normal probability and standardised residual plot and standardised residual scatterplot shown in Figure 8.1.

As can be seen in the first graph, the Normal P-P Plot residuals predominantly form a diagonal line with only minimal deviation from the predicted dependent variable values; and therefore the assumption of normality is met for the *BDI-II* data. In considering the data distributions on the scatterplot it can be seen the residuals are generally placed in the centre of the plot and are placed roughly in the form of a rectangle, and therefore indicate the assumption of linearity should be accepted. Finally, the residuals on the scatterplot are located equally across the graph with minimal skewing, resulting in the assumption for homoscedasticity being accepted.

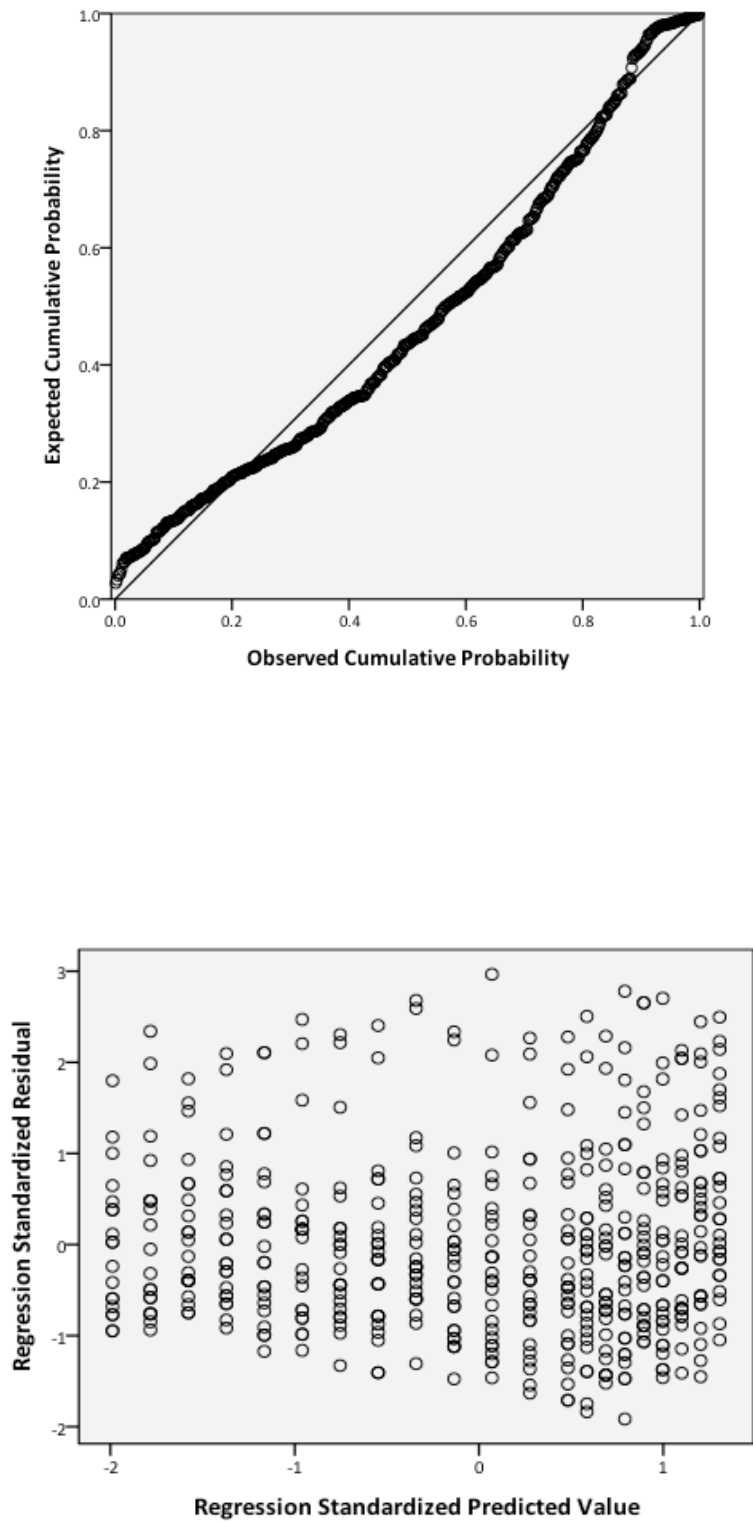


Figure 8.1 Normal probability plot and regression standardised residuals for BDI-II.

A curve fit analysis was then completed for the *BDI-II* data in *SPSS* that indicated no significant difference between linear, quadratic, or cubic models, this analysis, therefore indicating the freedom to choose any model for multi-level analyses. This, added to the previous visual analysis of the residual scatterplots (which presented with a centred random scatter associated with linearity) was therefore taken as indication that transformations of data was not required and the raw *BDI-II* data may be utilised in further analyses.

Regression analyses were also completed for the remaining variables in the present study (*HRS-II* items *quantity* and *quality* – client; *PBQ-SF*; *CTS*) and are presented in Appendix M. In these analyses, the *BDI-II* was entered as the dependent variable. A visual examination of the residual plots indicated that the assumptions of linearity, normality, and homoscedasticity were met for these measures, therefore allowing analyses to continue without the need to transform the data.

Data Shape Trajectory and Linearity

A visual inspection of the empirical growth plots of each participant's *BDI-II* scores over the course of treatment, depicted in Figure 8.2, highlights the variability in change trajectories being modelled in individual participants. Additionally, it also shows a clear pattern of improvement in *BDI-II* scores (depression severity) for all participants across time.

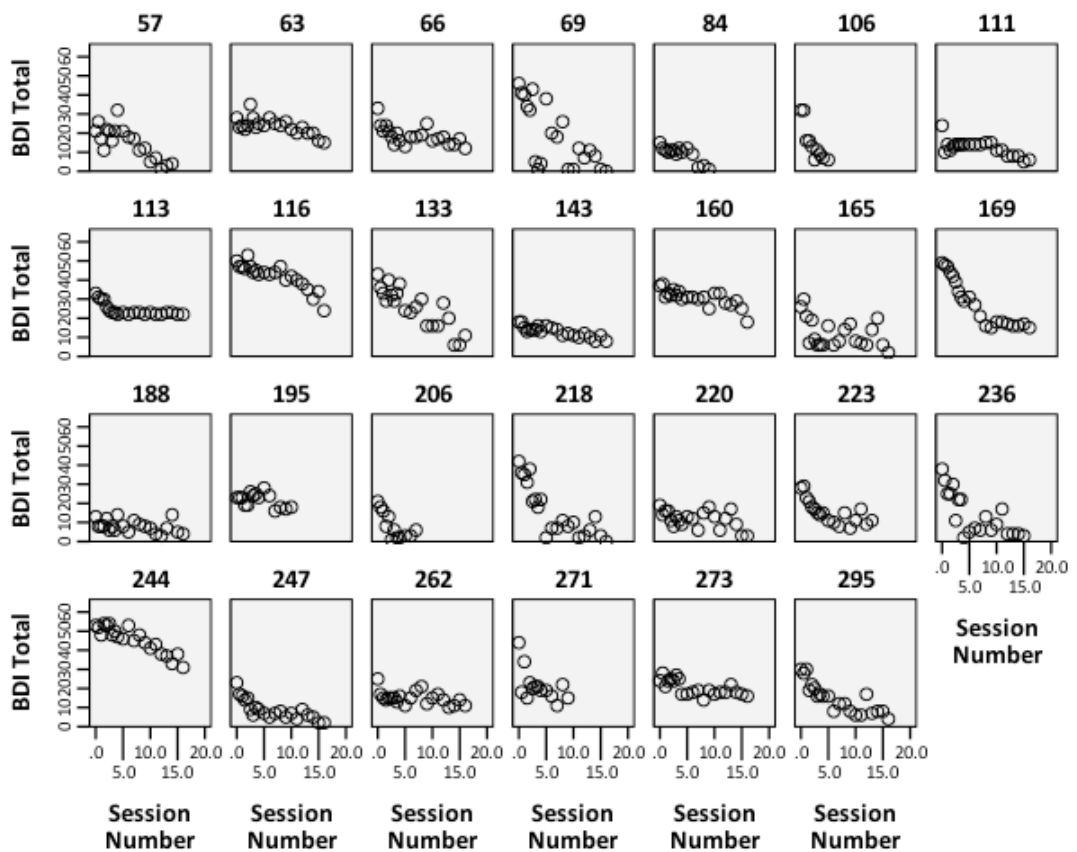


Figure 8.2 Participant's *BDI-II* ratings from baseline assessment to session 20 (individual participants are represented by their randomly assigned numerical identifier in bold above each graph)

Assessing Variance and Graphical Representations of Data

Variance in Depression Severity – *BDI-II*

Participant *BDI-II* scores were also entered into a group graph (Figure 8.3), and shows depression severity decreased, both individually and collectively, over the course of treatment. Specifically, the average *BDI-II* score at intake assessment was 31 and at completion of therapy (Session 20) it was 10. There was a mean percentage improvement of 68.1% across this sample (range 22% to 100%) with all participants reporting improvement of depressogenic symptomatology. At the end of treatment 66.7% reported a *BDI-II* of 10 or less (minimal severity), compared to 3% at baseline assessment. These figures indicate CT was effective in treating depression in this sample. Additionally, these figures provide support that there is both within- and between-individual differences in *BDI-II* scores from baseline assessment to Session 20; confirming the development of HLM is warranted using this data in

an attempt to explain these differences. See Appendix N for a specific breakdown of individual change (both *BDI-II* scores and severity category) over the course of therapy.

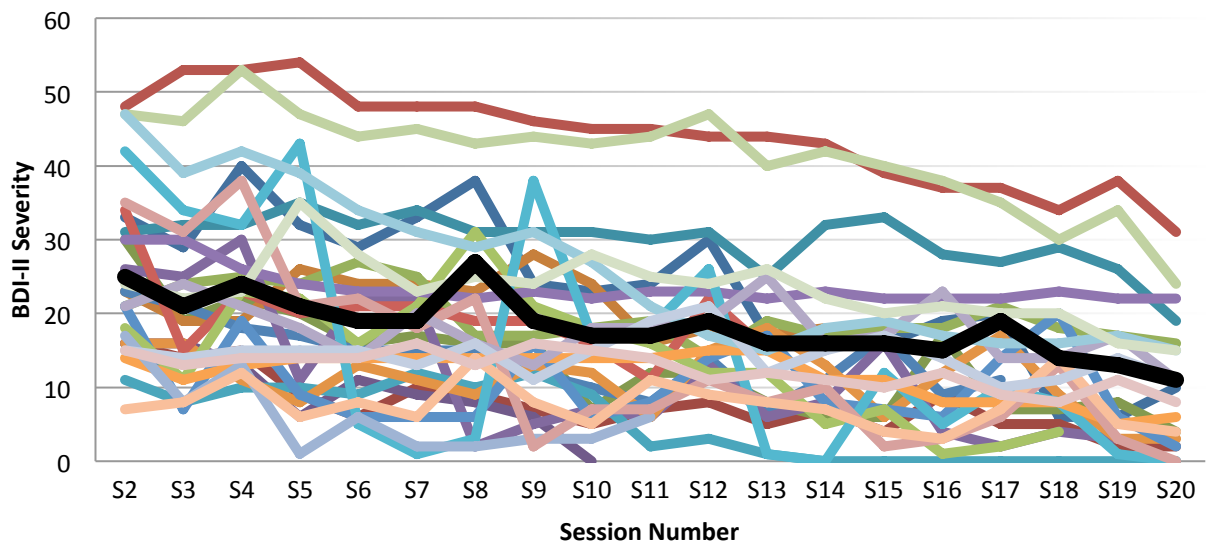


Figure 8.3 Individual participant's *BDI-II* scores from sessions 2 to 20. Average *BDI-II* score trajectory of participant's represented in the bold black line

Variance in Homework Adherence – HRS-II

Next the client data from the *HRS-II*, items one (*quantity*), and two (*quality*), were entered into another data set and are graphically represented in Figures 8.4 and 8.5. As can be seen, scores appear to be randomly scattered, and evidence no obvious growth trajectory or linear trends over the course of therapy for this sample, and thus indicate both within- and between individual temporal variability in homework adherence.

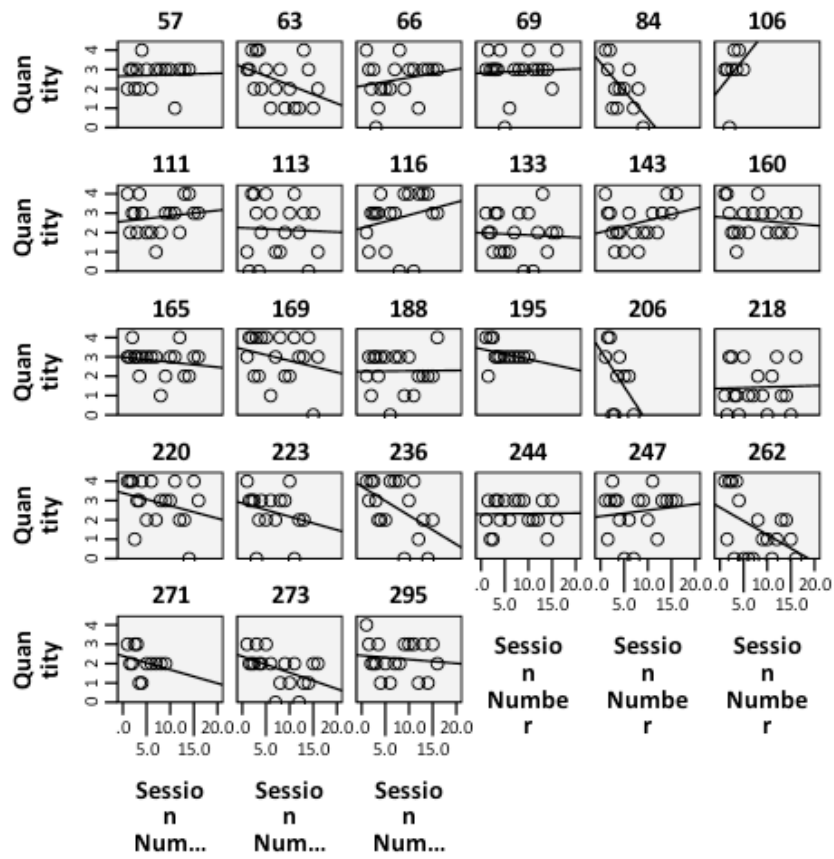


Figure 8.4 Individual client ratings, as measured on the *HRS-II*, of *quantity* of homework completed over the course of therapy

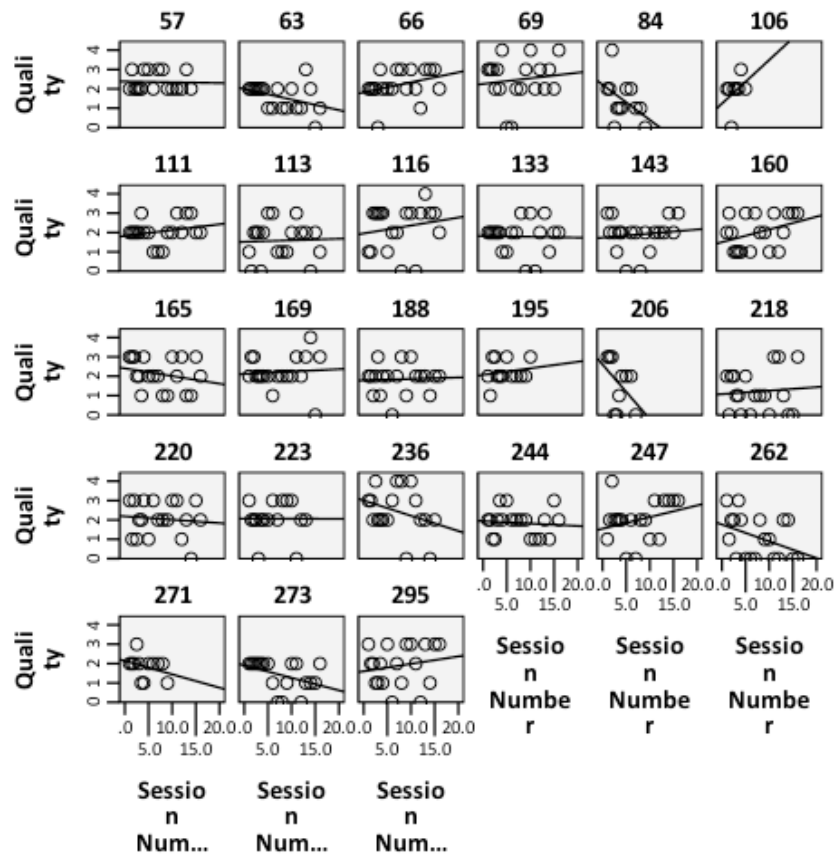


Figure 8.5 Individual client ratings, as measured on the *HRS-II*, of *quality* of homework completed over the course of therapy

Visual Inspection Level-2 Predictor Personality Beliefs Questionnaire – Short Form (PBQ-SF)

A preliminary analysis between those that endorsed personality beliefs on the *PBQ-SF* and those who did not, found a difference in mean *BDI-II* scores at intake assessment and termination of therapy. Specifically the mean *BDI-II* score at intake for those who endorsed personality beliefs was 34 (range 21-53) compared to 28 (range 13-50) for those who did not endorse these beliefs. Depression severity at Session 20 was also different between these two groups with a mean *BDI-II* score of 13 (range 0-31) for those endorsing personality beliefs, compared to 7 (range 0-24) not endorsing beliefs. Percentage difference in initial depression severity equated to 82%, while it accounted for 53% difference at Session 20.

An exploratory regression analysis was also performed in order to confirm there was a difference between those participants who endorsed personality beliefs and those who did not; and to visually depict their change trajectories of depression severity, as measured by the *BDI-II*. A visual inspection of Figure 8.6 highlights a difference between the two groups.

Those participants who endorsed personality beliefs have a higher initial depression severity. Additionally, they have a higher *BDI-II* score at session 20. The horizontal line represents the mean *BDI-II* score within each group, and again there is a difference between the two groups. The R^2 coefficients indicate that the slope relationships account for differing amounts of variance in the two groups. Specifically, the endorsement of personality beliefs accounts for approximately 7% of the variance between the two groups and that this difference is significant ($p < .001$). Furthermore, according to this preliminary analysis, those who endorsed personality beliefs will score an estimated 6 *BDI-II* points higher across the course of therapy, than those who did not endorse such beliefs. These results indicate the *PBQ-SF* is a good predictor of *BDI-II* outcome and confirms that the development of a multi-level model is warranted using the *PBQ-SF* as a measure.

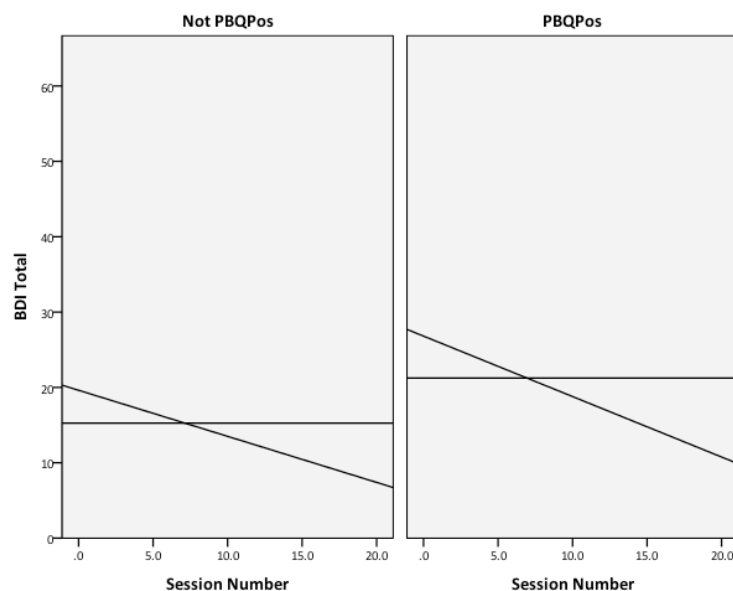


Figure 8.6 Regression of *BDI-II* scores between participants who endorsed personality beliefs and those who did not over 20 sessions of CT

An interaction term between client rated homework was created in a separate database by multiplying the *quantity* and *quality* items. This was then regressed against *PBQ-SF* data. As can be seen in Figure 8.7 those who did not endorse personality beliefs adhered more to homework assignments at the beginning of CT (intercept) compared to those who endorsed personality beliefs. A decline in adherence can be seen in both groups as therapy progresses, however those who endorsed personality beliefs, overall, adhered to homework assignments to lesser degree. This visual inspection of the data demonstrates some difference between

these two groups in client rated adherence to homework assignments, and confirms the *PBQ-SF* data can be utilised as a *Level 2* predictor variable.

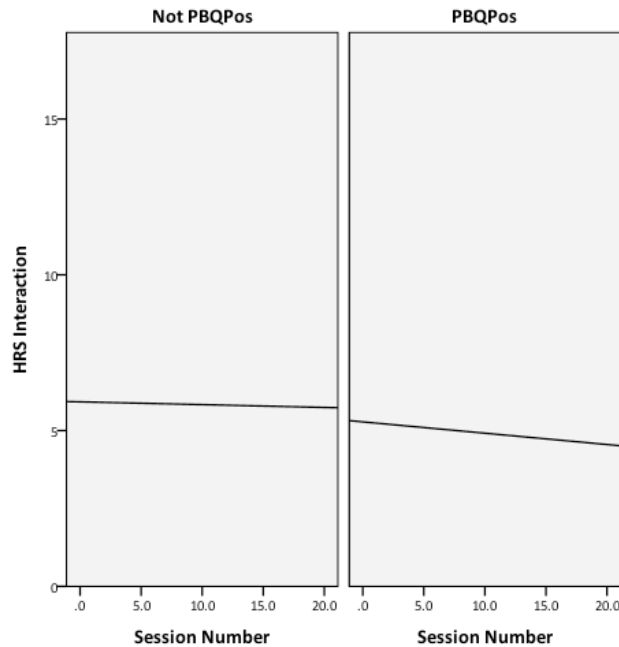


Figure 8.7 Differences in interaction term of homework *quantity* and *quality* trajectories for clients who endorsed personality beliefs and those who did not

Reliability Analyses

Reliability of the BDI-II

The excellent psychometric properties of the *BDI-II* have previously been reported (Chapter 6). Despite its recognised reliability as a self-report measure of depressive symptoms, it was necessary to validate its reliability with the current study's participants. Table 8.1 displays the results of this analysis. According to the guidelines set out by Cicchetti (1994) for assessing alpha, the current analysis demonstrates the *BDI-II* has a good to excellent alpha range of .83 to .98 across all sessions, with an average alpha of .94. These results are consistent with previous analyses of the *BDI-II*, with alphas indicating its strength as a measure, and verify its reliability in this study's population.

Table 8.1
Reliability Analysis of the *BDI-II* for all Participants at Each Session

<i>Session</i>	<i>Alpha α</i>	<i>M</i>	<i>SD</i>	<i>N</i>
0	.92	31.0	11.2	27
1	.94	27.2	11.7	27
2	.94	25.2	11.4	27
3	.96	21.8	11.9	27
4	.92	24.2	12.2	27
5	.88	21.5	13.6	27
6	.98	19.3	11.3	27
7	.95	19.3	11.6	27
8	.83	18.6	12.0	27
9	.94	19.0	11.8	27
10	.97	17.1	11.1	26
11	.95	16.9	10.8	26
12	.90	19.0	10.4	25
13	.96	16.4	10.5	25
14	.96	15.5	11.2	23
15	.94	15.5	10.7	22
16	.95	14.8	10.4	22
17	.93	14.7	9.9	22
18	.93	14.8	8.8	21
19	.97	13.2	10.8	20
20	.92	10.7	8.8	19

Reliability of HRS-II – Client Version

Results of the reliability analysis of the client version of the *HRS-II* are presented in Table 8.2. Alphas ranged from .46 to .88 with an average of .75, showing adequate reliability in its ability to measure the client’s homework tasks across time.

Table 8.2

Reliability Analysis of the *HRS-II* for all Participants at Each Session

<i>Session</i>	<i>Alpha α</i>	<i>M</i>	<i>SD</i>	<i>N</i>
2	.61	26.7	5.05	27
3	.73	27.1	5.91	27
4	.72	28.2	5.04	27
5	.74	26.8	5.06	27
6	.76	27.3	5.62	27
7	.71	27.3	5.65	27
8	.76	28.2	5.41	27
9	.70	27.2	5.62	27
10	.76	27.2	6.23	26
11	.84	27.6	6.23	26
12	.46	27.2	8.39	25
13	.88	28.5	6.75	25
14	.84	30.4	6.26	23
15	.80	30.0	6.55	22
16	.78	28.2	6.49	22
17	.81	30.7	6.73	21
18	.88	29.4	6.24	21
19	.72	28.1	9.54	20
20	.78	31.1	6.28	19

Hierarchical Linear Model Building

Models A and B

Table 8.3 presents data from the initial two models – the *Unconditional Means-* and *Unconditional Growth-*models. *Model A* specifies *BDI-II* scores from Session two. *Model B* specifies *BDI-II* data and time from Session two.

Table 8.3

Model A and Model B – Unconditional means model and unconditional growth model of the BDI-II

		Parameter	Model A	Model B
Fixed Effects				
Initial Status π_{0i}	Intercept	γ_{00}	17.60*** (1.81)	23.60*** (2.23)
Rate of Change π_{2i}	Intercept	γ_{10}	-	-0.89*** (.12)
Variance Components				
Level 1	Within Person	σ^2_{ϵ}	45.55*** (3.07)	22.26*** (1.54)
Level 2	Initial Status	σ^2_0	85.82*** (24.08)	129.85*** (36.54)
	Rate of Change	σ^2_1	-	0.28** (0.09)
	Covariance	σ^0_1	-	-3.32* (1.51)
Pseudo R² Statistics and Goodness-of-fit				
		R^2_{ϵ}	-	0.50
		R^2_0	-	-
		R^2_1	-	-
		Deviance	3202.96	2932.12
		AIC	3208.96	2944.12
		BIC	3221.40	2968.99

Note. *** $p < .001$; ** $p < .01$; * $p < .05$.

Analysis of Models A and B – The Unconditional Means- and Unconditional Growth-Models

Fixed Effects

As indicated above, *Model A* specifies *BDI-II* scores while *Model B* adds time as a predictor. Results of fixed effects of initial status (π_{0i}) (i.e., session two) for *Model A* (γ_{00}) show the estimated grand mean *BDI-II* scores for participants across sessions 2 – 20 is 17.60 ($p < .001$), and *Model B* presents the same mean *BDI-II* scores with time added as a predictor (23.60, $p < .001$). Both of these figures are significant and as they are higher than zero at session two, the null hypothesis ($H_0 p < .001$) can be rejected and additional models can be specified. Rate of change (γ_{10}) in *Model B* describes the estimated average change trajectory, or slope, of participants self reported depressive severity (i.e., *BDI-II*) over time. Again, this result is significant and is a negative value, indicating that, on average, depressive symptoms are decreasing over the course of therapy. Therefore, the null hypothesis was rejected ($p < .001$) for *Model B*.

Variance Components

These indicate if there is statistically significant difference in participant's initial status or rate of change that *Level 2* predictors could explain and are therefore, according to Singer and Willett (2003) often of more interest than fixed effects data. *Level 1* within-person variance (σ^2_{ϵ}) shows the average spread of participant's outcome around their change trajectory. The results of *Model A* (45.55, $p < .001$) indicate a statistically significant variability within individual's that is not explained. The *Level 2* initial status (σ^2_0) data shows a significant increase in value (85.82, $p < .001$) that suggests that variation can be better understood between and not within participants. The addition of time as a predictor in *Model B (Level 1)* demonstrates a reduction in outcome, with results showing it (time) explains 50% of the variation within participants (see R^2_{ϵ} and explanation below). Between participant variation at *Level 2* (σ^2_0) significantly increases with time added as a predictor. When viewed together, the σ^2_0 and σ^2_1 values in *Model B* describe the between-individual initial status variance in depression severity and the temporal rate of change of depression severity. These figures are positive and significant ($p < .001$ and $p < .01$). Finally, the covariance results (σ^0_1) assesses the relationship between *Level 2* (σ^2_0 and σ^2_1) residuals and provides information regarding participant's true initial status and true rate of change. Results show a significant negative effect, indicating that participants who had higher self-reported depression severity (*BDI-II*) at session 2 changed at a slower rate over the course of therapy.

Pseudo R^2 and Goodness-of-fit

As stated above, 50% of within person variation in depression severity is explained by linear time (R^2_{ϵ}). The deviance statistic is used to examine improvement of model fit of nested data from *Model A* to *Model B*. Results show a reduction in value of 270.84 (i.e., 3202.96 minus 2932.12), which indicates the *Unconditional Growth Model (Model B)* is a better fit than *Model A (Unconditional Means Model)*. As further models are added the deviance statistic becomes less reliable due to the inability to guarantee data is nested within each added predictor (Field, 2009; Heck et al, 2010; Singer & Willett, 2003). As with the deviance statistic above, the AIC reduces (-264.84) supporting the better fit of *Model B*. Again, a decrease is evidenced in the BIC (-252.41), which also allows for sample size, further supporting *Model B* is preferable to *Model A*.

Although the *Unconditional Growth Model* was a better fitting model to that of *Model A* there still remains significant residuals to be explained, allowing for the introduction of additional predictors. Two variables have been hypothesised to have an impact on depression outcome in this study – homework adherence and the endorsement of personality beliefs – and these are introduced next in *Models C and D*.

Primary Models C and D

Model C (Table 8.4) describes the *uncontrolled* effects of homework *quantity* and *quality* (i.e., adherence) on depression severity. *Model D* describes the effects of homework adherence on depression outcome while *controlling* for the endorsement of personality beliefs on initial status and rate of change. An alternative *Model D* is presented in Appendix O, with the *PBQ-SF Global Level of Distress* scale entered as the controlled predictor.

Analysis of Primary Model C – The Uncontrolled Effects of Homework Adherence

This analysis is specifically related to the research question regarding the homework and depression relationship. That is, do those participant's who adhere more to their HW tasks have lower levels of depression severity at termination of treatment?

Fixed Effects

The initial status intercept (γ_{00}) shows the estimated initial average depression severity (at session two) for the participants who score '0' on the HW items (22.29, $p < .001$). As with the previous models this figure is positive (i.e., non-zero) and significant. The next parameters (γ_{01} , γ_{02}) show the estimated difference in initial depression severity between participants who score low or high on the HW measures. Neither of these figures are significant indicating homework adherence (*quantity* and *quality*) is having no meaningful effect on initial depression severity. The rate of change, or slope, intercept (γ_{10}) shows the estimated rate of change in *BDI-II* scores for clients scoring zero on the HW measure. It shows a significant negative effect on depression severity (-0.64, $p < .001$), which indicates that even if participants have a zero rating on the homework adherence measures their *BDI-II* scores are still showing a significant reduction. The final parameters (γ_{11} , γ_{12}) indicate the estimated difference in rate of change in depression severity between participants, who scored low or high on the homework measures. Although these figures are negative, showing some change in depression severity, they are non-significant and are, therefore, indicative that homework adherence is not significantly related to rate of change in *BDI-II* scores.

Variance Components

The *Level 1* within-person variance (σ^2_{ϵ}) shows a significant amount of variability that is not yet explained even after the introduction of homework adherence measures, and does not show significant difference in fit to *Model B*, equating to only 0.018% improvement. *Level 2* between-individual residual variance components of initial status (σ^2_0) show minimal change with the addition of homework. However, this figure is significant, suggesting the continued presence of potentially explainable residual variation in depression severity change. Residual variance in depression rate of change (σ^2_1) decreased (0.27, $p < .01$), and accounts for a 3.6% reduction from *Model B*. This indicates that whether a participant did or did not adhere to HW tasks, explains 3.6% of the variance in depression rate of change for this sample. Overall, the variance components indicate homework adherence (*quantity* and *quality*) accounts for some minimal change in depression severity both within- and between-participants.

Pseudo R^2 and Goodness-of-fit

The deviance statistic shows a small reduction of fit from *Model B* to *Model C* (-6.36), however this would not necessarily equate to an improvement of model fit, and as previously stated, this figure cannot be relied upon as reliable as subsequent models are added. The AIC and BIC show an increase from *Model B*, which cumulatively suggest *Model C* is not a superior fit to *Model B*.

Analysis of Primary Model D - The Uncontrolled Effects of Homework Adherence and the Controlled Effects of Personality Beliefs (and Global Level of Distress in Alternative Model D – Appendix O)

These analyses are specifically related to the research questions regarding the personality beliefs and depression relationship, the moderating effect of personality beliefs on HW adherence and depression, and the global level of distress and homework relationship. That is, do those participant's who endorse personality belief profiles have higher depression severity at intake and at termination of therapy? Does the presence of personality beliefs moderate the homework-depression relationship? And, will higher global levels of distress, as measured by the *PBQ-SF*, be related to lower levels of HW completion?

Fixed Effects

Model D includes two predictors, homework adherence and the endorsement of personality beliefs (Table 8.4), (or *Global Level of Distress* from the *PBQ-SF* in Appendix O). The initial status intercept (γ_{00}) describes the initial status of the subset of participants who scored '0' on

HW measures and the *PBQ-SF* equals zero (i.e., did not endorse any personality beliefs, or no 'distress' in Appendix O). Again this figure is positive (i.e., non-zero) and significant (19.21, $p < .001$). It also shows a decrease from Model C, indicating lower average *BDI-II* scores, at session two, in those participants who did not endorse personality beliefs and therefore improves model fit. The alternative *Model D* in Appendix O, also shows a decrease in average *BDI-II* scores when ratings on the *PBQ-SF* global level of distress and HW measures were zero, showing that the distress factor on the *PBQ-SF* predicts lower average levels of depressive severity when measured with the *BDI-II* (15.71, $p < .01$). The next parameters (γ_{01} , γ_{02}) represent the estimated between participant difference in average *BDI-II* scores for those who scored low or high on the homework adherence measures while controlling for any effects of personality beliefs. There is little change from *Model C* with these figures remaining non-significant, indicating that the personality beliefs or distress predictors are having no meaningful effect on homework adherence. As with *Model C* it appears that *quality* of homework completion has the larger effect, although again, this is not statistically significant. Finally, the γ_{03} parameter shows a significant and positive relationship with raw *BDI-II* scores (6.30, $p < .05$). This demonstrates, that after controlling for HW adherence, the endorsement of personality beliefs is positively related to higher *BDI-II* scores at Session 2. Therefore, the magnitude of initial depression severity is lower after personality beliefs is controlled for, indicating that the difference in *BDI-II* scores may be attributable to this predictor. However, when the *Global Level of Distress* was entered as the alternative predictor (Appendix O) no significant effect is present (0.84, *ns*). The γ_{10} parameter (estimated rate of change) represents the average change of depression severity (*BDI-II*) of participants who did not endorse personality beliefs and scored zero on the homework adherence measures. This figure represents a significant negative relationship with *BDI-II* scores (-0.50, $p < .001$). That is, for those participants who scored zero on the personality beliefs and HW measures, their *BDI-II* scores are still showing a significant reduction. The *quantity* (γ_{11}) and *quality* (γ_{12}) parameters represent the difference in depression severity rate of change between participants who scored low or high on HW measures, while controlling for the effects of personality beliefs. These parameters show a non-significant negative effect and evidence no change to *Model C*. Therefore, indicating the *PBQ-SF* factors are not moderating HW compliance. The final parameter (γ_{13}) shows personality beliefs have a significant negative relationship (-0.27, $p < .05$) with *BDI-II* change when homework adherence measures are controlled for. This indicates those participants who positively endorsed the presence of personality beliefs change more slowly in their depression severity than those who do not

endorse such beliefs. Alternatively, in Appendix O, level of distress has no relationship with *BDI-II* change when controlling for homework adherence.

Table 8.4

The uncontrolled effects of homework quantity and quality on depression severity (Model C) and the controlled effects of homework quantity and quality with personality beliefs on depression severity (Model D)

			Parameter	Model A	Model B	Model C	Model D
Fixed Effects							
Initial Status π_{0i}	Intercept		γ_{00}	17.60***	23.60***	22.29***	19.21***
				(1.81)	(2.23)	(2.46)	(3.05)
		Quantity	γ_{01}	-	-	0.17	0.18
		Quality	γ_{02}	-	-	(0.60)	(0.60)
	PBQ	γ_{03}	-	-	0.41	0.43	
				-	-	(0.76)	(0.76)
				-	-	-	6.30*
				-	-	-	(3.93)
Rate of Change π_{2i}	Intercept		γ_{10}	-	-0.89***	-0.64***	-0.50***
				-	(0.12)	(0.18)	(0.20)
		Quantity	γ_{11}	-	-	-0.02	-0.02
		Quality	γ_{12}	-	-	(0.08)	(0.08)
	PBQ	γ_{13}	-	-	(0.09)	(0.09)	
				-	-	-	-0.27*
				-	-	-	(0.22)
Variance Components							
Level 1	Within Person		σ^2_{ϵ}	45.55***	22.26***	21.96***	21.97***
				(3.07)	(1.54)	(1.53)	(1.52)
Level 2	Initial Status		σ^2_0	85.82***	129.85***	129.69***	116.90***
				(24.08)	(36.54)	(36.50)	(33.07)
	Rate of Change		σ^2_1	-	0.28**	0.27**	0.25**
				-	(0.09)	(0.09)	(0.09)
	Covariance		σ^0_1	-	-3.32*	-3.24*	-2.82*
				-	(1.51)	(1.49)	(1.38)
Pseudo R² Statistics and Goodness-of-fit							
			R^2_{ϵ}	-	0.50	0.518	0.517
			R^2_0	-	-	0.001	0.098
			R^2_1	-	-	0.036	0.074
			Deviance	3202.96	2932.12	2925.76	2923.28
			AIC	3208.96	2944.12	2945.76	2947.28
			BIC	3221.40	2968.99	2987.22	2997.04

Note. *** $p < .001$; ** $p < .01$; * $p < .05$.

Variance Components and Goodness-of-fit

When comparing *Model D* to the *unconditional growth model (Model B)* it can be seen that within person variance (σ^2_{ϵ}) remains relatively stable, which is expected in multi-level

modelling. These figures indicate that by adding personality beliefs to this model a significant increase in between-individual variance in initial status has occurred (116.90, $p < .001$), and the endorsement of personality beliefs explains 9.7% of the variance in *BDI-II* scores at Session 2 (or 6.9% when measured with the *Global Level of Distress*). Furthermore, adding personality beliefs to this model resulted in a significant decrease in inter-individual temporal variance in rate of change of depression severity (0.25, $p < .01$). *Model D* also accounted for 7.4% of the variation in rates of change (R^2_1) over the course of treatment. When just considering the effect of personality beliefs in *Model D* they explain 9.7% of the variation in initial status and 3.8% of the variation in rates of change.

Finally the σ^2_0 and σ^2_1 parameters suggest there is unexplained variation in both, initial status and rate of change between participants, and therefore further *Level 2* predictors will be added to *post-hoc* analyses in an attempt to further explain these residuals.

Post-hoc Analyses

Analyses to this point have shown that the presence of personality beliefs has a significant impact as a moderator on outcome in CT for depression. However, primary analyses reveal homework adherence (*quantity* and *quality*) has only minimal effect and personality beliefs do not moderate HW. As there remains significant variance that has not yet been explained in the multi-level models completed, *post-hoc* analyses were completed focusing on alternative ways of measuring HW and on those factors that have previously been implicated in the literature. Specifically, additional models were built using the *Behaviour (quantity and quality)* factor of the *HRS-II* (Appendix P), using the therapist rated *quantity* and *quality* of the *HRS-II* (Appendix Q), and the client rated *Beliefs* factor of the *HRS-II* (Appendix R). Additionally, further models were built controlling for depression severity, therapist competence, client gender and marital status in order to investigate their impact, in this sample, on the remaining residuals.

Analysis Alternative Models C and D: The Uncontrolled Effects of Homework Behaviour Factor (HRS-II), and the Controlled Effects of Personality Beliefs (and Global Level of Distress in Appendix O)

The rationale for completing this analysis was the lack of findings when utilising the individual *quantity* and *quality* items in previous analyses. The two items were multiplied together to form an interaction term and alternative *Models C* and *D* were created. Results are presented

in Appendix P (and Appendix O, *Global Level of Distress*) and placed next to the primary analyses for comparative purposes.

Fixed Effects

The initial status intercept (γ_{00}) shows the estimated initial average depression severity at Session 2 for participants who score zero on the HW *Behaviour* factor (22.73, $p < .001$) and zero on HW *Behaviour* and the *PBQ-SF* (19.60, $p < .001$). Depression severity has slightly increased in alternative *Model C*, indicating higher average *BDI-II* scores in those participants who did not adhere to HW tasks. HW *Behaviour* parameter (γ_{03}) shows the estimated difference between participants in average initial depression severity for those who scored high or low in the HW factor. This figure is not significant, indicating HW adherence is having no meaningful effect on initial depression severity between participants. This result is similar to the primary *Model C* analyses showing no significant effect. When controlling for personality beliefs in alternative *Model D* (γ_{04}), results show a significant and positive relationship in raw *BDI-II* scores (6.44, $p < .05$). This is an increase from the primary analysis and represents that the magnitude of initial depression severity is lower after personality beliefs are controlled for. The estimated rate of change intercept in alternative *Model C* (γ_{10}) shows a significant negative effect (-0.72, $p < .001$) on average *BDI-II* scores, and this effect has increased from primary *Model C*, and confirms participants are experiencing significantly less reduction in depression severity when scoring zero on the HW *Behaviour* factor. Additionally, alternative *Model D* shows that the estimated average rate of change between participants decreases when participants scored zero on HW and the *PBQ-SF*, and this decrease is significant (-0.59, $p < 0.01$). Parameter γ_{13} indicates estimated difference in rate of change of depression severity between participants who scored low or high on HW measures. Unlike the individual HW items in the primary analyses, it can be seen that the interaction term is having a small but significant negative effect (-0.03, $p < .05$), indicating HW adherence, when measured this way is significantly related to change in *BDI-II* scores. In alternative *Model D* the homework parameter (γ_{13}) has become non-significant when controlling for personality beliefs (-0.02, *ns*) indicating personality beliefs are having a moderating effect on HW adherence and rate of change in depression severity. Furthermore, the *PBQ-SF* parameter (γ_{14}) shows that personality beliefs have a significant negative effect (-0.28, $p < .05$) on *BDI-II* change when the HW *Behaviour* factor is controlled for. When comparing this to the primary analysis, it can be seen that those who positively endorsed personality beliefs, change at a slower rate. Finally, when HW is measured using the

Behaviour interaction term the rate of change in *BDI-II* scores is slower and the endorsement of personality beliefs is having a moderating effect.

Variance Components

Level 1 within-person variance (σ^2_{ϵ}) shows a significant amount of variability that is not yet explained after the introduction of the HW *Behaviour* and personality beliefs data. Additionally, this variance has increased slightly from primary *Model C* and remains constant in the two alternative models. Likewise, the *Level 2* between-person variance (σ^2_0) has slightly increased when utilising the HW *Behaviour* factor and personality beliefs data. These figures indicate that by modelling HW in this way a significant increase in between-individual variance in initial status has occurred (130.15, $p < .001$). In alternative *Model D* the variance in initial status has also increased, and this is significant (117.10, $p < .001$), this explains 10% of the between-individual variance. However, there is no change in variance of inter-individual rate of change (σ^2_1) or covariance of *Level 2* predictors (σ^0_1) in either of the alternative *Models C* or *D*. Cumulatively the variance components indicate HW adherence, when measured with the *Behaviour* factor, accounts for some change in initial status. The personality beliefs parameter accounts for some difference when compared to primary *Models C* and *D*.

Pseudo R^2 and Goodness-of-fit

The proportional reduction in residual variance is unchanged within-participants, and as previously stated, this is expected when additional parameters are added to multi-level models. However, between-participant initial status (R^2_0) has increased in both alternative *Models C* and *D*, but rate of change (R^2_1) remains unchanged in the alternative models, indicating that measuring HW adherence differently has not affected the temporal growth trajectories of participants. The *AIC* and *BIC* statistics show the *Behaviour* factor of HW adherence provides a slightly superior fit to primary *Model C* and this is significantly more evident in *Model D*. This indicates HW adherence, when measured this way, and personality beliefs, provide a better fit than the primary models.

Global Level of Distress Analysis

The γ_{00} indicates that the average *BDI-II* score at Session 2 for those clients scoring zero on both the HW *Behaviour* factor and *Global Level of Distress*, is 16.09 ($p < .01$). The γ_{04} represents the estimated difference in average *BDI-II* scores between clients who scored low or high on the HW factor. This value is positive and non-significant (0.15, *ns*). The *PBQ-SF* parameter (γ_{03})

indicates that when controlling for HW adherence *BDI-II* scores at Session 2 are not related to the level of distress (0.09, *ns*). The rate of change parameter (γ_{10}) shows the estimated change in *BDI-II* scores in participants who scored, at Session 2, zero on the HW factor and the global level of distress. This figure is negative but non-significant (-0.50, *ns*). The difference in rate of change of depression severity between participants who scored low and high on the HW factor, while controlling for the effects of level of distress is represented in parameter γ_{14} . This value is negative and significant (-0.03, $p < .05$) and represents a change from *Model D*. This indicates that HW adherence (*Behaviour* factor) is having a meaningful effect on *BDI-II* rate of change. The difference in rate of change of depression severity between participants who scored low or high on level of distress, while controlling for HW adherence is represented in parameter γ_{13} . This value is negative and non-significant (-0.00, *ns*) and does not represent a change from *Model D*, indicating global level of distress is having no meaningful effect on between-participant depression rate of change. HW *Behaviour* shows a small but significant increase in *Level 1* within person variance from *Model D*. Additionally, at *Level 2*, HW adherence, and global level of distress account for 13.6% of the variance in initial status *BDI-II* scores, and 4.0% of the variance in *BDI-II* rate of change across the course of therapy. This indicates that this model is a better fit to *Model D* which utilises the individual HW constructs of *quantity* and *quality*. This is supported by the decreases in the *AIC* and *BIC* statistics.

Analysis Alternative Models C and D: The Uncontrolled Effects of Therapist Rated Homework Quantity and Quality, and the Controlled Effects of Personality Beliefs

As discussed in an earlier chapter (Chapter 4), previous research has shown that client's and therapist's differ in how they rate HW adherence. This current research is focusing on the impact of beliefs, specifically related to personality, and how these may negatively impact on HW adherence and outcome in CT for depression. Conceivably these beliefs may impact upon participant's self-ratings of HW adherence. Therefore, it was considered that an analysis of client- and therapist-rated HW was necessary for comparative purposes. Results are presented in Appendix Q and situated next to the primary analyses for comparative purposes.

Fixed Effects

While the γ_{01} and γ_{02} parameters are not significant in the alternate models, it can be seen that therapist's rate *quantity* and *quality* of HW adherence differently to client's. Specifically these parameters indicate that there is an increase in average *BDI-II* scores for *quantity* and a negative relationship with *BDI-II* scores for *quality*. These differences are magnified in the rate

of change intercept (γ_{10}) when compared to the primary *Models C* and *D*. Effectively when therapist's scored clients lower on their adherence of HW tasks (and client's rated higher on the *PBQ-SF* in alternative *Model D*), then depression severity was more likely to increase on the *BDI-II*. It can be seen that depression severity is lower when HW is rated by therapist's. The *quantity* (γ_{11}) and *quality* (γ_{12}) intercepts remain non-significant, although again, they indicate a change from client rated HW in the primary models. Despite the changes in HW ratings the *PBQ* parameter (γ_{13}) remains unchanged, indicating that the endorsement of personality beliefs results in a slower rate of change in depression.

Variance Components

The *Level 1* within-person variance has some minimal change in the alternative models, however neither provide enough change to explain differences within-participants. Similarly, the *Level 2*, between-participant variance, shows some change, but not enough to indicate that therapist rated HW adherence impacts upon results of these alternative models.

Pseudo R^2 Statistics and Goodness-of-fit

At *Level 2* therapist rated HW explains the same variance in *BDI-II* scores at Session 2 (R^2_0) and similarly there is no change in variance in *BDI-II* rate of change according to the R^2_1 value for alternative *Model C*. Although some difference is observed in alternative *Model D*, for the R^2_0 and R^2_1 values, these differences are only a minimal reduction, indicating that the amount of variance the *PBQ-SF* explains, reduces slightly when therapist's rate HW adherence. Finally, the small decrease in the *AIC* and *BIC* suggests these alternative models are a slightly better fit to the data than the primary models.

Analysis Alternative Models C and D: The Uncontrolled Effects of the Homework Beliefs Factor, and the Controlled Effects of Personality Beliefs

As this current research is investigating the impact of personality beliefs on HW adherence, it was relevant to utilise the *Beliefs* factor of the *HRS-II* in *post-hoc* analyses in order to ascertain whether the actual beliefs aligned with HW adherence, as measured by the *HRS-II*, have an impact on within- and between-participant variance. The results are presented in Appendix R and situated next the primary analyses for comparative purposes.

Fixed Effects

The initial status intercept (γ_{00}) shows the estimated initial average depression severity, at Session 2, for the participants who score zero on the HW Beliefs factor (alternative *Model C*). This figure is positive and significant (23.89, $p < .001$). It shows an increase from the primary model indicating higher average *BDI-II* scores in those participants who scored low on HW *Beliefs*. Similarly, alternative *Model D*, shows the initial average depression severity, at Session 2, when participants scored zero on the HW measure and on the *PBQ-SF*. This figure is positive and significant (20.71, $p < .001$) and represents an increase from the primary model. The γ_{03} parameter represents the estimated between-participant difference in average *BDI-II* scores for those who scored low or high on the HW *Beliefs* factor (alternative *Model C*) and controlling for the effects of personality beliefs (alternative *Model D*). These figures are negative and nonsignificant, however indicate that the average *BDI-II* score increases when the HW *Beliefs* factor is equal to zero. The γ_{04} parameter shows a significant and positive relationship with raw *BDI-II* scores (6.33, $p < .05$). This demonstrates, that after controlling for HW *Beliefs*, the endorsement of personality beliefs is positively related to higher *BDI-II* scores at Session 2. Alternative *Model D* shows that when using the HW *Beliefs* factor this figure has increased from the primary model, indicating it accounts for some difference in initial *BDI-II* scores.

The rate of change intercept is significantly different in alternative *Models C* and *D*. When comparing *Model C* and *D* it can be seen that an increase has occurred when modelling the *Beliefs* factor of the *HRS-II*. This parameter (γ_{10}) indicates that the average rate of change of *BDI-II* scores when scoring zero on the HW beliefs is negative and significant (-0.86, $p < .001$). That is, depression severity will be higher for those scoring zero on the HW factor. Furthermore, in alternative *Model D*, when scoring zero on the HW factor and high on the *PBQ-SF*, participants depression severity is likely to increase, and this figure is significant (-0.72, $p < .001$). However, the HW *Beliefs* (γ_{13}) parameter indicates that after controlling for personality beliefs, there remains no significant difference in depression rate of change between those scoring low or high on the HW *Beliefs* factor. The final parameter (γ_{14}) shows personality beliefs have a significant negative relationship (-0.25, $p < .05$) with *BDI-II* rate of change when the HW *Beliefs* factor is controlled for. This indicates those participants who positively endorsed the presence of personality beliefs change more slowly in their depression severity than those who do not endorse such beliefs. Additionally, the HW *Belief* factor has accounted for a decrease of rate of change in alternative *Model D*, indicating there is a

relationship between these two constructs that is moderating the depression change trajectory.

Variance Components

Within person variance has increased in both alternative *Models C* and *D* (σ^2_{ϵ}) indicating that HW *Beliefs* and personality beliefs are having some meaningful effect within participants. The *Level 2* initial status intercepts (σ^2_0) have also increased from the primary models and this change is significant. HW *Beliefs* accounts for 1.3% of this variance in *BDI-II* scores at Session 2 (*Model C*) and personality beliefs accounts for 7.3% (*Model D*). Additionally, the *PBQ-SF* factor accounted for 10.2% of the variance in rate of change in between-participant temporal variance in rate of change of depression severity from primary *Model D*.

Pseudo R^2 and Goodness-of-fit

The AIC figures shows a slight increase in both alternative *Models C* and *D*, however the BIC figures (which adjusts for sample size) indicate that the HW *Beliefs* factor results in a slightly better fit than to two primary models.

Analysis Model E: Controlling for Depression Severity, Therapist Competence, Client Gender and Relationship Status

Model E retains two predictors (HW and *PBQ-SF*), however it utilises the results from alternative *Model D* that encompassed the HW *Behaviour* factor rather than the individual constructs of *quantity* and *quality*, as this resulted in explaining more of the remaining residuals, and was therefore, a better fitting model. *Model E* controls for the additional predictors listed at the top of each column in Table 8.5 at *Level 2*. These predictors have been previously been linked as moderators of outcome in CT for depression, and was therefore important to ascertain whether they were having any meaningful effect within this study.

Depression Severity

The γ_{00} indicates that the average *BDI-II* score at Session 2 for those clients scoring zero on the HW adherence factor, did not endorse personality beliefs, and scored zero in the *BDI-II* is 9.43 ($p < .001$). The γ_{01} represents the estimated difference in average *BDI-II* scores between clients who scored low or high on the HW factor. This value is positive and significant (0.14, $p < .05$). The *PBQ-SF* parameter (γ_{02}) indicates that when controlling for HW adherence and depression severity *BDI-II* scores at Session 2 are not related to the endorsement of personality beliefs

(1.62, *ns*). Parameter γ_{03} represents the estimated difference in average *BDI-II* at Session 2, between participants who have low or high severity of depression. This estimated difference is positive but non-significant (7.52, *ns*).

The rate of change parameter (γ_{10}) shows the estimated change in *BDI-II* scores for participants who scored, at Session 2, zero on the HW factor, the personality beliefs measure and on the *BDI-II*. This figure is negative but non-significant (-0.08, *ns*). The difference in rate of change of depression severity between participants who scored low and high on the HW factor, while controlling for the effects of personality beliefs and depression severity is represented in parameter γ_{11} . This value is negative and significant (-0.02, $p < .05$) and represents a change from *Model D*. This indicates that depression severity is a temporal moderating factor in rate of change of depression severity, HW adherence and personality beliefs. Depression severity shows a significant reduction in *Level 1* within person variance from *Model D*. Cumulatively, at *Level 2*, HW adherence, personality beliefs, and depression severity account for 74.4% of the variance in initial status *BDI-II* scores and 64.0% of the variance in *BDI-II* rate of change across the course of therapy. This indicates that this model is a better fit to *Model D*. This is supported by the significant decreases in the *AIC* and *BIC* statistics. However, these results are not surprising as the severity scales are embedded within the *BDI-II* scores.

Therapist Competence

The γ_{00} indicates that the average *BDI-II* score at Session 2 for those clients scoring zero on the HW adherence factor, did not endorse personality beliefs, and scored zero in the *CTS* is 29.04 ($p < .001$). The γ_{01} represents the estimated difference in average *BDI-II* score between clients who scored low or high on the HW factor. This value is positive and non-significant (0.13, *ns*). The *PBQ-SF* parameter (γ_{02}) indicates that when controlling for HW adherence and therapist competency *BDI-II* scores at Session 2 are related to the endorsement of personality beliefs (5.92, $p < .05$). Parameter γ_{04} represents the estimated difference in average *BDI-II* at Session 2, between participants whose therapists scored low or high on level of competence. This estimated difference is negative but non-significant (-0.20, *ns*).

The rate of change parameter (γ_{10}) shows the estimated change in *BDI-II* scores in participants who scored, at Session 2, zero on the HW factor, the personality beliefs measure and therapists on the *CTS*. This figure is negative but non-significant (-1.35, *ns*). The difference in rate of change of depression severity between participants who scored low and high on the HW factor, while controlling for the effects of personality beliefs and therapist competence is

represented in parameter γ_{11} . This value is negative and significant ($-0.03, p < .05$) but does not represent a change from *Model D*. This indicates that therapist competence is not a moderating factor in *BDI-II* rate of change, and HW adherence. The difference in rate of change of depression severity between participants who scored low or high on the *PBQ-SF*, while controlling for HW adherence and therapist competence is represented in parameter γ_{12} . This value is negative and significant ($-0.24, p < .05$) and represents a change from *Model D*, indicating therapist competence is a moderating factor in depression rate of change and the *PBQ-SF*. Parameter γ_{14} represents the differential in rate of change of depression severity between participants whose therapists rated low or high on the *CTS*, while controlling for HW adherence and the *PBQ-SF*. This value is positive and non-significant ($0.02, ns$), and indicates therapist competence is having no meaningful effect on between participant *BDI-II* rate of change across therapy. Therapist competence shows a small but significant reduction in *Level 1* within person variance from *Model D*. Additionally, at *Level 2*, HW adherence, personality beliefs, and therapist competence account for 1.8% of the variance in initial status *BDI-II* scores and 4.0% of the variance in *BDI-II* rate of change across the course of therapy. This indicates that this model is not a better fit to *Model D*. This is supported by the increases in the *AIC* and *BIC* statistics.

Client Gender

The γ_{00} indicates that the average *BDI-II* score at Session 2 for those clients scoring zero on the HW adherence factor, did not endorse personality beliefs, and scored zero for gender is 14.99 ($p < .001$). This result indicates that males have a lower initial grand mean *BDI-II* score at Session 2. The γ_{01} represents the estimated difference in average *BDI-II* score between clients who scored low or high on the HW factor. This value is positive and non-significant ($0.15, ns$). The *PBQ-SF* parameter (γ_{02}) indicates that when controlling for HW adherence and gender, *BDI-II* scores at Session 2 are related to the endorsement of personality beliefs ($6.70, p < .05$). Parameter γ_{05} represents the estimated difference in average *BDI-II* at Session 2, between males and females. This estimated difference is positive but non-significant ($7.10, ns$).

The rate of change parameter (γ_{10}) shows the estimated change in *BDI-II* scores in participants who scored, at Session 2, zero on the HW factor, the personality beliefs measure and for gender. This figure is negative but non-significant ($-0.44, ns$). The difference in rate of change of depression severity between participants who scored low and high on the HW factor, while controlling for the effects of personality beliefs and gender is represented in parameter γ_{11} .

This value is negative and significant ($-0.03, p < .05$) but does not represent a change from *Model D*. This indicates that gender is not a moderating factor in *BDI-II* rate of change, and HW adherence. The difference in rate of change of depression severity between participants who scored low or high on the *PBQ-SF*, while controlling for HW adherence and gender is represented in parameter γ_{12} . This value is negative and significant ($-0.28, p < .05$) and represents a change from *Model D*, indicating gender is a moderating factor in depression rate of change and the *PBQ-SF*. Parameter γ_{15} represents the differential in rate of change of depression severity between participants who were male or female, while controlling for HW adherence and the *PBQ-SF*. This value is negative and non-significant ($-0.23, ns$), and indicates gender is having no meaningful effect on between participant *BDI-II* rate of change across therapy. Gender shows no significant change in *Level 1* within person variance from *Model D*. Additionally, at *Level 2*, HW adherence, personality beliefs, and gender account for 10.1% of the variance in initial status *BDI-II* scores and 4.0% of the variance in *BDI-II* rate of change across the course of therapy. This indicates that this model is not a better fit to *Model D*. This is supported by the increases in the *AIC* and *BIC* statistics.

Relationship Status

The γ_{00} indicates that the average *BDI-II* score at Session 2 for those clients scoring zero on the HW adherence factor, did not endorse personality beliefs, and scored zero for relationship status is 23.06 ($p < .001$). The γ_{01} represents the estimated difference in average *BDI-II* score between clients who scored low or high on the HW factor. This value is positive and non-significant (0.15, *ns*). The *PBQ-SF* parameter (γ_{02}) indicates that when controlling for HW adherence and relationship status, *BDI-II* scores at Session 2 are related to the endorsement of personality beliefs (7.41, $p < .05$). Parameter γ_{06} represents the estimated difference in average *BDI-II* at Session 2, between those who scored low or high on relationship status. This estimated difference is negative but non-significant ($-3.52, ns$). The rate of change parameter (γ_{10}) shows the estimated change in *BDI-II* scores in participants who scored, at Session 2, zero on the HW factor, the personality beliefs measure and for relationship status. This figure is negative and significant ($-0.50, p < .05$).

The difference in rate of change of depression severity between participants who scored low and high on the HW factor, while controlling for the effects of personality beliefs and relationship status is represented in parameter γ_{11} . This value is negative and significant ($-0.03, p < .05$) but does not represent a change from *Model D*. This indicates that relationship status

is not a moderating factor in *BDI-II* rate of change, and HW adherence. The difference in rate of change of depression severity between participants who scored low or high on the *PBQ-SF*, while controlling for HW adherence and relationship status is represented in parameter γ_{12} . This value is negative and significant (-0.25, $p < .05$) and represents a change from *Model D*, indicating relationship status is a moderating factor in depression rate of change and the *PBQ-SF*. Parameter γ_{16} represents the differential in rate of change of depression severity between participants relationship status, while controlling for HW adherence and the *PBQ-SF*. This value is negative and non-significant (-0.10, *ns*), and indicates relationship status is having no meaningful effect on between participant *BDI-II* rate of change across therapy. Relationship status shows no significant change in *Level 1* within person variance from *Model D*. Additionally, at *Level 2*, HW adherence, personality beliefs, and relationship status account for 5.4% of the variance in initial status *BDI-II* scores and 0.0% of the variance in *BDI-II* rate of change across the course of therapy. This indicates that this model is not a better fit to *Model D* and relationship status is having no meaningful effect on outcome. This is supported by the increases in the *AIC* and *BIC* statistics.

Table 8.5

Model E Controlling Depression Severity, Gender, Therapist Competence and Marital Status

	Parameter	Model D HW Behaviour	Depression Severity	Therapist Competence	Gender	Marital Status	
Fixed Effects							
Initial Status π_{0i}							
	Intercept	γ_{00}	19.60*** (2.94)	9.43*** (1.58)	29.04*** (7.78)	14.99** (3.88)	23.06*** (4.14)
	HW Behaviour	γ_{01}	0.15 (0.11)	0.14* (0.06)	0.13 (0.12)	0.15 (0.12)	0.15 (0.12)
	PBQ-SF	γ_{02}	6.44* (3.93)	1.62 (2.15)	5.92* (3.92)	6.70* (3.75)	7.41* (4.01)
	Dep Severity	γ_{03}	- -	7.52 (0.32)	- -	- -	- -
	Competence	γ_{04}	- -	- -	-0.20 (0.15)	- -	- -
	Gender	γ_{05}	- -	- -	- -	7.10 (4.17)	- -
	Marital Status	γ_{06}	- -	- -	- -	- -	-3.52 (3.12)
Rate of Change π_{2i}							
	Intercept	γ_{10}	-0.59*** (0.18)	-0.08 (0.10)	-1.35 (1.87)	-0.44 (0.23)	-0.50* (0.23)
	HW Behaviour	γ_{11}	-0.02 (0.01)	-0.02** (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.03* (0.01)
	PBQ-SF	γ_{12}	-0.28* (0.22)	-0.08 (0.13)	-0.24* (0.22)	-0.28* (0.22)	-0.25* (0.22)
	Dep Severity	γ_{13}	- -	-0.001 (0.04)	- -	- -	- -
	Competence	γ_{14}	- -	- -	0.02 (0.03)	- -	- -
	Gender	γ_{15}	- -	- -	- -	-0.23 (0.23)	- -
	Marital Status	γ_{16}	- -	- -	- -	- -	-0.10 (0.17)
Variance Components							
Level 1	Within Person	σ^2_{ϵ}	22.01*** (1.52)	7.02*** (0.50)	21.96*** (1.52)	22.02*** (1.52)	22.02*** (1.52)
Level 2	Initial Status	σ^2_0	117.10*** (33.09)	29.98** (8.72)	115.01*** (32.55)	105.31*** (29.87)	110.73*** (31.39)
	Rate of Change	σ^2_1	0.25** (0.09)	0.09* (0.03)	0.24** (0.08)	0.24** (0.08)	0.25** (0.08)
	Covariance	σ^0_1	-2.82* (1.37)	-1.53* (0.50)	-2.68* (1.34)	-2.46* (1.26)	-2.92* (1.32)
Pseudo R² Statistics and Goodness-of-fit							
		R^2_1	0.517	0.845	0.518	0.517	0.517
		R^2_0	0.100	0.744	0.018	0.101	0.054
		R^2_1	0.074	0.640	0.040	0.040	0.00
		Deviance	2924.23	2354.29	2922.33	2921.46	2920.96
		AIC	2944.23	2378.29	2946.33	2945.46	2944.96
		BIC	2985.70	2428.02	2996.09	2995.22	2994.71

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Summary

Key outcomes in the preceding analyses show the data set met the requirements of the assumptions of normality, homoscedasticity, and linearity. Change trajectories in the outcome variable (*BDI-II*) showed an overall decline in severity over time, however, there was no

obvious growth trajectory of the *HRS-II* data over the course of therapy. A difference between participants who did or did not endorse personality beliefs was observed. Additionally, primary measures evidenced significant variability both within- and between-participants signalling hierarchical models could be built. Reliability analyses showed that the *BDI-II* and *HRS-II* were reliable measures with the current sample. The primary multi-level models indicated that HW adherence, when measured using individual *quantity* and *quality* items, had no significant effect on outcome, but the endorsement of personality beliefs was a moderator of outcome at Session 20. *Post-hoc* analyses indicated the HW *Behaviour* factor had a small significant effect in differential rate of change of depression severity between-participants, but this did not result in a better account of outcome or explain more variance than the two primary models. Additionally, results showed that therapist's rate HW adherence differently to client's self ratings, but this was not significant and did not result in any meaningful difference in outcome, either within- or between-participants. HW *Beliefs* resulted in a significant impact on average rate of change of *BDI-II* scores. That is, when scoring zero (i.e., *not at all*) on any of the items forming this factor, then *BDI-II* scores are likely to be higher. This explained more variance in depression severity, at Session 2, but did not explain any difference in temporal rate of change. Finally, *post-hoc* analyses also indicated that depression severity was the key indicator of variance in outcome in the sample. The following chapter discusses these results in more detail, how these add to the literature, and also presents the limitations of this study.

CHAPTER NINE

DISCUSSION

Introduction

The following chapter reviews the research questions of the present study, and discusses the results and implications in the context of these. It then lists this study's contributions to the literature, including its theoretical contributions. The potential limitations of the present study, areas for further research, and the importance of these findings for clients and therapists in the treatment of depression are also discussed. This chapter ends with a capsule summary of this study accompanied by concluding statements.

Summary of Study Aims and Findings

The overall aim of this study was to investigate whether personality beliefs, as measured by the *PBQ-SF*, affects HW adherence, and whether this moderates outcome in CT for depression. A multi-level modelling methodology was chosen in order to investigate the temporal changes across the course of therapy. A discussion relating to the central questions and findings in this study are presented below.

Efficacy of CT in the Treatment of Depression

As a group, the 27 participants in this study showed significant change on the depressive symptoms measure. The sample mean score on the *BDI-II* fell from 31 at pre-treatment, to 10 at Session 20. Mean percentage improvement of 68.1% across the sample was found, with all participants experiencing a decrease in self-reported depressive symptomatology. Additionally, the *Unconditional Growth* model indicated that over time, depression severity significantly reduced. Cumulatively, these results indicate that CT was efficacious in the treatment of depression for this sample, and therefore the null hypothesis could be rejected. As to the efficacy of CT for those in the severe range of depressive symptomatology, results indicate that meaningful improvement was obtained for this group and supports previous research showing CT's effectiveness in treating severe presentations of depression (De Rubeis et al., 2005; Kirsch et al., 2002; Stewart & Harkness, 2012). Cumulatively results indicate CT was an effective treatment for depression for this sample regardless of severity. It also provides some support that augmenting treatment with ADM is not necessarily a requirement for treating more severe depression.

Homework and Depression Relationship

The purpose of this question and associated analyses, was to confirm the importance of HW adherence on outcome in CT for depression as the literature has frequently, and unquestionably indicated, in this present sample. However, results of the primary analyses were inconsistent with previous studies, and indicated HW, when measured as the separate constructs of *quantity* and *quality* with the *HRS-II*, were not significantly related to depression severity at Session 2, when HW assignments were first measured, or to changes in depression severity across the course of treatment. This suggests that when HW adherence is measured and analysed as the separate factors of *quantity* and *quality*; and data is spread across the full treatment period, and not aggregated to single time-point scores, its effect on outcome is not as compelling as previously indicated in the literature. These results provide support for the assertion by Addis and Jacobson (2000) that HW research must become more sophisticated in order to fully understand the mechanism by which it impacts on therapeutic outcome. It is therefore possible, previous studies that have not accounted for temporal change across the course of therapy, may have overestimated the effect of HW in treatment outcome. Added to this, the debate previously cited in this research, regarding how to best measure HW adherence is highlighted by these results. Whilst Kazantzis and colleagues (2004) recommend that the constructs of HW *quantity* and *quality* need to be clearly defined and delineated in order to determine their impact on outcome, it would appear from the current results that neither, in isolation, has any meaningful impact on outcome in CT for depression.

In the alternative analyses utilising the *Behaviour* factor, HW displayed a clear and significant negative predictive effect on the rate of change of depression severity between-participants. Those participants who scored zero for any portion of their HW assignments changed at a slower rate than those who adhered their HW to a greater degree. It was interesting to note that this slower rate of change did not have any meaningful effect on depression outcome at Session 20. This suggests that other factors were accounting for differences in outcome. Results, did however, indicate that HW adherence can be better conceptualised as a combination of both the amount of the task completed and how well it was done, or, the learning that came from the experience. This learning experience has the potential to be cumulative, building on itself with each successive session and HW task. It provides opportunities for this learning to be internalised, challenging the belief systems that have caused the distress aligned with depression. In support of this, the primary analysis showed that it was the *quality* construct that had the largest effect (albeit non-significant) on

depression rate of change and therefore indicates *quality* of HW completion may be more significant in the assessment of between-session tasks. This has previously been indicated in the literature (see Bryant et al., 1999; Kazantzis, Deane, Ronan & Lampropoulos, 2005; Rees et al., 2005; Schmidt & Woolaway-Bickel, 2000). Most notably, the current results provide further support for cognitive theory's emphasis that learning, or skill development, are essential facets in the process of change.

In the comparative analysis using the therapist ratings of HW adherence (*quantity* and *quality*), no effect on outcome for depression severity was found. Results, did however, indicate that participants experienced a slower rate of change when HW *quantity* and *quality* was rated by therapists. It is interesting to note the differences between client and therapist rated HW. In the therapist rated HW adherence, the higher scores were related to the *quantity*. It may be that therapists are disadvantaged in making accurate objective ratings of *how well* (or the *quality* of HW completion) an individual performs a task. They may be unable to fully comprehend the internal processes clients navigate when asked to complete tasks that challenge their belief systems. Additionally, they are also unlikely to fully grasp the complexities of the learning experiences the HW task provided. Furthermore, these results did not support the findings of Mausbach and colleagues (2010) who found client rated HW was more predictive of outcome than therapist rated HW; and those of Schmidt and Woolaway-Bickel (2000) who found therapist rated HW was more predictive of outcome. The results of the current study indicate almost identical outcomes. However, whilst these results are interesting and add to the debate regarding the source of HW rating (see Kazantzis et al., 2000; Kazantzis et al., 2006), this analysis was completed to determine if there was any relative difference in outcome. The focus of this study was specifically related to client rated HW as it was investigating whether there was any moderating effect of the internal belief systems aligned with personality, and therefore, an alternative analysis utilising the therapist rated *Behaviour* factor was not modelled. However, these results may indicate that participant belief systems may subjectively distort their ability to accurately rate their HW performance, and these belief systems may be aligned with personality. This is suggested in the model utilising the HW *Beliefs* factor.

Results indicated that HW *Beliefs* accounted for higher initial depression severity when participants scored zero on any of the items in this factor, and also accounted for a slower rate of change between participants. In effect this means, that when participants either did not

fully understand what the HW task entailed, what the rationale for the task was, were not actively involved in planning the task, or did not understand the specific guidelines for completing the task, they were experiencing higher levels of depression severity and changed at a slower rate. However, these differences did not result in any meaningful variance in outcome to the *Behaviour* factor. While on the surface it would make sense that adherence to a task would be dependent on fully understanding what was required, why the task was assigned and how to go about it, it may be possible that other beliefs may overlap with this factor. For example, the take-home *Between-Session Task Form* (Appendix K) was completed at the end of each session as a fidelity check to ensure participants were completely oriented to the assigned task. Items on this form list the HW task, the client goal it is addressing and specific guidelines for completing the task. Furthermore, it also ranks the importance of the task to the client, and how confident and ready they feel to complete it. These final ratings were required to be higher than 70 before leaving the therapy session. If clients rated the HW assignment and their beliefs regarding their readiness and confidence in completing it below 70, further discussions were carried out in order to conceptualise the difficulties the client was experiencing within their overall presentation, and therefore these discussions formed part of treatment. Once difficulties had been addressed clients were required to re-rate themselves on the critical items to confirm that their beliefs had changed in a positive direction. Collaboration between client and therapist was a central feature in these discussions. It is therefore interesting that participants rated themselves low on any of the items that form the *Beliefs* factor, and could be indicative that other beliefs were influencing their self-ratings.

Personality Beliefs and Depression Relationship

This study also aimed to establish a relationship between personality beliefs and depressive symptom severity, both at intake and at termination of therapy. Results showed a strong association between initial symptom severity and the endorsement of personality beliefs both in the initial regression analysis and multi level models. Additionally, initial symptom severity proved to be highly predictive of symptom severity, both during, and at the end of the treatment on outcome measures.

These results are congruent with previous research focusing on personality disorders, specifically as it relates to different response patterns with higher initial depressive symptom severity and residual symptoms at termination (Hardy et al., 1995; Kuyken et al., 2001; Shea et al., 1990). While participants who endorsed personality beliefs improved substantially, therefore providing support for the efficacy of CT for more complex presentations, results

indicated they have more symptoms at the end of the fixed treatment duration than those participants who did not endorse personality beliefs. The findings discussed above, when considered together, suggest that pre-treatment symptom severity combined with the endorsement of personality beliefs appears to be a potent predictor of symptom severity at the termination of treatment. The presence of personality beliefs, when measured by the *PBQ-SF*, is therefore an important consideration in the treatment of depression. The *Global Level of Distress* score on the *PBQ-SF* was also predictive of initial depressive severity. When this factor was controlled for in the alternative analysis (Appendix O), symptom severity decreased and explained 6.8% of the variance between participants. High levels of distress were also positively related to the *BDI-II* scores. However, it explained the same amount of variance in rate of change between participants (3.8%) as the overall endorsement of personality beliefs. Despite some differences being evidenced when using this item of the *PBQ-SF*, *Global Level of Distress* did not equate to a better fit to the data than the endorsement / no endorsement parameter of this measure. These results link to the discussion in Chapter 5 regarding the description, conceptualisation, and measurement of personality, which with the anticipated publication of the DSM-V, is a current contemporary issue. By describing and conceptualising personality as a matrix of belief systems, and designing a relatively easy means of measuring their presence in individuals, via the *PBQ*, or *PBQ-SF*, Beck and Beck (1991) appear to have designed a mechanism by which the presence of these beliefs can be ascertained early in therapy, and predictions could be made as to the change trajectory for clients. It appears from these results that a categorical measurement of personality distress, conceptualised as beliefs, has more clinical utility in their ability to predict change trajectories. Additionally, it does not appear, from these results, that the dimensional construct of *Global Distress* has any significant predictive qualities on change trajectories across the course of CT that are more beneficial than the categorical belief matrix inherent in the *PBQ-SF*. Furthermore, these results provide some evidence that beliefs or cognitions would be an important component to consider in the new diagnostic system in the description and measurement of personality.

The Moderating Effect of Personality Beliefs on the Homework – Depression Relationship

The initial regression analysis showed a difference in HW adherence between those that endorsed personality beliefs and those who did not. These results indicated those who endorsed personality beliefs adhered less to HW tasks as treatment progressed, compared to a predominately stable trajectory for those who did not endorse such beliefs. Furthermore, this analysis provides some evidence that phase of therapy was linked to adherence to HW

tasks, especially when clients hold beliefs aligned with personality. Worthington (1986) found greater adherence to HW tasks in the earlier phases of treatment, a decline in the middle phase, which plateaued, and then was held constant at termination. The current results indicated no such downward trajectory for those who did not hold personality beliefs, rather adherence was evidenced with a flat trend line across treatment duration. However, for those participants who endorsed personality beliefs, their HW adherence trajectory showed a constant downward trend over the course of therapy. That is, as therapy progressed, these participants adhered less to their HW tasks.

As to whether the endorsement of personality beliefs was found to moderate the HW and depression relationship in the multi level analyses, results indicated that they have a small but significant moderating effect on HW adherence and the rate with which people change in depression severity throughout the course of therapy, and accounted for a reduction in between-participant variance. Results also indicated that the endorsement of personality beliefs influenced HW adherence, and continued to be related to depression severity after controlling for HW. That is, HW adherence did not moderate the effect that personality beliefs were having on depression severity. However, this personality belief / HW effect was only present when HW was measured with the *Behaviour* factor and not the individual HW constructs of *quantity* and *quality*, due to these items having no effect in the primary analyses. These results align with the hypothesis that problem type moderates HW adherence, with previous research indicating that HW has a larger effect in the treatment of depression than in anxiety disorders (see Kazantzis et al., 2000 and Primacoff et al., 1986). It would appear from these results that the endorsement of the beliefs aligned with personality, results in the completion of less HW across treatment duration. It also provides some support for the importance of beliefs in HW tasks as discussed by Persons (1989) and Kuyken and colleagues (2001). Persons suggested that beliefs regarding perfectionism, intolerance to failure, and a need for social acceptance, have implications in treatment outcome, however this has not been empirically tested. Kazantzis et al., (2005) list these beliefs as commonly observed in the depressed population. In the current study, these beliefs were linked to some of those inherent in personality and in the belief matrices developed within cognitive theory. Underscoring this point, Kuyken and colleagues (2001) found Avoidant and Paranoid beliefs negatively impacted outcome in CT for depression, however were unsure what specific mechanisms were responsible for these differences, but did suggest the Avoidant and Paranoid beliefs may interfere with adherence to HW tasks.

Although the current research was unable to clearly delineate whether there were specific belief clusters that accounted for the moderating effect on HW adherence, and whether these were similar to those discussed by Persons or Kuyken and associates, it does provide compelling evidence that personality beliefs are an important factor in HW adherence and outcome in CT for depression. It also provides evidence that the categorical, or descriptive, classification of personality had more relevance in this present study, than did the dimensional approach. As previously discussed this descriptive typology should also have the benefit of being measurable (Leising & Zimmermann, 2011). The *PBQ-SF* is based on an analysis of those stable belief systems that cluster together and are hypothesised by cognitive theory to be inherent within each of the PDs. The results of this research provide support for the *PBQ-SF*'s utility in measuring those beliefs that will negatively impact on treatment delivery for those experiencing depression. Additionally, it provides support for those arguing for the new diagnostic system to more fully embrace beliefs as a marker of personality distress as these direct information processing and determine maladaptive coping behaviours (Arntz, 1999; Bhar et al., 2012; Sperry, 2006). This topic is especially relevant with the anticipated publication of the DSM-5 in 2013. Previous research has supported the cognitive model of PDs, with PD traits being predicted by the endorsement of relevant beliefs (Arntz et al., 1999; Ball & Cecero, 2001; Beck et al., 2001; Nelson-Gray et al., 2004). Although the *PBQ* or *PBQ-SF* were never intended as diagnostic tools, this research provides support for Arntz's (1999) argument that such measures have validity in operationalizing PDs, and have more utility in case conceptualisation and treatment planning than the behavioural-strategic stance of the DSM-IV-TR.

A moderating effect was also present when HW was modelled using the *Beliefs* factor of the *HRS-II*. Although the *Beliefs* factor did not have a significant effect, either within or between participants, in depression severity, it did interact with the effect of personality beliefs on severity scores. That is, when HW *Beliefs* scores were controlled for, the effect of personality beliefs on depression severity increased. It provides support for the cognitive theory of the importance of beliefs in therapy, and in the case of this present research, specifically as they relate to between session tasks and those aligned with personality.

As to the effect of therapist rated HW *quantity* and *quality* no moderating effect was indicated. After controlling for the HW items, the endorsement of personality beliefs

continued to be positively related to depression severity. However they did not influence adherence to HW tasks.

Finally, the results of these analyses provide some support for the assertion that a third variable is associated with adherence to HW tasks and outcome in CT for depression (Primacoff et al., 1986), specifically the beliefs aligned with personality disorders.

Personality Global Level of Distress, Homework and Depression Relationship

Whilst *Global Level of Distress* was related to initial depression severity and rate of change between participants, it was not related to HW adherence. This lack of moderating effect was consistently evidenced when measured with both the individual *quantity* and *quality* constructs, and with the HW *Behaviour* factor. It would therefore appear, that whilst the level of distress individuals experience due to personality belief systems is impactful (i.e., higher depression severity and slower rates of change), this does not result in any meaningful difference in HW adherence. This would provide some evidence that it is the belief systems themselves that relate to choices of engaging in a HW activity or not.

As the focus of this current research was new, there are no studies with which to compare results relating to personality beliefs and HW relationship. However, a strong theoretical rationale for this current study was indicated in the HW and personality disorder literature. Specifically, studies have shown HW adherence correlates with better outcome in the treatment of depression (Kazantzis et al., 2000). Added to this, previous research has been limited by utilising retrospective ratings, either aggregated, or from a single rating point on unstandardized measures. What was not clear in the literature, is why some individuals complete more HW than others. The focus on beliefs, specifically beliefs aligned with personality, was investigated due to the small literature discussing their possible moderating effect on outcome for depression. This is the first research of its kind that investigates whether these factors are linked. That is, beliefs aligned with personality, as specified in cognitive theory, have been linked to worse outcome in the treatment of depression, and it seemed logical, that these could interfere with HW adherence. Furthermore, although some have argued that beliefs interfere with adherence to HW tasks (see Persons, 1989 and Kuyken et al., 2001), to date, this has not been empirically investigated. When considering the results of this research, and the literature discussing the importance of beliefs, they demonstrate that personality beliefs should be considered in the assigning of HW tasks as these rigid, inflexible, and pervasive belief structures may act as barriers to HW adherence.

Post-hoc Analyses

Depression Severity Relationship

Severity of depression at intake had a significant relationship with HW adherence, personality beliefs and between-participant rate of change. As previously stated, the relationship with personality beliefs is not surprising considering that when participants endorsed personality beliefs their depression severity was higher. Therefore when controlling for this, the effect was removed. What is interesting to note from these results is the moderating effect it has on HW adherence. Results indicated that when depression severity was higher, HW adherence decreased. These results contradict those of previous research (for example, Burns & Spangler, 2000; Rees et al., 2005) who found no effect of depression severity on HW compliance. Finally, higher depression severity also predicted slower rates of change across the course of therapy. Cumulatively, depression severity accounted for the largest amount of variance in initial status (74.4%) and rate of change (64.0%) for participants in this study.

Therapist Competence Relationship

Whilst therapist competence had some effect on the constructs in this study, it did not have a significant effect on overall outcome for participants and accounted for little variance from the HW *Behaviour* model, including HW adherence. These results align with the findings of Forand and colleagues (2011) that CT can be reliably delivered by trainee therapists. Competence, did however, result in a moderating impact on those who endorsed and did not endorse personality beliefs. These results represent a departure from those of Forand and associates, who found no effect of PDs on outcome. They did, however, find trainee therapists were less effective when working with those with more severe presentations of depression. In the current study, the endorsement of personality beliefs was associated with higher depressive severity. It is possible that those with more complex presentations, due to the inflexible beliefs aligned with personality and more severe rates of depression, were more challenging for trainee therapists to work with, and therefore, change occurred at a slower rate. Despite this effect, therapist competence did not result in a more meaningful explanation of the variance between participants and only explained 1.8% of the variance in initial status and 4.0% of the variance in rate of change.

There was a high degree of training of the therapists within this current study in the administration of HW assignments. The purpose of this was to limit any confounding of results due to unequal planning and reviewing of between-session tasks. It was also an attempt to bridge the gaps cited in previous HW focused research and to follow the recommendations of

previous researchers that using a systemised HW protocol which regularly allocated session time to the reviewing, designing and assigning of HW would enhance adherence across sessions (Coon & Gallagher-Thompson, 2002; Detweiler-Bedell & Whisman, 2005; Gonzalez et al., 2006; Kazantzis et al., 2005; Shelton & Levy, 1981). Compliance with this systemised protocol was assessed at each session across treatment duration and also by the independent clinical supervisor via the *CTS*. It is possible that the high level of systemising HW between therapists was equally distributed and therefore minimised the effect of competence within this current study.

Gender Relationship

Results of this analysis indicated that male participants had a significantly lower estimated average initial depression severity score than the female participants (10.1%), however gender did not effect the between-participant rate of change across therapy. This aligns with previous research focusing on demographic variables and outcome in CT. Specifically, gender has no meaningful effect on outcome in CT for depression (Jarrett et al., 1991; Sotsky et al., 1991; Van et al., 2008). While the literature indicates women are more likely to have more protracted episodes of depression (Eaton et al., 2008), it appears from these results that CT is effective regardless of the gender of those receiving therapy. Gender was also predictive of the endorsement of personality beliefs for the female participants at the beginning of treatment, but was not related to any significant difference in rate of change between males and females. Although the literature indicates that some personality pathology is more prevalent in the male gender (e.g., Narcissistic, Antisocial and Obsessive-Compulsive), there is no difference in total prevalence, across all the personality disorders, according to gender (Golomb, Fava, Abraham & Rosenbaum, 1995). This finding is therefore interesting and may warrant further investigation in future studies. Gender did not moderate HW adherence. This finding also aligns with previous HW related research, that client demographic characteristics are not linked to adherence to between-session tasks (Coon & Thompson, 2003; Woods et al., 2002).

Relationship Status

Relationship status had an effect on within participant estimated initial depression severity with single participants having higher average initial levels of depression. Furthermore, a relationship with the endorsement of personality beliefs was indicated, showing that single participants were more likely to endorse personality beliefs and to change at a slower rate. Relationship status also had a moderating impact via the *PBQ-SF*, which resulted in a significant difference of initial status, and accounted for 5.4% of the variance between

participants. Relationship status did not have any meaningful association with HW adherence, and therefore, regardless of whether participants were single or in a relationship they adhered to HW tasks equally. Again, this result is consistent with previous studies that have found no link between client characteristics and HW adherence (Coon & Thompson, 2003; Woods et al., 2002). Finally, relationship status did not result in any difference in between-participant rate of change across therapy. Although previous research has indicated relationship status moderates outcome in CT, specifically for those who are single (see Jarrett et al., 1991; Sotsky et al., 1991; Van et al., 2008), and as indicated above, single participants had higher initial levels of depression, the present study did not find any difference in the rate in which participants changed across the course of therapy, and on outcome.

Contributions to the Literature

Advanced Methodology

As discussed in a previous chapter, research focusing on HW has been criticised for basing outcomes on aggregated measures in pre-post designed studies. It is argued that to better understand the change processes and active mechanisms involved in outcome for depression, research needs to be longitudinally focused (Burns & Nolen-Hoeksema, 1992). This, by its nature, necessitates using data in their raw state and analysing these for temporal patterns of change. By utilising a multi-level methodology, raw scores of the variables under investigation could be analysed for both within- and between-individual differences simultaneously (Singer & Willett, 2003). Furthermore, change trajectories could be identified in order to understand more fully whether a growth curve of learning was established in HW adherence over the course of therapy, or whether it has a discontinuous, erratic pattern. The multi-level methodology employed in this study had several advantages over previous HW focused research in CT. First, the use of the full session-by-session data enabled a comprehensive investigation into the change process over the course of therapy. It also enabled the use of all data which resulted in 567 data points, thereby ensuring maximisation of the current sample. Furthermore, it provided the ability to understand change trajectories over the course of CT, and the parameters that predicted change both within- and between-participants.

Additionally, the multi-level methodology and repeated measures utilised in this study has significantly added to the HW literature in CT on several levels. First, most research has utilised aggregated data, taken at minimal time-points retrospectively, and is analysed via correlational designs. Second, issues of measurement have limited the veracity of results, with outcomes based on unstandardized measures of HW adherence. Furthermore, the majority of

research has been based on small sample sizes, which may have overestimated the effect of HW within their studies. For example, in the Kazantzis and colleagues (2000) meta-analysis the average sample size was 19. Added to this, only a small number of HW in CT research has been centred specifically on the treatment of adult depression (a total of 12 studies from 1980 to 2008 – see footnote for a full list of these studies¹), and none including personality beliefs, as measured with the *PBQ-SF* as an independent variable. Therefore the use of the *HRS-II*, a standardised reliable measure of HW has overcome some of the limitations of previous research and the use of the multi-level analysis has enabled the data gathered from this measure to be fully maximised across treatment duration. Furthermore, the *HRS-II* has enabled the investigation of more than one domain of between-session tasks. Specifically, it enabled an analysis of the quantity and quality items, the interaction of these items (*Behaviour* factor) and also allowed for an investigation of client beliefs regarding HW. The therapist- and client-rated versions of the *HRS-II* also provided comparative analyses in order to more fully understand whether there exists a large and significant difference of rating perspective. The measurement of HW at each session also allowed an investigation regarding growth, or change trajectories across the course of therapy, both within- and between-participants. This effectively limited the effect of any bias a single retrospective rating would produce. Additionally, the use of multiple sources of ratings limited the chance of halo effects, and enabled the perspective of participants to be analysed. Cumulatively these factors indicate that this current study has improved upon previous research and has significantly added to the existing literature of HW in CT for depression. Moreover, it is unique as it extends the current literature by analysing the impact of personality beliefs on HW adherence in CT for depression, a topic that has been discussed, but never before, empirically investigated.

Systemised Homework Protocol and Therapist Training

Therapists were trained to a high level in the administering of HW tasks over a two-day intensive block course in using a systemised protocol to review, design and assign between-session activity. This training was provided by an established and recognised leading researcher in the area of HW in CT, Dr. Nikolaos Kazantzis. Therapists were also required to establish competence with this protocol prior to commencing client contact by furnishing two video recordings which clearly demonstrated 100% accuracy in the systemised protocol.

¹ Addis & Jacobson (2000); Bryant et al., (1999); Burns & Nolen-Hoeksema (1991); Burns & Nolen-Hoeksema (1992); Burns & Spangler (2000); Coon & Thompson (2003); Cowan et al., (2008); Harmon et al., (1980); Neimeyer & Feixas (1990); Startup & Edmonds (1994); Thompson & Gallagher (1984); Zettle & Hayes (1987)

Added to this they also attended two, week long, CT block courses to ensure orientation to the theory and techniques of CT were established prior to commencing therapy with participants. Finally, regular weekly clinical supervision was provided to the therapists in this study, and competence with the techniques of CT were regularly monitored throughout the course of therapy provision with the *CTS*. Cumulatively, these monitoring mechanisms establish a rigorous methodological progression from previous HW focused research and limit any confounding effects these may have on the results found in this study.

Advances to New Zealand and International Literature

A further advantage of this current study is, that it is the first utilising a sample from New Zealand investigating the impact of personality beliefs on HW adherence and outcome in CT for depression. It provides support to anecdotal reports, that personality beliefs impede adherence to HW, and their moderating effect in outcome for depression. It is also the first study at an international level to use the *PBQ-SF* in an investigation of its utility in predicting outcome in a sample being treated for depression. It has shown that the endorsement of beliefs aligned with personality negatively impacts on therapeutic outcomes, without formally diagnosing a personality disorder.

The results of this study not only contribute to international research but also specifically add to the New Zealand literature. First, it confirms the efficacy of CT with a New Zealand based sample. Secondly, it adds to the HW literature specifically as it relates to the New Zealand context, and finally, is the first to establish the utility of the *PBQ-SF* with a sample drawn from the New Zealand population.

Theoretical Contribution

Identifying the factors that lead to the completion of between-session tasks is significant in process related research due to the importance HW adherence is believed to have on treatment outcome. This present research has helped clarify the moderating role that personality beliefs have on HW adherence and outcome in the treatment of depression. This supports the conceptual theory on which CT is based, that is, the role of beliefs or cognitions as the mechanisms by which distress is elicited and is ameliorated. Anecdotal discourse has previously alluded to the importance of the rigid and pervasive belief systems of personality on adherence with HW tasks, but these assertions have never before been empirically tested. Results of this study have provided positive support for the importance of personality beliefs

in the completion HW assignments, and the moderating role they have in outcome. Furthermore, results also showed that this relationship not only pertained to *adherence* to HW tasks, but also to the *beliefs* participants held regarding the completion of them. Again this highlights the importance of client beliefs in CT. Not only are they the mechanism that elicits and maintains distress, but they are also important as mechanisms by which CT augments change, and specifically related to this study, in the role of HW. As discussed earlier, it has been suggested that beliefs related to perfectionism, intolerance to failure and need for social acceptance hamper the individual in engaging in therapy via non-completion of HW tasks. It was also suggested that these same beliefs are found in the matrix of personality beliefs that are set out in the *PBQ-SF*.

The use of the *HRS-II* enabled this research to investigate the different domains linked to HW, rather than just focus on the simple factors of completion (quantity), and how well it was completed (quality). Although neither of these factors solely contributed to outcome, combined they seem to be measuring the domain of adherence. However, it has added further support regarding the multi-dimensionality of between-session tasks, including the importance of beliefs aligned with these in therapy outcome. The *HRS-II* was also completed at every session and results are therefore not based upon retrospective aggregated scores, and this adds to the veracity of this study's findings. Results therefore suggest that client beliefs regarding the relevance, importance, and its link to therapeutic goals, of the HW activity, has significance in positive outcome in the treatment of depression. Future research would benefit from investigating more fully the belief systems aligned with HW completion, and whether these, as previously discussed in the literature, are more likely to reflect personality beliefs rather than the beliefs aligned with depression.

This study provided evidence that the endorsement of personality beliefs was related to higher levels of depression severity at intake and slower rate of change in depressive symptomatology across the course of treatment. This aligns with research specifically focusing on personality disorders (Kuyken et al., 2001; Shea et al., 1990) and more importantly, with the cognitive theory of personality disorders, as conceptualised by Beck and colleagues (2004) in their personality belief matrix. These belief systems therefore hinder treatment progress for depression. This current study is unique in its use of a multi-level modelling approach and its ability to investigate changes within- and between-participants across the course of therapy. However, it was limited in its ability to provide answers regarding the impact of

therapy for depression on personality beliefs, and whether these change across the course of therapy.

The primary analyses in this study showed that when measured as individual items, *quantity* and *quality* have no significant effect on outcome in CT for depression. This result was a divergence from previous correlational research, which has clearly shown both have an effect on depression outcome (see Burns and Spangler, 2000). However, there has been debate as to which of these two variables contributes more to outcome, with some asserting it is the *quality* of task completion that has the more meaningful effect (Schmidt & Woolaway-Bickel, 2000). These results did indicate that client rated *quality* had more effect across the course of therapy, however this was not significant, and therefore cannot be taken as a reliable result. In contrast, experimental research has evidenced inconsistent results (see Kazantzis & Lampropoulos, 2002 for a review of this topic). This study controlled for many of the confounding variables in previous HW research, for example, reliable HW measure, HW prospectively measured at every session by multiple raters, utilising raw HW data and not aggregating scores, utilising a systemised HW protocol, and analysing data across the course of therapy. It is possible that when controlling for the factors listed above, combined with a sophisticated analytic methodology that utilised the raw data from the independent measures, that the magnitude of the effect of HW on depression outcome is reduced. It is also possible that the focus of this research had a vicarious effect on participants actually adhering to HW tasks. For example, the overarching study was centred on HW and its role on outcome for depression. Not only was the initial training of therapists rigorous in the systemised HW protocol, its use was also mandatory in each session. Therefore, whether a participant completed their HW task or not, a great portion of the session was dedicated to reviewing what happened, the obstacles or barriers experienced, the problem solving strategies employed, and the learning obtained from the task. Therefore, it is possible that clients were able to learn from these experiences without actually completing the task one hundred per cent. This may be fertile ground for future research in establishing whether it is actually the doing of the task, or whether it is the opportunity to debrief with another regarding the thought processes that are elicited and the internal tensions that occur. Future research in replicating this study, could ask participants to complete the *HRS-II* following the review portion in the therapeutic session.

Limitations of the Current Study

While the overall *CBTHP* study in which this current research is situated, was designed in detail and carefully planned, a number of limitations regarding the present research have been noted and will be discussed. First, the exclusion criteria of the overarching study (e.g., age, index episode, previous treatment, comorbid disorders, current use of medications, and substance dependence), although justifiable in aiming to control for confounding variables, potentially act as barriers to generalizability of findings to a general community sample. Any replication of this study needs to be conducted with a more naturalistic sample drawn from clinical or community settings.

This study also did not include a control group with which to compare results. The findings of the current study would have been strengthened had there been either a waitlist- or 'no homework'- group. It would be relevant to investigate any differences in outcome, using multi-level modelling, between those assigned HW and those who were not.

Results of this study were based on outcome measures that relied on participant self-report. Although most empirical evaluations into components of change in CT are based upon accessible cognitions typically measured via self-report, it cannot be ruled out that participants' responses were influenced by the demands of the situation. Added to this, self-report measures assume that individuals can reliably identify, and rate, the strength of dysfunctional beliefs, symptoms, or behaviours. This challenges one of the tenets of cognitive theory, that maladaptive beliefs, or schema, function outside of full awareness. Added to this, there is some evidence that solely relying on self-report data when measuring personality factors has limitations (Oltmanns & Turkheimer, 2009). However, despite these difficulties, it seems reasonable when repeatedly eliciting descriptions of internal processes, to utilise self-report measures as we have no quick repeated measure alternatives in assessing participant schemas, thoughts, or assumptions independent of self-report. Furthermore, the validity of self- versus other-report when measuring subjective internal phenomena (i.e., beliefs) is yet to be empirically established (Bhar et al., 2012). Added to this, self-report measures are more practical in repeated measure research, and can be more easily generalised into clinical settings. Finally, all measures in this study had acceptable reliability alphas, and previous research has indicated their utility in repeated measure design studies.

Consideration should also be given to an absence of pre- and post-treatment *PBQ-SF* assessments. It is therefore not possible to determine whether treatment augmented participant's personality beliefs. Due to the parameters and focus of this study, treatment was designed for depressed clients and not intended to specifically treat personality problems. CT allows for the separation of problems that can be focused on, in a step-wise fashion. In fact, it is recommended that *Axis I* (e.g., depression) difficulties be the initial therapeutic focus before progressing to any *Axis II* (e.g., personality disorders) problems (Beck & Freeman, 2004). Additionally, often the hypervallence of personality beliefs remit once depression is treated. However, it is unclear whether this occurred in this sample. Future research would benefit from administering this measure at more time points in order to more fully investigate the relationship between CT for depression and personality beliefs; specifically to determine whether a change trajectory occurs with these cognitions.

The validity and applicability of the *PBQ-SF* for non-clinical populations also needs to be considered. Although the internal consistency, and test-retest reliability of this measure is within the acceptable range, there is some evidence that indicates it is more applicable for psychiatric patients specifically as it relates to its validity and factorial structure (see Bhar et al., 2012). Establishing its applicability to nonclinical populations is required to substantiate the results of this study. Added to this, although the *PBQ-SF* may be useful in the diagnostic process of identifying personality disorders, there is no current research that has examined the predictive validity of the *PBQ-SF* in this regard.

The cognitive theory of personality disorders, and the belief matrices which form the *PBQ-SF*, are limited to the DSM-III. Therefore, this current study is limited to the diagnostic criteria that are listed in this volume of the diagnostic manual, and do not refer to the current manual. Furthermore, one of the scales that form the *PBQ-SF* was omitted in the DSM-IV-TR (i.e., Passive-Aggressive PD). These factors limit the results of this study, specifically as it relates to generalizability to current diagnostic nosology.

A further limitation relates to the sample size. Although the original aim was to have a minimum of 70 participants, the range of exclusion criteria resulted in the current sample of 27. Despite this, the final participant pool is larger than the average sample size of 19 in the meta-analysis completed by Kazantzis, Deane and Ronan (2000). Added to this, it more than

met the requirements for multi-level modelling, with 21 data waves (18 more than minimum); comprised 27 groups (7 more than the minimum), with a total of 567 data points.

Finally, the competence of the therapists, all of who were Doctor of Psychology students, must also be taken into account. Despite the findings of this study indicating competence had no meaningful effect, and those by Forand et al., (2011) that CT can be reliably delivered by trainee therapists, it cannot be ruled out that competence had no meaningful effect on the results of this study. However, all participants in this study improved over the course of treatment, with a mean percentage improvement of 68.1%; replication with more experienced therapists would aid in understanding whether the use of trainee therapists has limited results of this research, especially as they relate to those who endorsed personality beliefs.

Suggestions for Future Research

It is suggested that future research investigating the effect of personality beliefs on treatment outcome for depression include more time points of measurement, in order to ascertain whether a trajectory of change occurs, and how this impacts upon outcome. Specifically, it would be beneficial to administer the *PBQ-SF* (or *PBQ*) at intake assessment, midway through treatment, and treatment termination. By assessing beliefs at a minimum of three time points, any changes in belief structures can be identified, thereby assessing the effect that treatment for depression can have on the hypervalence of these belief structures.

A further recommendation also relates to the personality beliefs measure. It is suggested that future research utilise the *PBQ* rather than the short-form version of this measure, in order to compare results of this study and to ascertain whether the longer form of the *PBQ* results in a larger effect on HW adherence and outcome.

It is also recommended that future research focusing on the topics of this study, utilise a control group that is not formally assigned HW tasks. This will allow for a comparison between the two groups in order to more fully determine whether HW moderates outcome for depression when utilising a multi-level modelling methodology. It is possible that the high focus on HW tasks in each session resulted in participants experiencing the benefits of between-session tasks at a higher level than in previous studies, which cancelled the effect on outcome. Added to this, as time explained the largest variance in this study, a third group

comprising a 'waitlist' could also indicate the change trajectory that would be expected for those receiving no treatment as a baseline comparison.

A further recommendation is that future research change the timing of HW adherence ratings. In this study, participants completed the *HRS-II* prior to the session starting. All sessions in this study began with a discussion of the HW task, the problems or difficulties experienced, the learning the client gained from the experience, and how these related to their experience of depression. It is possible that following this discussion participants may have rated their HW experience differently as they were able to make the necessary links to new learnings that they may not have done prior to this discussion. It is also possible that this discussion may counteract the negative effect of the dysfunctional beliefs aligned with depression and personality and allowed them to more objectively rate their HW adherence.

Future research would benefit from investigating more fully the belief systems aligned with HW completion. For example, during the HW review portion of the systemised protocol, data collected from the situation specific conceptualisations, particularly participant beliefs, could be collated and compared to the personality belief matrices developed within cognitive theory. It is possible that such an analysis could indicate whether it is the beliefs aligned with personality that effect HW adherence or whether they more commonly reflect those inherent in depression.

Practical Implications for Clinical Practice

There are a number of clinical implications that have emerged from the present study. First, The *PBQ-SF* is a measure easily administered in clinical settings and provides valuable information in identifying those clients who endorse beliefs that indicate they will improve at a slower rate than those without these beliefs. It also provides an assessment mechanism that describes clinically meaningful belief clusters than can inform the case conceptualisation and become specific targets in treatment. Furthermore, these beliefs interfere with HW adherence and are therefore useful in identifying those who will require more time in the designing, assigning and reviewing of HW, especially by identifying those beliefs that act as therapy interfering factors.

Additionally, and aligned to the above, client *beliefs* regarding HW is also an important consideration for clinicians. It is suggested that these be actively elicited at each session

where HW is assigned. A collaborative conversation regarding such beliefs can be therefore attended to in a timely manner, and potentially could form part of the HW task itself. For example, experiments could be assigned testing such beliefs. This study was unable to identify whether the beliefs that interfered with HW adherence were aligned to those hypothesised by Persons (1989), but nevertheless, HW related beliefs have important implications in the treatment of depression.

The results of this study also indicate that adherence with HW tasks only has a minimal effect on outcome for depression. This indicates that therapists need to spend time discussing the helpfulness of HW tasks with their clients in order to determine those factors that are providing benefit, or whether it is specific tasks that are helping to create change. It is also possible that there may be some clients for which adding HW tasks to their therapy will provide no benefit at all.

A final factor that has clinical relevance is that CT for depression is effective for treating those clients who present with beliefs strongly aligned with personality disorders. When considering the high rates of comorbidity this is especially relevant. The use of the *PBQ-SF* will assist in integrating those specific belief clusters that have been endorsed into a conceptualisation to help determine when the depressive beliefs have remitted and the hypervalent personality beliefs become the core focus of treatment. For example, and in accordance with Beck and colleagues belief matrix (see Chapter 5), when clients begin identifying beliefs regarding avoiding unpleasant situations or feelings, or needing to avoid situations where they fear attracting attention or being rejected, it is likely that an Avoidant personality is in operation. Likewise, beliefs relating to perfectionism, avoiding failure, obeying rules and a need for order and systems would indicate the Obsessive-Compulsive personality beliefs were active.

Concluding Statements

In the current study a prospective, repeated measure multi-level model design was used among a sample of participants in treatment for first episode depression, to examine the influence of personality beliefs on homework adherence and treatment outcome. The study was limited to Cognitive Therapy, a therapy that has proven efficacy and effectiveness in the treatment of depression. While its effectiveness as a treatment for depression has been confirmed in multiple studies, little is known regarding its active ingredients. Homework is one factor that has been repeatedly implicated as an active ingredient of CT. Previous HW focused research has been limited by the use of unstandardized measures, aggregated scores

as the units of analysis, no standardised means of defining the elements of HW tasks and data analysed with methodologies that do not allow for the investigation of change over the course of treatment. Added to this, previous research has not investigated why some complete HW tasks, while others fail to engage in these between session activities. Research within the area of personality disorders has consistently indicated they are associated with negative treatment outcomes (Dreessen & Arntz, 1998; Hardy et al., 1995). It has also been asserted, that personality disorders can interfere with therapy, specifically by non-adherence with HW tasks (Kuyken et al., 2001). There is however, no empirical support to confirm these statements, and none as they relate to the beliefs aligned with personality as conceptualised in cognitive theory, therefore providing support for this study. The current study focused on the impact of personality beliefs in general (regardless of type) and did not investigate the predictive value of specific clusters of beliefs. Further, exploration was made as to whether the level of distress associated with the presence of personality beliefs also had a detrimental impact on HW adherence and outcome in the treatment of depression.

Twenty-seven participants were recruited from the wider Auckland region to attend up to 20 sessions of Cognitive Therapy for depression. They attended these sessions at the Centre for Psychology, Massey University, Albany, New Zealand. Follow-up sessions at two- and six-months were also offered to participants. Participants engaged in a comprehensive screening and assessment process to ensure criteria for first episode Major Depressive Disorder (MDD) were met as stipulated in the DSM-IV-TR (APA, 2000). Exclusion criteria included, recurrent MDD, Borderline Personality Disorder, suicide or self-harm ideation or behaviours, currently taking psychoactive substances, or the presence of psychotic disturbance. Participants completed a measure of depressive symptomatology and homework completion at each session. Additional measures were completed at pre-determined time points throughout treatment provision. Cognitive Therapy was provided by doctoral students in the Clinical Psychology programme. Prior to delivering therapy, therapists were required to undertake post-graduate level Cognitive Therapy training provided by Massey University, in addition to an intensive training in the delivery of a standardised homework protocol. Therapists were regularly assessed for treatment compliance via weekly supervision and completion of the *CTS* by a registered Clinical Psychologist who specialises in Cognitive Therapy. Integrity checks for the delivery of the homework protocol were completed by independent observers.

This study utilised a prospective longitudinal design with analyses conducted with a multi-level modelling methodology using the *SPSS* suite. This methodology enabled an in-depth investigation of intra- and inter-individual change over time. This was the first study to utilise this advanced methodology in the investigation of the effects of HW and personality beliefs on treatment outcome for depression. Furthermore, the overall study design and methodology surmounted the limitations of previous HW focused research. Specifically, the use of single retrospective aggregated HW scores that did not account for change over time. Therefore, this current study advances the study of HW effects in the treatment of depression.

Results of this study indicated that CT was effective in the treatment of depression for all of the participants, with significant reductions in their symptomatology being evidenced. In the primary analyses HW adherence was defined as the single entities of *quantity* and *quality* as this was aligned with previous literature. However these two constructs did not share a significant relationship with change in depressive symptoms. These results indicate that the existing literature may have overestimated the effect of HW on treatment outcome. However, when the *Behaviour* factor (quantity x quality) was utilised, a small significant negative effect was found. This again suggests that previous research has been limited in its ability to adequately detect the impact HW adherence has on outcome when it has utilised only one of these items, as it appears it is the combination of doing the homework and to the best of the individual's ability (and the learning gained from the experience) that is the active ingredient in outcome. *Beliefs* regarding HW tasks also had some effect in the variance between people specifically as it related to higher initial levels of depressive symptoms and the rate at which people changed across treatment provision. Results also indicated that participants and therapists rate the *quantity* and *quality* of HW differently, although when measured as individual items, neither impacted upon outcome.

As to the effect of personality beliefs, the current research found that those endorsing such beliefs (as measured with the *PBQ-SF*) had higher levels of self-reported depressive symptomatology at the beginning and termination of treatment. However, results also indicated that substantial change occurred in their symptoms of depression when treatment ended. Levels of distress related to the presence of personality beliefs was also positively related to higher depressive severity. These results indicate that the belief systems aligned with personality disorder and the distress they cause, as conceptualised in cognitive theory, could be used as predictors of treatment response in CT. A moderating effect on HW

adherence, when measured as the interaction of *quantity* and *quality* was found for those who endorsed personality beliefs on the *PBQ-SF*. That is, those who held such beliefs adhered less to HW tasks and this moderated their rate of change and outcome in the treatment of depression. These results are the first to empirically link the importance of personality beliefs on HW adherence and outcome in CT for depression. It also provides some support for the importance of beliefs in the operationalization and definition of personality disorders in the diagnostic system listed in the *Diagnostic and Statistical Manual of Mental Disorders*, an especially relevant subject with the publication of the fifth volume due in 2013.

Post-hoc analyses indicated that initial depression severity was related to HW adherence, personality beliefs and rate of change. For those participants with more severe levels of depression, results showed they adhere less with their HW tasks. It also removed the effect of personality beliefs on rate of change between participants. Higher levels of depression were also related to slower rates of change across treatment. Whilst therapist competence had no significant effect on HW adherence, it did result in higher levels of depression at termination for those who endorsed personality beliefs. While male participants had overall lower levels of depression severity, there was no difference in outcome related to gender. Moreover, the female participants in this study endorsed higher levels of personality beliefs than did their male counterparts. Finally, those participants who were single had higher levels of depression at the beginning of treatment, endorsed high levels of personality beliefs and changed at a slower rate than those who were in a relationship. However, relationship status had no effect on HW adherence.

Although this current study was unable to overcome several limitations in its design and implementation, (for example, stringent exclusion criteria limiting generalizability, absence of a control group, reliance on self report data, lack of pre- and post-assessment of *PBQ-SF*) the overall advanced methodology, including the use of a standardised HW measure and systemised protocol, provides support for the veracity of the results and significantly improves upon previous process related research.

Finally, this current research sets a platform and framework for further research investigating HW and personality beliefs on treatment outcome. Recommendations include, increased measurement points of the *PBQ-SF*, comparative research using the *PBQ* rather than the

short-form version, utilisation of 'no homework' and waitlist control groups, and administration of the *HRS-II* following the review of HW within sessions.

The results of this research, as they apply to clinical practice, indicate that the *PBQ-SF* is a useful tool in the identification of the rigid and inflexible beliefs aligned with personality. By identifying such beliefs, clinician's can more fully plan treatment, predict the change trajectory, and how clients will approach their HW assignments.

Cumulatively, this current study significantly advances the HW literature and provides some support for the impact of personality beliefs on outcome in CT for depression. Furthermore, the sophisticated methodology utilised has provided further understanding of the process of change for participants receiving CT and those moderators that impact upon the change trajectory. Taken together, these advancements provide a rich and multi-layered arena for further research investigating those active ingredients in CT and the factors that moderate change. As to the clinical utility of this research, it provides Cognitive Therapist's with some indicators that are valuable in the conceptualisation and treatment planning of clients, specifically relating to personality beliefs. Additionally, it also provides a fuller understanding of the mechanisms of HW integration into therapy sessions. Specifically, the combined effect of quantity and quality in HW adherence are therapeutically beneficial and should therefore be a key focus in therapy sessions. Added to this, client beliefs regarding HW tasks, should be elicited in-session and discussed to ensure that these do not become barriers to the rich learning experiences that between-session tasks provide.

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Appendix A Depression Study Advertisement

Study to find out how to beat the blues

A team of specially trained Massey psychologists are offering free therapy to first-time depression sufferers in Auckland as part of a collaborative international study involving Harvard University and the London Institute of Psychiatry.

The University's Centre for Psychology will provide data from therapy sessions with volunteers, so that the team of international researchers can better understand the dynamics of Cognitive Behavioural Therapy (CBT), how it alleviates depression symptoms and how it equips sufferers to avoid repeat bouts of depression.

Findings from the study could offer hope for depression sufferers, many of whom do not have access to affordable, effective treatment, says Dr Nik Kazantzis, senior lecturer and practitioner who heads the team.

Depression sufferers typically experience low mood, poor appetite, lack of energy, disturbed sleep, feelings of helplessness and guilt. They many find decision-making difficult, feel miserable when they make even the smallest mistake and generally feel life has become overwhelming.

CBT teaches people how to become their own therapists by teaching them skills so they can deal better with difficult situations and the painful emotions they trigger, says Dr Kazantzis. Volunteers are being offered 20 hour-long individual sessions to learn strategies for changing problem thoughts and behaviours.

He says CBT is a widely used, mainstream therapy developed by American-born psychiatrist Dr Aaron Beck in the 1960s. Although it has been endorsed by more than 400 studies internationally as an effective, low-cost treatment for a range of disorders, including depression, little is known about why it works.

Dr Kazantzis, who trained under Dr Beck two years ago, believes the therapy is particularly suited to New Zealanders as it offers immediate, practical help in coping with the present and does not necessarily require clients to embark on in-depth analysis of their pasts to be effective.


People can volunteer for the therapy if they have not been previously diagnosed with depression and are not taking medication that affects the brain.

About 121 million people world wide suffer from depression but fewer than 25 per cent have access to effective treatment, according to the World Health Organisation. Depression is the fourth-highest contributor to the global burden of disease, and is expected to become the second highest by 2020.

For more info about participating in the study call Nicole.

Source: <http://www.massey.ac.nz/massey/about-us/news/article.cfm?mnarticle=study-to-find-out-how-to-beat-the-blues-21-05-2008>

Appendix B Depression Study Advertisement Brochure




Massey University
AUCKLAND · PALMERSTON NORTH · WELLINGTON · EXTREMURAE

Are You Suffering from Depression?

Volunteers Needed for Depression Study

Stamp Here

Depression Study
Centre for Psychology, Massey University
Level 3, North Shore Library Building
Albany, Auckland



Request for Information

If the criteria appear to fit your circumstance, and you are interested in participating in this study please fill out the form below. Once complete fold this entire 3-sided pamphlet and return to the address provided.

Alternatively contact the researchers directly to learn more about participating in this study. Please phone Nicole at 09-4140800 extn. 41252.

First name: _____

Surname: _____

Phone number: _____
(____) _____

Best time to contact (between 9pm and 4pm):

Morning: _____ am AND

Afternoon: _____ pm

Days of the week: _____

Send completed forms to:

Depression Study
Centre for Psychology
School of Psychology, Massey University
Level 3, North Shore Library Building
Albany, Auckland

What is Depression?

Almost everyone feels sad or "depressed" at times. **Clinical Depression** (also called Major Depressive Disorder) may include symptoms such as:

- Loss of interest in usual activities
- Changes in appetite
- Changes in sleep
- Changes in sexual desire
- Difficulties in concentration
- A decrease in activities and social withdrawal
- Increased self-criticism or approach
- Thoughts of or actual plans related to suicide

Clinical depression is distinguished from **manic-depression** or **Bipolar Disorder** in that the individual only experiences periods of depression, potentially returning to normal functioning in between times. In Bipolar Disorder, however, the individual will cycle between depression and periods of full manic problems (euphoria, high energy, lots of activity).

Quick Facts:

- Depression is widespread debilitating and costly
- 1 in 5 people experience clinical depression at some point in their life
- Women are at twice the risk of men
- People who experience depression are at high risk of repeated experiences with relapse as high as 60% 1 year after recovery

Can Psychological Treatments Help with Depression?

Cognitive Behavioural Therapy (CBT) involves the recognition of negative patterns in depression, and correcting these patterns through various practical skills. CBT also uses behavioural strategies. CBT is shown to be successful in 67% of individuals with clinical depression and can reduce risk of further episodes of depression.

Although complex, a variety of factors increase the risk of clinical depression. These include having a parent who has been clinically depressed, physical illness, the death or separation of parents, negative life events, pervasive negative thinking, physical or emotional deprivation, seasonal onset, childbirth, or having previously experienced depression.

Benefits of CBT:

- Safe alternative to drug therapy for depression
- Roughly as successful as medication
- Lower drop out rates (10% versus 25-30% on medication)
- Increased likelihood of longer term results

The Depression Study

Researchers at the Centre for Psychology, at Massey University, Albany are investigating a theory as to how we can help individuals maximize their gains in psychological therapy and reduce the risk for the future. Dr. Nikolaos Kazantzis, a Senior Lecturer in Psychology, has conducted CBT research for over a decade. Key co-investigators at Massey University are Associate Professor Paul Merrick and Professor Janet Leatham, who are both senior researchers and experienced practitioners. This team is currently recruiting volunteers to participate in a research project on depression.

You might be eligible to receive free assessment and treatment as part of volunteering for this research study. The researchers are looking for men and women between the ages of 18 and 65 who are **currently experiencing a major depressive episode for the first time.**

For inclusion in the study you must also be:

- (a) Able to read, write, and speak in English
- (b) **NOT** taking medications that affect the brain (an occasional sleeping tablet and/or the oral contraceptive is ok)
- (c) **NOT** involved in concurrent supportive counselling or psychotherapeutic treatment
- (d) **NOT** meet diagnostic criteria for substance abuse, psychosis, borderline personality disorder
- (e) **NOT** currently at risk to yourself or someone else

The time commitment is about two and half hours for an initial comprehensive assessment. The first half of the assessment includes completing questionnaires and the second half involves a diagnostic interview. Participants will receive feedback regarding the assessment and will then receive 20 sessions of cognitive behaviour therapy for depression (free of charge) over an 18 week period.

To learn more about participating in this study, please phone Nicole at 09-4140800 extn. 41252 or follow the instructions and post the 'Request for Information' form on the back of this pamphlet.

Appendix C: Telephone Interview

COGNITIVE BEHAVIOR THERAPY HOMEWORK PROJECT

PHONE SCREENING INTERVIEW PROTOCOL

Introduction

When person answers say something like:

Hello, may I speak to Jane Smith (who presumably has left a message somewhere saying she is interested in taking part).

If yes, then say, *Jane or Ms Smith* (depending on age) *this is Mary Brown, I'm a researcher from Massey University. You left a message on* (say when or can't remember say recently) *about possibly taking part in our research study. Is this a convenient time to talk about it?*

If yes then listen to what they spontaneously say and if they don't spontaneously talk say *the easiest way to start is by just outlining again what the study is about and if you're still ok with it, I'll ask you some questions to help work out whether you fit within the group of people we are looking for this time.*

If no, then arrange a more convenient time to call back if they are still interested.

So, basically what we are wanting to do is work out how treatment for depression, in particular Cognitive Behavioural Therapy can be improved to help people with depression. It is already a proven treatment, but we think there are ways that it could be improved. We are looking for 70 people between the age of 18-65 years from the greater Auckland area that are experiencing an episode of major depression for the first time in their lives. People can only be included in this study if they meet a certain set of criteria, therefore I will have to ask you several questions, this may take 20-30 minutes of your time.

But before going any further, you should know that everything you say will be confidential. But there are two exceptions to this – and that is if I think there is any chance that you may cause harm to yourself. In that case I have to break confidentiality for the sake of yours and others safety.

OK?

If yes, then proceed with, *right then let's start with the questions.*

If not ok, then listen to reservations, reassure and proceed or otherwise terminate.

Initial Questions

- a) *What is your DOB? How old are you – needs to be between ages of 18 and 65 but since age already discussed at outset, won't be too many problems with this.*
- b) *Can you read English OK? Write? Hold a conversation?*
- c) *Are you currently taking any medication prescribed by your doctor? If yes, What is it? This could include the contraceptive pill or sleeping medication. Google. Exclude occasional hypnotic and oral contraception.*
- d) *What help are you getting if any for your depression?*
- e) *Is this the first time you have felt like this?*

I now have to ask you some questions about the way you have been feeling lately, the reason I am asking these questions is to assess whether you would benefit from participating in the study. We ask these questions so we are sure that the people participating in this study are likely to benefit from the treatment we provide.

DSM-IV-TR MAJOR DEPRESSION

At least 5 of the following symptoms have been present during the same two week period and represent a change from previous functioning; at least one of the symptoms is depressed mood or loss of interest.

1. Do you have a depressed mood (feel “sad”, “down”, “angry”, or “empty”) most of the day, every day. How is your mood?
 - How long have you been feeling ...
 - Do you feel that way nearly every day?
 - How much of the day does it last?
 - How bad is the feeling?
 - SUD – how would you rate this feeling on a scale of 0-100 (0 being not at all sad and 100 being the most sad you have ever been)?

Criteria – depressed mood most of the day, nearly every day, as indicated by subjective report or observation by others.

2. How you lost interest in or do you get less pleasure from the things that you used to enjoy?
 - a. What do you normally enjoy doing? (TV, reading, sports, shopping, socialising, eating, hobbies?)
 - b. What do you still enjoy?
 - c. What have you lost interest in?
 - d. For how long have you not enjoyed these things like you used to?
 - e. Is it like that nearly every day?

Criteria – Markedly diminished interest or pleasure in all or almost all activities most of the day nearly everyday.

3. Have there been any changes in your appetite for food?
 - a. Increased? Decreased?
 - b. How much more/less have you been eating?
 - c. Is it like that nearly every day?
 - d. For how long has it been this way?
 - e. Have you gained or lost any weight? How much? Since when?

Criteria – Significant weight loss/gain when not dieting (change of more than 5% in month) or a decrease or increase in appetite nearly every day.

4. How has your sleeping been?
 - a. How many hours per night have you been sleeping?
 - b. How does this compare to normal?
 - c. Increased? Decreased?
 - i. Is it a problem nearly every day?
 - ii. How long have you had these sleep problems?
 - iii. If decreased – do you have any problems falling asleep, staying asleep, or waking up too early in the morning?

Criteria – insomnia or hypersomnia nearly every day.

5. Listen for slowed speech, long pauses before answering questions or between words.
 - a. Agitation: Have you been feeling more fidgety lately? Are you having problems sitting still?
 - i. IF YES: Do you pace back and forth?
 - ii. Have others notices your restlessness?
 - b. Retardation: Have you felt slowed down, like you are moving in slow motion?
 - i. IF YES: have others noticed this?

Criteria – psychomotor agitation or retardation nearly everyday (Has to be observable by others)

6. How has your energy levels been?
 - a. Have you been feeling tired or worn out?

<p>b. IF YES: Duration? (For how long have you ...) Persistence? (Do you feel like this nearly everyday?) <i>Criteria – Fatigue or loss of energy nearly everyday?</i></p> <p>7. How have you been feeling about yourself?</p> <p>a. What has your self-esteem been like?</p> <p>i. IF LOW: What types of thoughts do you have about yourself?</p> <p>ii. Do you feel like you are worthless or a failure? IF YES: Tell me about it</p> <p>b. Have you been blaming yourself for things?</p> <p>i. Like what?</p> <p>c. Do you feel guilty?</p> <p>i. IF YES: what about?</p> <p>ii. How hard is it to get your mind off this?</p> <p>iii. Do you think about things from the past and feel guilty about them?</p> <p>iv. IF YES: Like what?</p> <p>v. Is the patient's guilt or worthlessness on the patients mind everyday?</p> <p>vi. What has you self esteem been like? Has there been any change?</p> <p><i>Criteria – feelings of worthlessness or excessive or inappropriate guilt nearly everyday (not merely self-reproach or guilt about feeling sick)</i></p> <p>8. Have you been having problems thinking or concentrating?</p> <p>a. IF YES: what does this interfere with?</p> <p>b. Are you able to watch TV? Read? Follow a conversation?</p> <p>c. How long have you noticed this happening?</p> <p>d. Does it happen nearly every day? Is it harder to make decisions than before? IF YES: What kind of decisions is harder to make?</p> <p>a. What about every day decisions?</p> <p>b. How long have you had this problem?</p> <p>c. Does it happen nearly everyday?</p> <p><i>Criteria – Diminished ability to think or concentrate, or indecisiveness, nearly everyday.</i></p> <p>9. SUICIDE SCREEN – Sometimes when a person feels down or depressed they may think about dying, this is quite common. It is very typical and common for people to have thoughts about harming or killing themselves. Have you been having any thoughts like that?</p> <p>a. IF YES: Tell me about it. Have you thought about taking your life?</p> <p>i. IF YES: Did you think of ways to do it?</p> <p>ii. Do you currently have a plan?</p> <p>iii. Do have the means to carry out this plan?</p> <p>iv. How close have you come to doing it?</p> <p>v. IF you have not attempted, why not? What stops you from doing it? What are the protective factors?</p> <p>vi. IF NO: Do you wish you were dead? Do you have thoughts of death or dying?</p> <p>vii. When you go to sleep do you often wish that you would not wake up?</p> <p><i>Criteria – Recurrent thoughts of death, not just of dying, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.</i></p> <p>10. What difficulties in your life has the depression caused? OR: How have these difficulties affected your life?</p> <p>a. Does it bother you a lot that you feel this way?</p> <p>b. Has it caused problems in your job? Study? Relationships? Friends? Family? Social Life? Doing household chores?</p> <p><i>Criteria – The symptoms cause clinically significant distress or</i></p>	
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impairment in social, occupational, or other important areas of functioning.

11. Do you have any medical conditions?
 - a. YES
 - i. When did the conditions start?
 - ii. Has there been any change to this condition? Lately?
12. Have you lost a loved one in the last two months?
Exclude: unless – if associated with marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.
13. During this time have you been experiencing delusions or hallucinations? At the same time as depressive symptoms.
14. IF PSYCHOTIC
 - a. Was there a time when you had the (hallucinations/delusions) but did not feel sad or depressed?
 - b. IF YES: How long did you have [psychotic symptoms] only?
 - c. When did the depression begin in relation to this?
15. Has there been a major event in your life lately that may have come before you felt like this? E.g. a death of a close relative or friend (bereavement)?
16. When you started experiencing these symptoms have you ever felt this way?
 - a. Have there been times lasting at least a few days when you felt the opposite of depressed, that is when you were very cheerful or high and this felt different from your normal self?

IF YES or UNCLEAR:

- 1) Did you feel hyper, or like you were high on drugs, even though you had not taken anything?
- 2) Did anything cause your good mood?
- 3) How long did it last?
- 4) So, was this more than just feeling good?
- 5) When did this occur?
- 6) How many periods like this have you had?

IF NO:

- 7) What about a period lasting at least a few days when you were unusually irritable, and quick to argue or fight?

IF YES: Describe what that was like.

- i. Were you using drugs or alcohol?
- ii. Did you get into many arguments or fights?
- iii. How long did this period last?
- iv. Was there a reason you felt this way?
- v. When did it occur?
- vi. How many times have you felt this way?

If the clients report manic symptoms ask these questions:

- Did you find during this period you needed less sleep than usual?
- Did you notice you had racing thoughts and ideas?
- Were you easily distracted?
- Did you find you were overly occupied with pleasurable activities (or goal oriented)?
- Did you find during this period you were involved in a lot of risky and potentially self-damaging behaviour e.g., gambling, drinking, stealing, speeding?
- During this time did you feel more irritated than normal?
- During this time did you find it hard to relax?
- Did you find you felt like this constantly over a period of a week?
(apply to all questions).

DRUG ABUSE/DEPENDENCE

Alcohol:

Pre-screen:

Frequency: How often do you have a drink containing alcohol?

Daily? Weekly?

How many drinks containing alcohol do you have on a typical day when drinking?

How often do you have six or more drinks in one occasion?

Now I am going to ask you some questions about your use of alcohol

What are your drinking habits like? – for example how much alcohol do you consume a night? How much would you consume in a week?

Was there ever a time in your life when you drank too much?

IF YES: How old were you?

Has anyone in your family said that you were an excessive drinker?

Have friends, a doctor, or anyone else ever said that you drank too much?

Has alcohol ever caused problems for you?

IF YES: What kind of problems?

How old were you when you had these problems?

If all questions are answered NO unlikely to meet diagnosis of Alcohol abuse

Street drugs:

Have you ever used street/recreational drugs?

*If used less than 10 times go to prescribed medicines

Did you ever think you used drugs too much?

IF YES: how old were you?

Has anyone in your family said that you use drugs too much?

Have friends, a doctor, or anyone else said that you use drugs too much?

Have drugs ever caused a problem for you?

IF YES: What kinds of problems?

How old were you when you had these problems?

Prescribed medication:

Have you ever used sleeping pills, tranquilisers, weight loss medicines or pain killers?

IF YES:

How long did you take the drug?

Did you get hooked or addicted to it?

Did you take much more than was prescribed?

If all the above are answered NO, diagnosis of drug dependence unlikely

A1:

Because of drinking or taking drugs how often have you

- Missed work or school?
- Have trouble at work or school?
- Got fired etc.?
- Not taken care of children?
- No cook, clean house, go grocery shopping?

A2:

Do you drive while intoxicated?

How often?

Did you ever drink (take drugs) and then do something that was potentially dangerous (e.g. operating machinery)

A3:

Were you ever arrested for driving under the influence, or

<p>disorderly conduct? Were you ever busted for selling/buying drugs? IF YES: How many times? <i>Recurrent drug related legal problems</i></p> <p>A4:</p> <p>Because of your drug taking/drinking did you ...</p> <ul style="list-style-type: none"> • Frequently have problems or arguments with friends or family? • Spend less time with family or friends? • Get separated or divorced? • Get into physical fights? • Get violent? • IF YES TO ANY: do you still drink/take drugs despite these problems? <p>** Have you taken any drugs/consumed any alcohol today? Do you plan to drive anywhere? (e.g. do your children need to be picked up etc. – follow up)</p> <p>Drug Abuse = A maladaptive pattern of drug use leading to clinically significant impairment or distress, as manifested by one or more of the following occurring within a 12 month period.</p> <p>Screen for psychosis: <i>Now I will ask you some questions about how you perceived or view the world around you.</i></p> <p style="text-align: center;">DELUSIONS AND HALLUCINATIONS</p> <p>DELUSIONS OF REFERENCE</p> <p>When watching TV, listening to the radio, or reading the paper do you notice that they are referring to you, or that there are special messages intended for you?</p> <ul style="list-style-type: none"> • What have you noticed? <p>Does it seem like strangers on the street are taking special notice of you or talking to you? Is it a feeling you have, or are you pretty sure that they are talking about / referring to you?</p> <ul style="list-style-type: none"> • How do you know? <p>Does it seem like things are especially arranged for you?</p> <ul style="list-style-type: none"> • In what way? <p>DELUSIONS OF PERSECUTION</p> <p>Is anybody against you, following you, giving you a hard time, or trying to hurt you?</p> <p>Do you feel like there's a plot to hurt you?</p> <ul style="list-style-type: none"> • Who's involved? • Why would they want to hurt you? <p>THOUGHT BROADCASTING</p> <p>Do you ever think of something so strongly that people could hear your thoughts?</p> <ul style="list-style-type: none"> • So people can hear what you are thinking even when you are not talking? 	
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- How do you know?

DELUSIONS OF MIND READING

Are people able to read your mind and know what you're thinking?

- How can they do this?
- Do they literally read your thoughts, or do they read your facial expression to know what you're thinking?

THOUGHT WITHDRAWAL

Are your thoughts ever taken out of your head?

Does someone or some force reach into your head and steal or remove your thoughts?

THOUGHT INSERTION

Are there ever thoughts in your head that have been put there from the outside?

DELUSIONS OF GUILT

Do you think you've done something so terrible and deserve to be punished?

I know it will be hard to talk about, but what do you feel so guilty about?

Do you blame yourself for bad things going on in the world, like wars, crime and starvation?

DELUSIONS OF GRANDIOSITY

What is your self-esteem like?

Do you feel more self-confident than usual?

Do you think you have special talents, abilities or powers?

When some people feel (HIGH, EUPHORIC, etc.) they may think they're doing to become famous or do great things. Did you have any thoughts like that?

DELUSIONS OF CONTROL

Do you ever get the feeling that you're being controlled by some force or power from the outside?

At times, does it seem like you're not in control of your body, almost like you're a puppet and something from the outside pulls the strings?

So, at times your body does certain things without your willing it?

SOMATIC DELUSION

Are you concerned that you have a serious physical illness that a doctor hasn't found, or that something is wrong with your body?

HALLUCINATIONS

VISUAL HALLUCINATIONS

Have you seen visions or other things that other people didn't see?

- What did you see?
- What time of the day did this occur?
- How long ago did it start?
- Do you see it everyday?
- How often do you see it?

AUDITORY HALLUCINATIONS

Have you heard noises, or sounds, or voices that other people didn't hear?

What did you hear?

Do the voices seem to come from inside or outside your head?

IF INSIDE: but you hear it with your ears?

How many voices do you hear?

Are they male or female?

Do you recognise them?

Do you ever hear two or more voices talking to each other?

Do the voices ever talk about what you're doing or thinking?

IF YES: Do they keep a running commentary on what you are doing or thinking just like a sports commentator?

How long ago did the voices start?

Do you hear them every day?

How often during the day do you hear them?

Do they influence your behaviour?

Do they tell you to do things?

TACTILE HALLUCINATIONS

Do you ever notice strange sensations in your body or on your skin?
Do you ever feel something creeping or crawling on your body, or something push or punch you but no one is there?

IF YES: Like what?

When did it happen for the first time?

How often has it happened?

OLFACTORY AND GUSTATORY HALLUCINATIONS

What about smells that other people don't notice, or strange tastes in your mouth?

IF YES: Like what?

When did it happen for the first time?

How often has it happened?

Are they associated with any other physical symptoms like an upset stomach, numbness, tingling, or brief memory loss?

Tell me about that?

Screen for Borderline PD

I am now going to ask you some questions about your relationships with other people. I will specifically ask you questions about your feelings in your relationships

- **Inclusion = at least 5 criteria**

- **Pervasive pattern of instability of interpersonal relationships, self-image, and marked impulsivity beginning at early adulthood and present in a variety of contexts:**

- 1) Have there been times when you've been very upset, almost to the point of being distraught, because you thought someone you loved or needed, might leave you?
 - a. How often has this happened?
 - b. What did you do to stop them from leaving?

Do you spend a lot of time thinking of ways to keep people from leaving you?

Frantic efforts to avoid real or imagined abandonment (do not include self mutilating behaviour).

- 2) Do your relationships with friend and lovers tend to be intense and stormy with lots of ups and downs?
 - a. IF YES: can you tell me about some of them?
 - b. With some people do you switch from loving, respecting and admiring them at one time, to despising them at another time?
IF YES: Tell me about that

A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealisation and devaluation.

- 3) Does the way you think about yourself change so often that you don't know who you are?
 - a. IF YES: Tell me about this
Do you ever feel that you are something else, or that you're evil, or maybe that you don't even exist? Tell me about that.

Identity disturbance: markedly and persistently unstable self-image or sense of self.

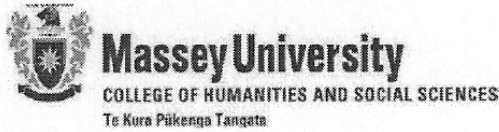
- 4) I am going to read you a list of behaviours that sometimes causes problems for people. How many times in the last 5 years have you:
 - a. Gambled more money than you could afford to lose
 - b. Spent money on things you could not afford
 - c. Been high on drugs
 - d. One night stands / sexual affairs
 - e. Intoxicated by alcohol
 - f. Charged with reckless driving, speeding ticket etc.
 - g. Driving while intoxicated or high
 - h. Gone on eating binges
 - i. Done anything impulsive where you could have gotten hurt

Impulsivity in at least two areas that are potentially self-damaging (do not include suicidal or self-mutilating behaviour).

<p>5) Have you ever been so upset that you told someone that you wanted to kill or hurt yourself?</p> <p>a. IF YES: Tell me about it.</p> <p>b. How often have you done this? Have you ever made a suicide attempt, even one that wasn't very serious? IF YES: What did you do? How many attempts have you made? Have you ever been so upset or tense that you deliberately hurt yourself by cutting your skin, putting your hand through a glass window, burning yourself or anything like this? IF YES: What have you done? How often?</p> <p><i>Recurrent suicidal behaviour, gestures or threats, or self-mutilating behaviour.</i></p> <p>6) Has anyone ever told you that you are irritable (<i>touchy, short-tempered, cross, ill-tempered</i>) or that your moods seem to change lots? IF YES: tell me about it. Do you often have days when your mood is constantly changing – days when you shift back and forth from feeling your usual self, to feeling angry or depressed or anxious? IF present:</p> <ul style="list-style-type: none"> • Are the mood swings mild or very intense? • How often does this happen in a typical week? • How long do the moods last? <p><i>Affective instability due to marked reactivity of mood – lasting from a few hours and only rarely a few days.</i></p> <p>7) Do you feel empty most of the time? IF YES: What per cent of the time do you feel that way? <i>Chronic feelings of emptiness</i></p> <p>8) How easily do you lose your temper? How often do you lose your temper?</p> <p>Do you feel angry much of the time? What kinds of things get you really angry? Are you sometimes angry with knowing why you feel that way?</p> <p>Tell me about what you are like when you are angry? How long do you usually stay angry?</p> <p>Do you ever throw or break things? Have you ever hit anyone? Do you get into physical fights? IF YES: tell me about it.</p> <p>When you are angry do you ever give someone the silent treatment? IF YES: how long can you keep it up? Is that a common reaction for you? <i>Inappropriate, intense anger or difficulty controlling anger.</i></p> <p>9) When some people are under stress, they have experiences that are very hard to explain to other people. Have you ever felt like things around you were somehow strange, or changed in size or shape?</p> <p>IF YES: describe what that is like.</p> <p>When you've become under stress, have you ever felt your body or part of it was somehow changed or not real?</p> <p>Have you ever felt you were watching yourself from outside your body?</p>	
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<p>IF YES: describe what that was like? Do you ever have brief blackouts and forget what has happened?</p> <p>When you are feeling stressed, do you ever get paranoid or suspicious of people you usually trust? IF NO: what about being afraid that someone is spying on you or trying to hurt you? IF YES: Does this happen even when you are not stressed?</p> <p>IF YES to any of the above:</p> <ul style="list-style-type: none"> • Were you using any drugs or alcohol when these experiences happened? • IF YES: does this only happen when you are taking drugs and alcohol? • IF NOT: How long do the experiences last? • DO they go away when you are not under stress? <p><i>Transient, stress related paranoid ideation or severe dissociative symptoms.</i></p> <p>Acceptance and Referral</p> <p>a) <i>We would like to offer you the opportunity to be involved as a participant in this study.</i></p> <p>b) <i>We are optimistic about this therapy, there has been significant scientific support to demonstrate CBT as an effective and beneficial first line treatment for first episode depression.</i></p> <p>c) <i>Due to limited resources in this study it is important for you to keep in mind that this study is based in western/Pakeha culture. We do not offer a culturally specific service. However, if you identify as Maori and you are concerned, we will have a kaumatua available for consultation during the therapy process – he is available to consult us on any cultural issues that may arise during the process.</i></p> <p>Would you prefer a culturally specific service? Yes? Refer to WDHB.</p> <p>Please note that if a participant identifies culturally-related concerns during the course of their participation in assessment or treatment, clinical supervisors should be consulted in the first instance. The School of Psychology kaumatua koro Turoa will also be available for consultation regarding any cultural issues that may arise in the process of this study. Turoa may be contacted in emergencies at 027-2888-135, and less urgent enquiries should be directed through Robyn Knuth, Secretary to the Head of School, Turitea campus.</p> <p>Set up time for interview and meeting with therapist ...</p> <p>REFERRAL</p> <p>Make sure safety checks have been carried out (Suicide screen, present use of alcohol and drugs) – contacted acute services if needed.</p> <p>Make a referral to the best alternative mental health service. Provide contact details.</p> <p>Contact referral source and contact study co-ordinator.</p>	
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Appendix D Participant Information Sheet



Participant Information Sheet

Depression Study

You are invited to take part in a research study involving a brief psychological treatment for depression called Cognitive Behaviour Therapy (CBT). The purpose of the study is to examine certain processes of therapy which may increase its positive benefits. The study will involve 70 individuals between the age of 18 and 65 years, recruited within the greater Auckland area. Like yourself, these individuals will currently be experiencing a major depressive episode for the first time. Before you consent to be part of this study, please read the following. Ask as many questions as you need to be sure that you understand what taking part will involve. The decision to take part is entirely your choice.

If you provide written consent to be involved, you will receive a comprehensive psychological assessment, then a 20 session protocol of CBT for depression over a 16 week period. Treatment will be individualised based on your specific needs and goals, and provided by advanced clinical psychology trainees under close supervision. Consistent with prior research on CBT for depression, sessions will be scheduled twice a week for the first 4 weeks and then weekly for the next 12 weeks. Follow-up sessions will occur at 2 months and 6 months after treatment has ended. Participants will be asked to complete some assessment questionnaires to determine treatment gains, and also asked to provide informal feedback on the CBT they received. Your total time commitment (assessment, therapy sessions, questionnaires, and follow-up) is estimated to be about 30 hours, plus travel to and from the Centre for Psychology. Therapy will be provided by clinical psychology doctoral/masters students trained in delivering this protocol.

How will the study benefit you? It is expected that new information, which may benefit you or others, will be obtained by this study. Furthermore, it is very likely that the comprehensive psychological assessment and therapy offered as part of this study will improve your condition, although this cannot be guaranteed. These services will be provided free of charge. Due to funding limitations, you will be responsible for your own travel costs to and from the Centre for Psychology in Albany. Parking will be provided free of charge.

Who is unable to take part? Participants will need to be proficient in reading, writing, and conversing in English. They must be free from taking drugs which act on the central nervous system. They must not meet diagnostic criteria for substance abuse, psychosis, or borderline personality disorder. Lastly, they must be able to be managed safely with outpatient psychotherapy.

If you do agree to take part, you are free to withdraw from the study at any time without having to give a reason. This will in no way affect your continuing health care, as you will be referred to an appropriate provider to further assist your specific needs. Participation in this study will be stopped should any harmful effects appear or if an appropriate medical professional feels it is not in your best interest to continue. You may be taken out of the

Participant Information Form – version 4 (dated 20/02/09)

study if you need treatment that is not allowed during this study, or if the study is cancelled. You will be asked to check with your study therapist before taking any other treatment, this includes anything from the supermarket, pharmacy or health shop.

Will my information remain confidential? Participating in this study will involve having your therapy sessions videotaped (and transferred to DVD discs) in order for the researchers to monitor the therapy protocol. All information collected about you during the study, including the recorded sessions, will be kept strictly confidential and only accessed by those researchers and clinical supervisors directly involved in the study. The only time in which confidentiality is breached is in the event that you express an intention to harm either yourself or somebody else, in which case a crisis team would become involved. No material which could personally identify you will be used in any reports on this study. All assessment information and clinical notes will be kept in individual files stored in a locked clinical records room, with files coded with anonymous identification numbers. Files will be stored in a separate location from both the identifying information and the DVD archive.

The information collected will be used for the research project and for publication in academic journals. All participants will be offered a summary of the findings at the conclusion of the study. This will include details of any publication arrangements that have been made. Please note that there is likely to be a delay between data collection and publication.

In the unlikely event of a physical injury as a result of your participation in this study, you may be covered by ACC under the Injury Prevention, Rehabilitation and Compensation Act. ACC cover is not automatic and your case will need to be assessed by ACC according to the provisions of the 2002 Injury Prevention Rehabilitation and Compensation Act. If your claim is accepted by ACC, you still might not get any compensation. This depends on a number of factors such as whether you are an earner or non-earner. ACC usually provides only partial reimbursement of costs and expenses and there may be no lump sum compensation payable. There is no cover for mental injury unless it is a result of physical injury. If you have ACC cover, generally this will affect your right to sue the investigators. If you have any questions about ACC, contact your nearest ACC office or the investigator.

If at any time you have questions or concerns about this study, you are welcome to contact: Dr. Nikolaos Kazantzis (who now has an academic office at La Trobe University), phone: Auckland (09) 8898292, or email: N.Kazantzis@latrobe.edu.au

If you have any questions about any issues pertaining to Maori in this study, regardless of your own ethnicity, you are welcome to contact Kaumatua koro Turoa, via the School of Psychology, phone Auckland (09) 414 0800 extension 2040.

If you have any queries or concerns regarding your rights as a participant in this research study, you can contact an independent Health and Disability Advocate. This is a free service provided under the Health & Disability Commissioner Act:

Telephone (NZ wide): 0800 555 050
Free Fax (NZ wide): 0800 2787 7678 (0800 2 SUPPORT)
Email: advocacy@hdc.org.nz

This study has received ethical approval from the Northern X Regional Ethics Committee.

Participant Information Form – version 4 (dated 20/02/09)

Appendix E Participant Consent Form



Massey University
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
Te Kura Pūkenga Tangata

Consent Form

Depression Study

This consent form will be held for a period of five (5) years

- I have read and I understand the Information Sheet dated 20 February, 2009, for volunteers taking part in the Depression Study
- I have had the details of the study explained to me.
- I have had the opportunity to use whanau support or a friend to help me ask questions and understand the study.
- My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.
- I have been given contact details to use in case I have future questions about the study.
- I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time.
- I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.
- I agree to my sessions in this study being videotaped.
- I understand that I will not receive any compensation for travel costs or for the time I spend as a participant in this study.
- I have had adequate time to consider whether or not to take part in this study. I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: _____

Date: _____

Full Name - printed _____

Participant Consent Form – version 4 (dated 20/02/09)

Appendix F: Demographic Profile

NAME: _____

ID NUMBER: _____

DEPRESSION STUDY Personal Data Form

1. **Age** _____ years
2. **Gender** (*tick one*) Female Male
3. **Marital Status** (*tick one*)
Never Married Divorced
Married Widow/Widower
4. **Ethnicity** (*tick one*)
Asian European/Caucasian
Maori Pacific Islander
Other
5. **Occupation** _____
6. **Education** (*tick one*)
Some primary school
Completed primary school
Some high school
Completed high school
Technical training beyond high school
Some university
Graduated from university
7. **Have you received any mental health treatment in the past?**
(*psychotherapy, counselling, or medication, such as Prozac*) Yes No

If yes, what kind of treatment and for approximately how long?

Type of treatment: _____ How long (approx.)? _____ Months

Type of treatment: _____ How long (approx.)? _____ Months

Type of treatment: _____ How long (approx.)? _____ Months

Type of treatment: _____ How long (approx.)? _____ Months

Appendix G Semi-Structured Interview Format

Depression Study – Assessment Summary

NAME:
DATE:
AGE:
GENDER:

DOB:
NHI #:
ETHNIC GROUP:
IWI AFFILIATION:

INTRODUCTION
ROLE
LOOSE AGENDA
TIMEFRAME
CONFIDENTIALITY - LIMITS
USE OF REPORT

SUMMARIZE – LEFT OUT
MOST IMPORTANT
QUESTIONS
FEEDBACK
PLAN – 1ST THERAPY SESSION

Presenting Problems (list of SYMPTOMS, physiological, emotional, behavioral, cognitive)

ONSET			
DURATION			
FREQUENCY			
What made worse / better			
Prevent from doing things?			
How coped?			

Precipitants - (things going on at the time, e.g., starting new job, moving home)

Perpetuating Factors - (financial stressors, occupational functioning, social contacts - frequency & nature, family conflict)

Previous Psychiatric History (had these presenting problems before? previous hospitalization, medications, therapies, suicide attempts, dates, duration, diagnoses, response to treatment and outcome)

Alcohol and Drug History (ONSET, frequency, duration, amount, friends, current consumption, tolerance, black-outs, last consumed, afforded substances, other drugs, reasons for use)

Anger and Violence History (onset, triggers, behaviors, consequences, controllability, models, remorse, past violence, examples for/of violence)

Family History (born, grew up, number in the family, closest member / talk to, separations, absent parents, grandparents, deaths, occupations, present living arrangements, childhood upbringing, family relationships, alcoholism, drugs, abuse, family homes, running away, emotional effect of childhood experiences -ve / +ve, prolonged enuresis, fears and phobias)

Familial History of Psychiatric Illness? (Type of illness + Ensure Biological connection)

Religion – (beliefs and practices)

Major Distressing Events – (impact, coping, self-esteem)

Schooling History (primary / secondary / tertiary schools attended, academic performance and behavior at school, qualifications, expulsions and suspensions, relationships with peers and teachers, friends, sports, subjects enjoyed)

Employment (jobs at and before problems, current employment status, reasons for leaving, work performance and satisfaction, relationships at work)

Relationships (number of friendships – longstanding friends, close friends, easy to make friends? Trust? Long term intimate relationships – duration of courtship, age, when married, occupations, problems, arguments, how did they solve problems, current relationship, children, including sexual relationship)

Sexual History (education/ how obtained, friendships from school / clubs, past and current girl/boyfriends, experiences - first sexual intercourse, sexual activity, - onset of interest, number of partners, preference, unpleasant sexual experiences, attitudes to sex, understanding regarding safe sex, difficulties, satisfaction, STDs)

Personality (ability to socialize, changeability of mood, ability to express emotion, perception of self-esteem, interests, hopes, TRUST in others, introverted, extroverted, anxious / relaxed, self-centered, strengths, limitations)

Culture (tribal origin, language ability, participation in cultural activities, spiritual values, church contact, Iwi affiliation)

Medical / Developmental History (birth, milestones, attachment, hospitalization, head injuries, MVAs, physical conditions, family illnesses, psychiatric history, No identified cause then check for evidence of somaticism + Precipitators (e.g. stress) and consequences of illness behavior (e.g., attention) + epilepsy / diabetes / asthma

Surgical Operations (when, where, complications, psychological reactions, head injury)

Obstetric and Gynecological Problems (difficulties giving birth, postpartum, hemorrhage, postnatal blues or depression, current menstrual function, pre-menstrual tension, menopausal symptoms)

Current physical complaints

Social Circumstances (living arrangements, income, schooling/ employment status, daily routine, future hopes, note of client is primary caregiver / community support worker)

Alleged Offences (accuracy of facts, planned, A & D, reasons, current events at the time, remorse, previous trouble)

Specific Screens

Depression - (Over last two weeks – Sleep difficulties (getting to sleep / middle / early waking) + Sad/ negative mood over day? + Loss of interest? / pleasure? + Poor concentration? + Indecisiveness? + Memory problems? + Restlessness vs. physically slowed + Tiredness + Increased vs. decreased need for sleep + Increased/decreased appetite and/or weight loss? / how many Kgs? + Thoughts of death \ suicide?)

Suicide / Homicide Risk - (Past Attempts + What plan do they have? + What stops them? + Rate likelihood on 0-10 + alcohol abuse? + depression? + sufficient social supports? + community psychiatric evaluation needed?)

Anxiety Disorders - Panic Symptoms (In past month - Worried about attacks - Pounding heart + sweating + trembling + difficulty breathing + tightness / pain in chest or abdomen + choking + dizziness\lightheadedness\faint + derealization + depersonalization + fear of going crazy, dying, or losing control + numbness\tingling + chills or hot flushes + peaks in 10 minutes? – how long before it subsides?)

Agoraphobia - (concern about additional attacks, and their consequences? Fear of places where attack might reoccur? Fear of places where escape might be difficult\embarrassing if you did have a panic attack? Avoidance of these places?)

Phobias - (define all objects of fear + is it just social evaluation? + anxious response to objects – to the point of panic? + Avoidance of objects\situations or endured with great distress + recognition that fear is excessive?).

OCD - (Intrusive thoughts\images causing distress? + efforts to suppress thoughts\images? + Rituals in response to thoughts or according to rigid rules? + function of rituals is to prevent anticipated event, but in an unrealistic way?)

GAD - (excessive worry for 6 months? + is worry hard to control? + restlessness? + irritability? + sleeplessness? + easily fatigued? + mind blanks?)

Mania - Overconfidence in oneself + Less sleep needed? + noticed racing thoughts? + Easily distracted + Overly occupied with goal-oriented or pleasurable activities? + Increase in potentially self-damaging behavior + Irritated + Can't relax + Constant over last week?).

Evidence of Trauma - (A) **Continual re-experiencing** (Images\thoughts of T + Dreams\Nightmares of T + Flashbacks or hallucinations or other re-enactment + Psychological distress upon exposure to reminders of T + Physiological reactivity to reminders of T). (B) **Avoidance** (of thoughts and feelings associated with T + of places, things or people associated with T + diminished interest). (C) **Dissociation** (amnesia for aspects of T + feelings of detachment from others + blunting of affect and emotional expression + cannot envisage future). (D) **Arousal** (difficulty sleeping + outbursts of anger or irritability + poor concentration + hypervigilance + easily startled)

Eating Disorders - (less than 85% of normal weight + Intense fear of weight gain + Excessive or Dieting schedule + Distorted perception of the significance of weight in self-evaluation + 3 absent menses + excessive and uncontrollable binge eating within 2 hrs + Purging (vomiting, laxatives, weight-loss medications) + assess peers and family's view on food and weight.

Psychoticism - (Reduced goal directed activity + Impoverished thinking or speech + Social withdrawal + Thought Disorganization + Delusions of persecution\ reference\ mind reading\ thought withdrawal\ guilt \control or bizarre ideas + Hallucinations)

Hallucinations – (visual, gustatory, tactile, auditory – single or multiple voices, third person commentary, second person commands)

Delusions – (primary or secondary, complete or partial) Types – (delusions of reference, guilt, unworthiness, jealousy. Delusions of control, influence or interference (passivity). Delusions of thought interference (broadcast, insertion, withdrawal).

Brain Injury - (Location – closed / open? + Lost consciousness? + how long? + Behavior immediately afterwards / several days afterwards? + Sleep difficulties? + Vision? + Hearing? + Headaches? + Pain? + Attention? + Memory? + Other people commented on changes / personality changed? + Lifestyle changes (functioning / irritability / tiredness / emotional instability? + Changes to Academic Functioning? Changes to behavior?)

Mental Status

General Description (Appearance – tall, short, thin, obese. Appearance and Clothing – tidy, well presented, casually dressed, inappropriate or bizarre dress styles. Motor Behavior – posture, gait, movement, agitated, restless, inactive, psychomotor retardation. Facial expression – cheerful, angry, sad, perplexed.)

Mood and Affect – mood (sad, low, depressed, labile, optimistic, elated, anxious, angry, hopeless) Affect (flattened, restricted / diminished range, over-familiarity, inappropriateness, disinhibition, aggressiveness)

Moderating Mood Factors - (poor sleep, low appetite, diminished interest, low energy, poor concentration, restlessness /agitation, feelings of worthlessness, suicidal ideation)

Speech – rate (fast / slow), quantity (lot/ little), loudness (loud/ soft), spontaneity

Form of Thought – (flight of ideas, thought blocking, loosened associations, circumstantiality, tangentiality)

Content of Thought – (overvalued ideas/ abnormal preoccupations/ delusions/ obsessions/ compulsions/ suicide/ anxiety/ paranoia etc.)

Cognitive State – (insight, level of consciousness, orientation to time, place and person, attention and concentration, short and long term / visual and verbal memory)

Assessing Risk

a) Historical factors (previous violence, use of weapons, age at first incident, early maladjustment)

b) Dis-inhibiting factors (major mental illness, A & D, personality disorder, unresponsiveness to treatment)

c) Psychosocial factors (unemployment, relationship instability, current emotional crisis)

d) Behavioral factors (impulsively, anger/ aggression, stalking, access to weapons)

e) Cognitive factors (lack of insight, denial, minimization, pessimism, attitude towards homicide/ sadism/ paranoia, lack of empathy/ remorse)

Assessing Risk

- _____ Male
- _____ Age (below 40 years)
- _____ Diagnosis (paranoid schiz, mania, anti/paranoid personality, delirium)
- _____ Past attempts
- _____ Substances
- _____ Diminished Rational Thinking
- _____ Suicidality
- _____ Organized Plan / Intent
- _____ No Significant Others
- _____ Social Supports

Increased Risk of Suicide

- _____ Age (adolescents and individuals aged 45 years and older)
- _____ Gender (females make more attempts, males are more successful)
- _____ Previous Attempts
- _____ Alcohol / Drug abuse
- _____ Unemployment
- _____ Unmarried / alone
- _____ Physical health problems
- _____ Significant personal loss (ability, objects, persons)
- _____ Presence of depression / alcoholism / schizophrenia
- _____ Panic attacks
- _____ General psychic anxiety
- _____ Lack of interest / pleasure
- _____ Alcohol abuse increase during affective episode
- _____ Diminished concentration
- _____ Global insomnia
- _____ Hopelessness, Helplessness, Guilt
- _____ Suicidal Ideation
- _____ Suicide Plans
- _____ Self-control
- _____ Level of Suicidal intent

From Sommers-Flanagan and Sommers-Flanagan (1995) "Intake Interviewing with Suicidal Patients: A Systematic Approach". *Professional Psychology: Research and Practice*, 26, 41-47.

Implications for Cognitive Therapy

Accessibility of Automatic Thoughts

Awareness and Differentiation of Emotions

Acceptance of Personal Responsibility for Change

Compatibility with the Cognitive Rationale

Alliance Potential (in-session Evidence)

Alliance Potential (out-of-session Evidence)

Chronicity of Problem

Security Operations

Focality

Optimism / Pessimism Regarding Therapy

Depression Study – Assessment Summary Resource by Nikolaos Kazantzis, PhD

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Appendix H Homework Protocol

REVIEW	DESIGN	ASSIGN
<p>Discuss quantity and quality of completed homework as well as any non-completed homework</p> <p>Provide verbal reinforcement for homework carried out (what was learned)</p> <p>Use situational conceptualization to identify beliefs about homework. Put on agenda for later discussion if necessary.</p> <p>Link non-completion to clients ATs, underlying assumptions, and core beliefs</p> <p>Discuss practical obstacles to homework and problem solve.</p> <p>Record completion in session notes</p> <p><u>Useful questions:</u></p> <p><i>How did you find doing the homework?</i></p> <p><i>Can you tell me what worked for you?</i></p> <p><i>Did you have any difficulties doing it?</i></p> <p><i>Did you have any sense of progress towards your goals?</i></p>	<p>Collaboratively select homework</p> <p>Discuss new or revised homework</p> <p>Integrate both disorder-specific model and individualized conceptualization in design (negative cognitive triad and AT's etc)</p> <p>Present rationale aligned with treatment goals</p> <p>Use guided discovery to identify coping strategies and beliefs related to homework</p> <p>Ask about client's ability and perceived difficulty of homework. (<i>do you feel able?</i>)</p> <p>In-session practice (<i>how was that for you to practice...</i>)</p> <p>Use guided imagery to begin experiential learning in-session (<i>now that you have done that how do you feel? Going through mind?</i>)</p> <p>Use situational conceptualization to identify beliefs and triggers for carrying out the homework</p>	<p>Summarize rationale in relation to treatment goals (client to do)</p> <p>Explain homework as having a learning focus</p> <p>Collaboratively specify when, where, how often, and how long</p> <p>Consider potential difficulties for completing homework</p> <p>Have client summarize, and determine readiness, importance, and confidence for completion. Renegotiate if less than 70%</p> <p>Complete homework form – if not already done.</p>

Update and mood check.....Bridge.....Set agenda.....Review homework.....Discuss agenda items.....Feedback and summary

Appendix I Homework Adherence and Competence Scale (HAACS)

HAACS

Homework Adherence and Competence Scale

Instructions:

This therapist adherence and competence rating scale consists of 19 items regarding therapists' integration of homework assignments in cognitive behavior therapy (CBT). Items 1-5 cover therapist behaviors in REVIEWING previously assigned homework. Items 6-14 cover therapist behaviors in DESIGNING new or revised homework. Items 15-19 cover therapist behaviors in ASSIGNING how the new or revised homework will be practically carried out. Please note that although the items are categorized into these three conceptually different groupings, they are often not so clearly delineated during a CBT session. Finally, each individual section (i.e., review, design and assign) concludes with an overall rating for that section.

Adherence

Please note that your rating for the *adherence* questions (i.e., the 'a' questions) is to indicate whether these aspects were carried out in the session to any extent. This is different from rating how well the therapist undertook each item (i.e., competence). For each adherence item, please consider the question carefully, and tick either "yes" or "no" to indicate whether the particular aspect was CARRIED OUT irrespective of how well it was done. Please select only one response option for any question.

HOMework REVIEW

Items 1-5 cover the therapist behaviors involved in reviewing homework from the previous session, and typically occurs early in the session.

1	<u>DID the therapist discuss the completion of previously assigned homework to any extent?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
2	<u>DID the therapist provide verbal reinforcement (i.e., praise) for any portion of the homework carried out?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
3	<u>WAS a situational conceptualization (e.g., thoughts, behaviors, emotions, physiology) used in reviewing previously assigned homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
4	<u>WAS an individualized conceptualization used to make sense of any portion of non-completed homework (i.e., linked non-completion to the client's automatic thoughts, underlying assumptions and rules, or core beliefs)?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	n/a <input type="checkbox"/>
5	<u>DID the therapist attempt to problem solve practical obstacles to the homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

Homework Adherence And Competence Scale © Copyright 2005-2006 by Nikolaos Kazantzis, Paul Wedge, and Keith S. Dobson. From the Team Research Project "Cognitive Behavior Therapy Homework Project" at Massey University. p. 1

HOMEWORK DESIGN

Items 6-14 cover the therapist behaviors involved in collaboratively deciding what homework will be carried out between sessions, and typically occurs throughout the session.

6	<u>WAS any new or revised homework discussed?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
----------	---	---------------------------------	--------------------------------

Note:

This item asks about the therapist's use of the components of the "guided discovery" process. The guided discovery process has four sequential components which are:

- i. Asking informational questions to uncover information outside the client's awareness,
- ii. Listening empathically and providing reflections,
- iii. Summarizing the information discovered,
- iv. Asking synthesizing or analytical questions which enable the client's own learning.

7	<u>DID the therapist use any aspects of guided discovery to identify the client's coping strategies and beliefs related to the homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
----------	--	---------------------------------	--------------------------------

8	<u>DID the therapist integrate a disorder-specific cognitive model with the individualized conceptualization in designing homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
----------	---	---------------------------------	--------------------------------

9	<u>WERE homework tasks selected for completion before the next session?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
----------	---	---------------------------------	--------------------------------

10	<u>DID the therapist present any rationale for the homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-----------	--	---------------------------------	--------------------------------

11	<u>DID the therapist ask about the client's ability and perceived difficulty of the homework?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-----------	---	---------------------------------	--------------------------------

12	<u>WAS ANY attempt made to facilitate in-session homework practice?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-----------	---	---------------------------------	--------------------------------

13	<u>DID the therapist use guided imagery to begin experiential learning for the homework in-session?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-----------	---	---------------------------------	--------------------------------

14	<u>DID the therapist use a situational conceptualization to help identify the client's beliefs and triggers (i.e., emotional, behavioral, physiological) for carrying out the homework in specific situations?</u>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
-----------	--	---------------------------------	--------------------------------

HOMEWORK ASSIGN Items 15-19 cover the therapist behaviors involved in determining how the homework assignment/s will be practically carried out, and typically occurs near the end of the session.

15 WAS there any attempt to summarize the rationale for the homework in relation to therapy goals? Yes No

16 WAS there any attempt to specify how the homework will be practically integrated into the client's life (i.e., specification of when, where, how often, how long)? Yes No

17 WAS there any consideration of potential difficulties for completing the homework? Yes No

18 WAS there ANY attempt to explain the outcome from the homework as having a learning 'experiment' focus? Yes No

19 WAS there ANY attempt to summarize the homework? Yes No

Appendix J Homework Rating Scale – Client Version (HRS-II)

HRS II

Instructions: Many people find ways to engage in activities between therapy sessions in a way that suits them. This may differ from the way in which the activity was discussed with their therapist. This questionnaire asks about your activities from last session. Below are some ways in which people have said that they have engaged and learned from their activities. Please read each question carefully, and for each of the statements, circle the **one** response that best applies to you.

1. Quantity

I was able to do the activity

- 0 not at all
- 1 a little
- 2 some
- 3 a lot
- 4 completely

2. Quality

I was able to do the activity well

- 0 not at all
- 1 somewhat
- 2 moderately
- 3 very
- 4 extremely

3. Difficulty

The activity was difficult for me

- 0 not at all
- 1 somewhat
- 2 moderately
- 3 very
- 4 extremely

4. Obstacles

I experienced obstacles in doing the activity

- 0 not at all
- 1 a little
- 2 some
- 3 a lot
- 4 extensive

5. Comprehension

I understood what to do for the activity

- 0 not at all
- 1 a little
- 2 somewhat
- 3 a lot
- 4 completely

6. Rationale

The reason for doing the activity was clear to me

- 0 not at all
- 1 somewhat
- 2 moderately
- 3 very
- 4 completely

7. Collaboration

I had an active role in planning the activity

- 0 not at all
- 1 a little
- 2 some
- 3 a lot
- 4 extensive

8. Specificity

The guidelines for how to carry out the activity were specific

- 0 not at all
- 1 somewhat
- 2 moderately
- 3 very
- 4 extremely

9. Match with Therapy Goals

The activity matched with my goals for therapy

- 0 not at all
- 1 a little
- 2 somewhat
- 3 a lot
- 4 completely

10. Pleasure

I enjoyed the activity

- 0 not at all
- 1 a little
- 2 somewhat
- 3 a lot
- 4 extremely

11. Mastery

I gained a sense of control over my problems

- 0 not at all
- 1 a little
- 2 somewhat
- 3 a lot
- 4 extensively

12. Progress

The activity helped with my progress in therapy

- 0 not at all
- 1 a little
- 2 somewhat
- 3 a lot
- 4 extremely

Homework Rating Scale II – Client Version © Copyright 2005 by Nikolaos Kazantzis, Frank Deane, and Kevin Ronan. From the book *Using Homework Assignments in Cognitive Behavior Therapy*, by N. Kazantzis, F. P. Deane, K. R. Ronan, & L. L'Abate (2005). New York: Routledge.

Appendix K Homework Assignment Form

Between-Session Task Form *

Today's Date: _____	Next Appointment Date: _____
Session Number: _____	

Description:											
Learning Goal (e.g., test idea/ practice skill):											
When (e.g., 11:45 am before lunch):											
Where (e.g., in the bedroom / at work):											
How often (e.g., times per day/ hour/ week):											
How long (e.g., hours/ minutes):											
Confidence Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all confident					Moderately confident						Totally confident
Readiness Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all ready					Moderately ready						Totally ready
Importance Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all important					Moderately important						Totally important

Description:											
Learning Goal (e.g., test idea/ practice skill):											
When (e.g., 11:45 am before lunch):											
Where (e.g., in the bedroom / at work):											
How often (e.g., times per day/ hour/ week):											
How long (e.g., hours/ minutes):											
Confidence Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all confident					Moderately confident						Totally confident
Readiness Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all ready					Moderately ready						Totally ready
Importance Rating (circle one):											
0	10	20	30	40	50	60	70	80	90	100	
Not at all important					Moderately important						Totally important

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Appendix L Syntax

Model A

```
mixed BDI
/print=solution testcov
/method=ml
/fixes=intercept
/random intercept | subject (ID)
```

Model B

```
mixed BDI with time
/print=solution testcov
/method=ml
/fixes=time
/random intercept time | subject (ID) covtype(un)
```

Model C

```
mixed BDI with HRSC1 HRSC2 time
/print=solution testcov
/method=ml
/fixes=HRSC1 HRSC2 time HRSC1*time HRSC2*time
/random intercept time | subject (ID) covtype(un)
```

Model D

```
mixed BDI with HRSC1 HRSC2 PBQPos time
/print=solution testcov
/method=ml
/fixes=HRSC1 HRSC2 PBQPos time HRSC1*time HRSC2*time PBQPos*time
/random intercept time | subject (ID) covtype(un)
```

Appendix M

Normal P-P Plots and Residual Plots for Predictor Variables

NOTE: All analyses in Appendix M were regressed against the BDI-II as the dependent variable

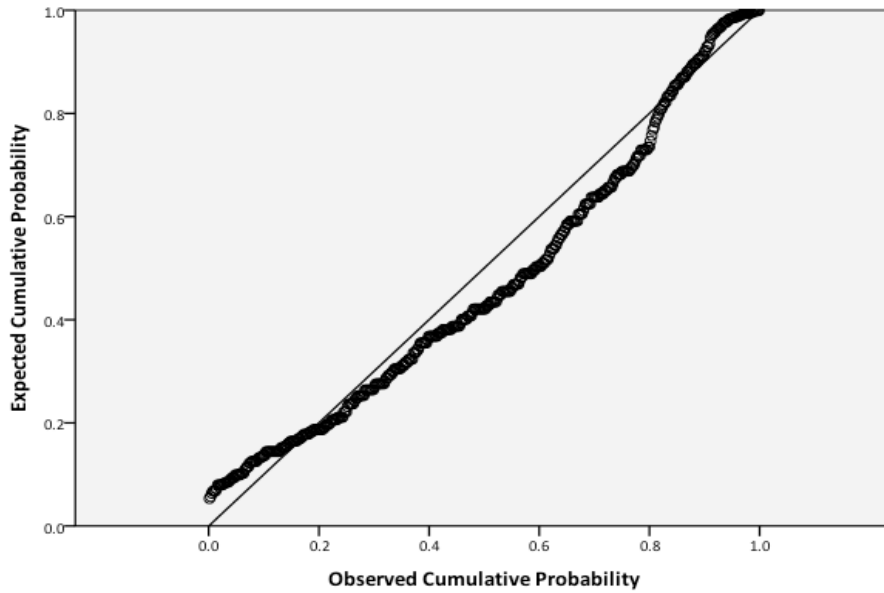


Figure M.1 Normal P-Plot of standardised residual for client rated HRS-II Item 1 (quantity)

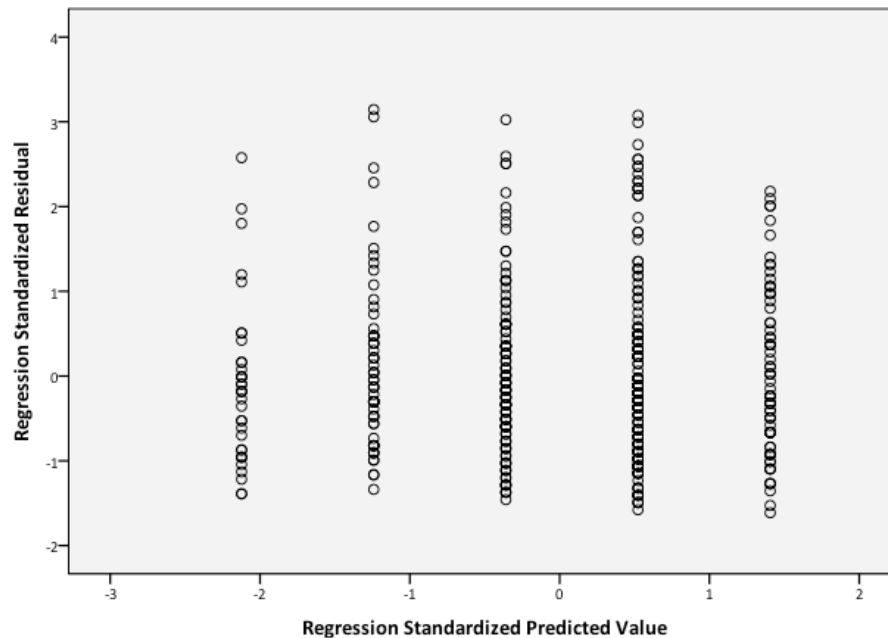


Figure M.2 Standardised residual scatterplot for client rated HRS-II item 1 (quantity)

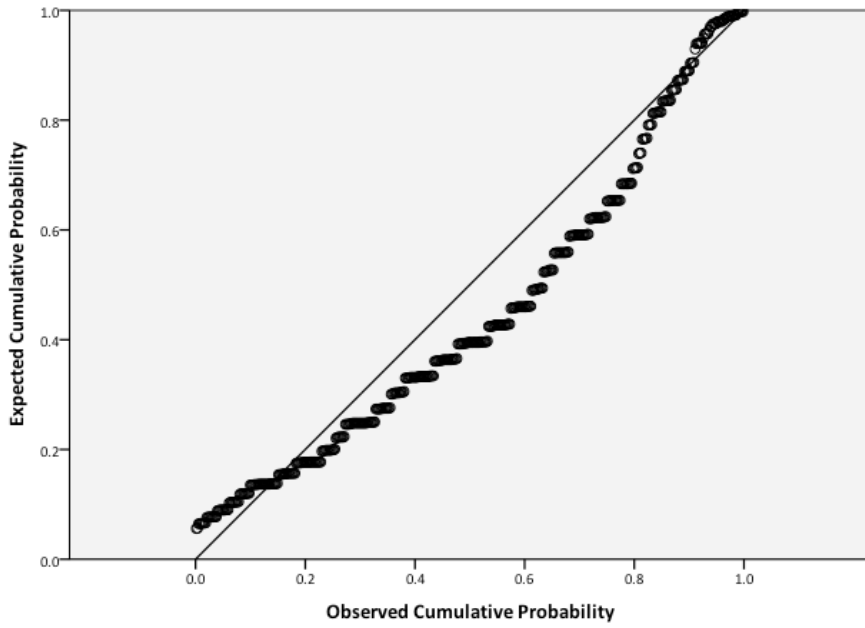


Figure M.3 Normal P-P Plot of standardised residual for client rated HRS-II item 2 (quality)

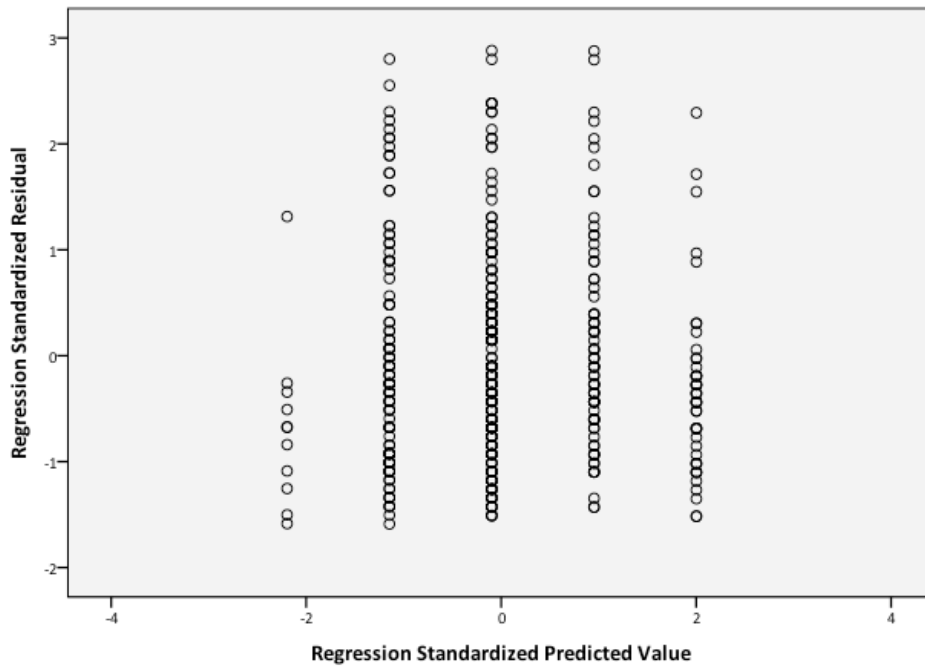


Figure M.4 Standardised residual scatterplot for client rated HRS-II item 2 (quality)

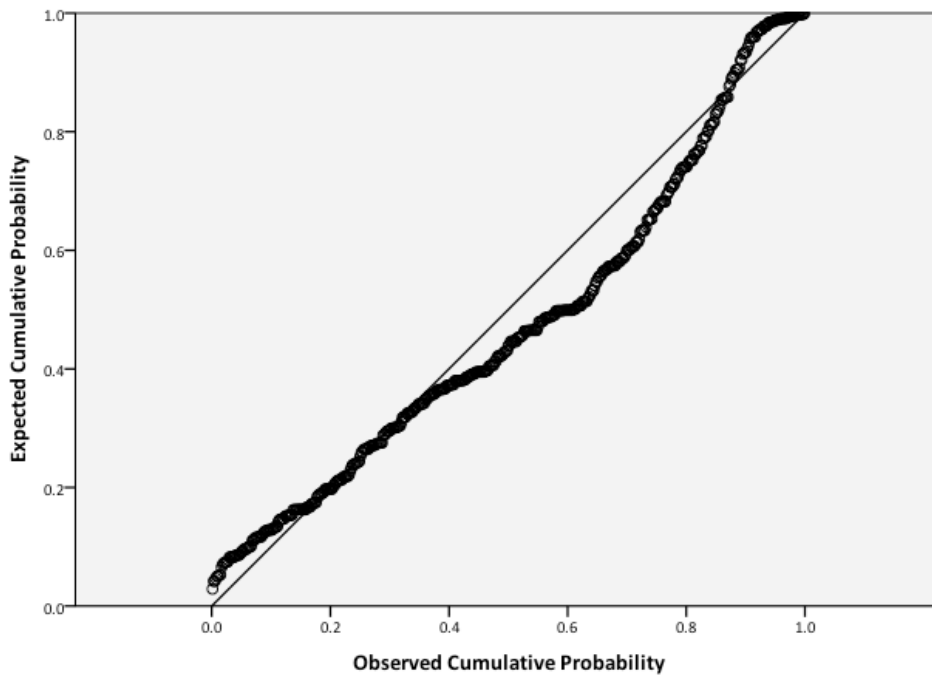


Figure M.5 Normal P-P Plot of Standardised residual for PBQ-SF global level of distress

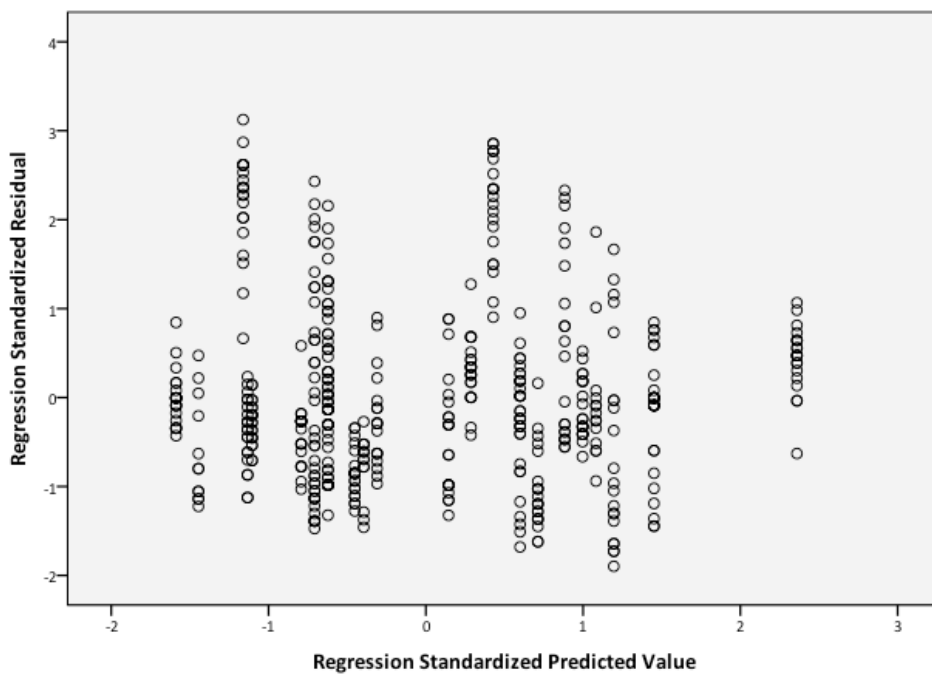


Figure M.6 Standardised residual scatterplot for PBQ-SF global level of distress

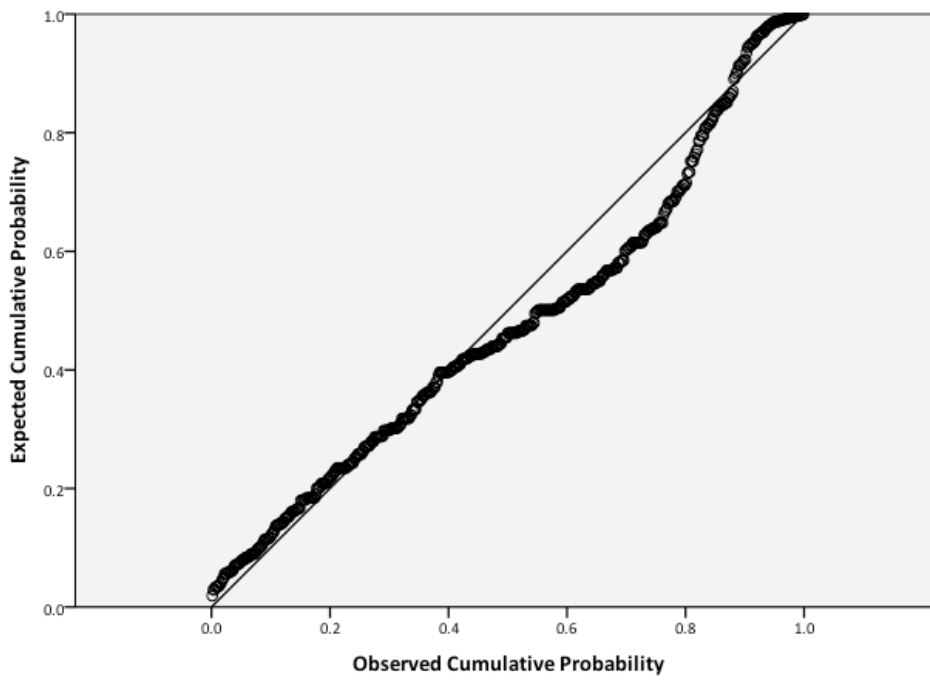


Figure M.7 Normal P-P Plot of standardised residual for PBQ-SF borderline personality beliefs scale

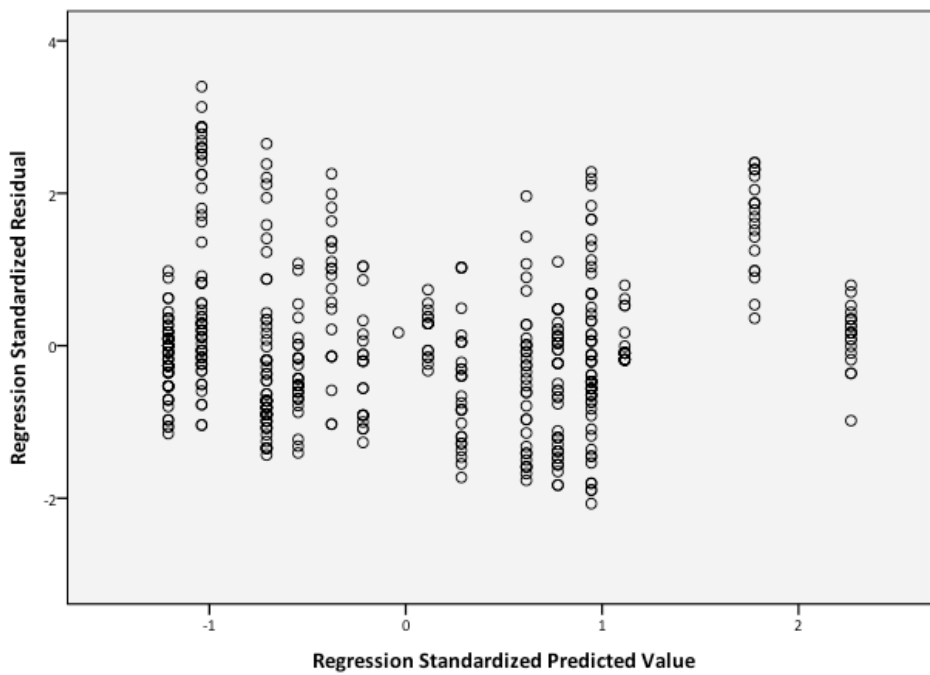


Figure M.8 Standardised residual scatterplot for PBQ-SF borderline personality beliefs scale

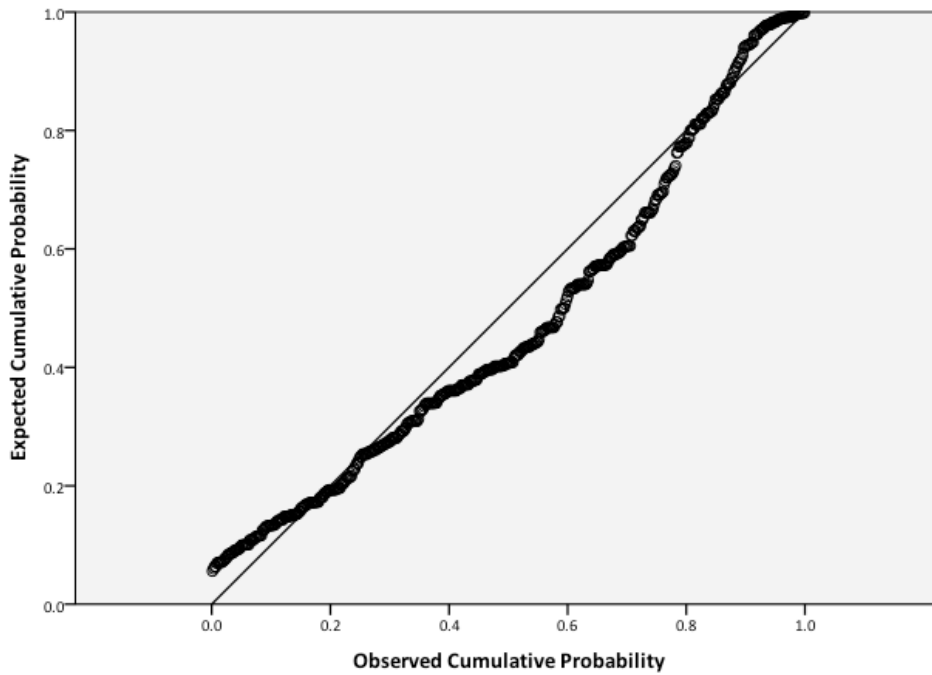


Figure M.9 Normal P-P Plot of standardised residual for PBQ-SF paranoid personality beliefs scale

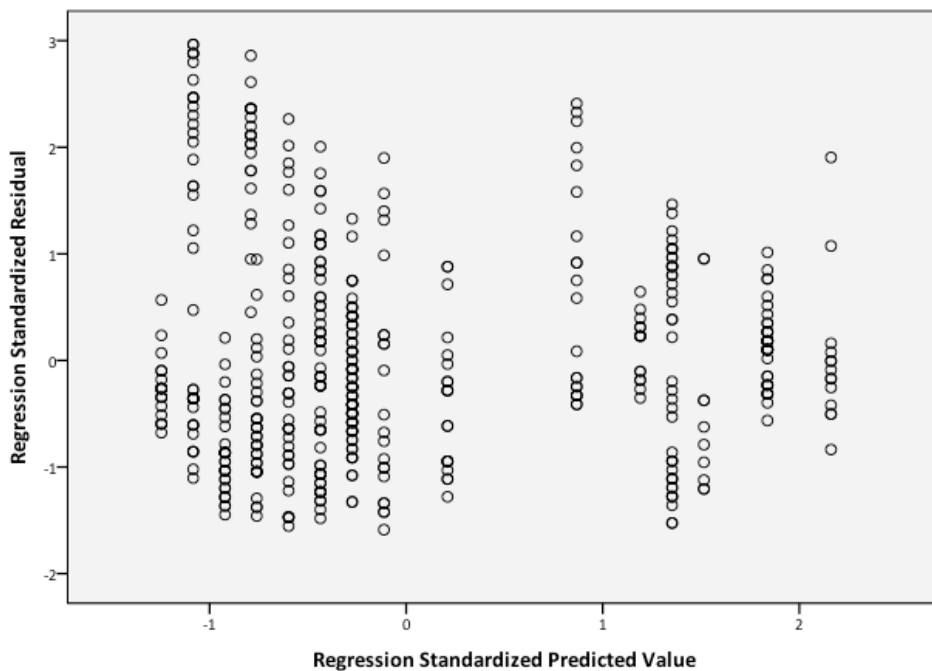


Figure M.10 Standardised residual scatterplot for PBQ-SF paranoid personality beliefs scale

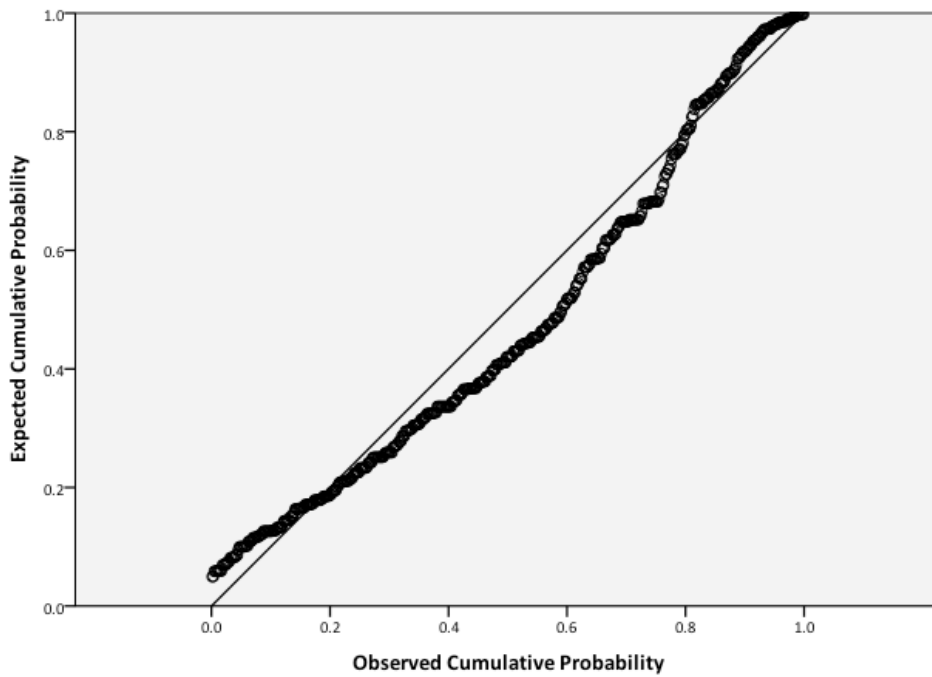


Figure M.11 Normal P-P Plot of standardised residual for PBQ-SF narcissistic personality beliefs scale

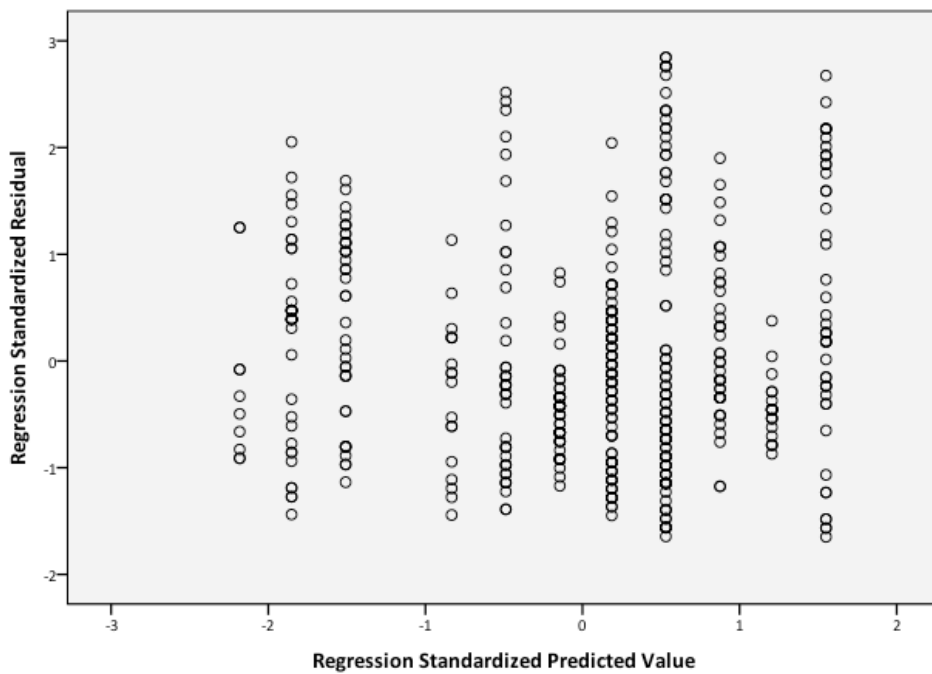


Figure M.12 Standardised residual scatterplot for PBQ-SF narcissistic personality beliefs scale

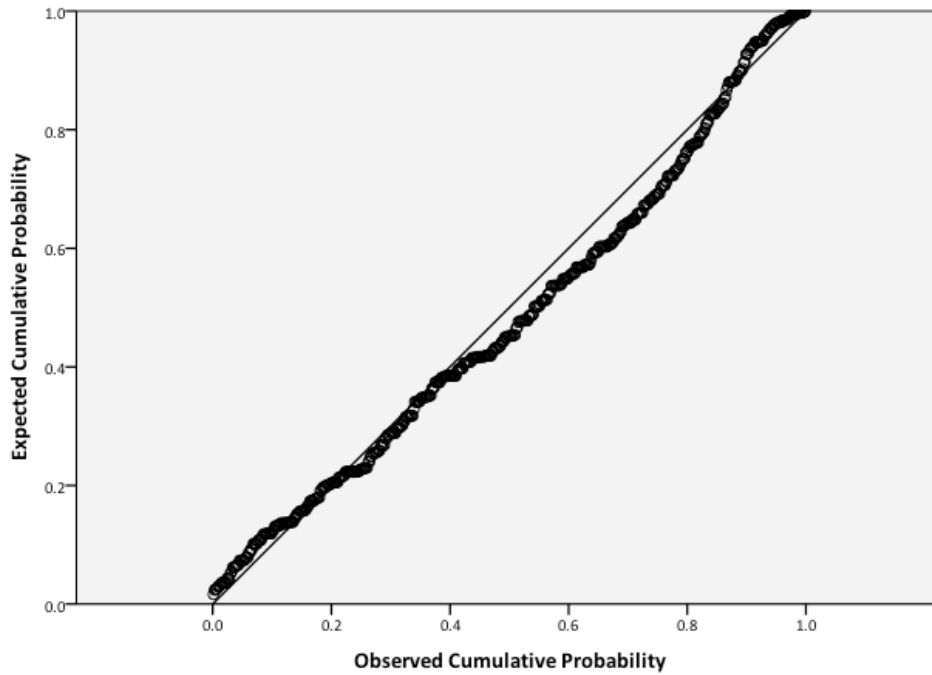


Figure M.13 Normal P-P Plot of standardised residual for PBQ-SF obsessive-compulsive personality beliefs scale

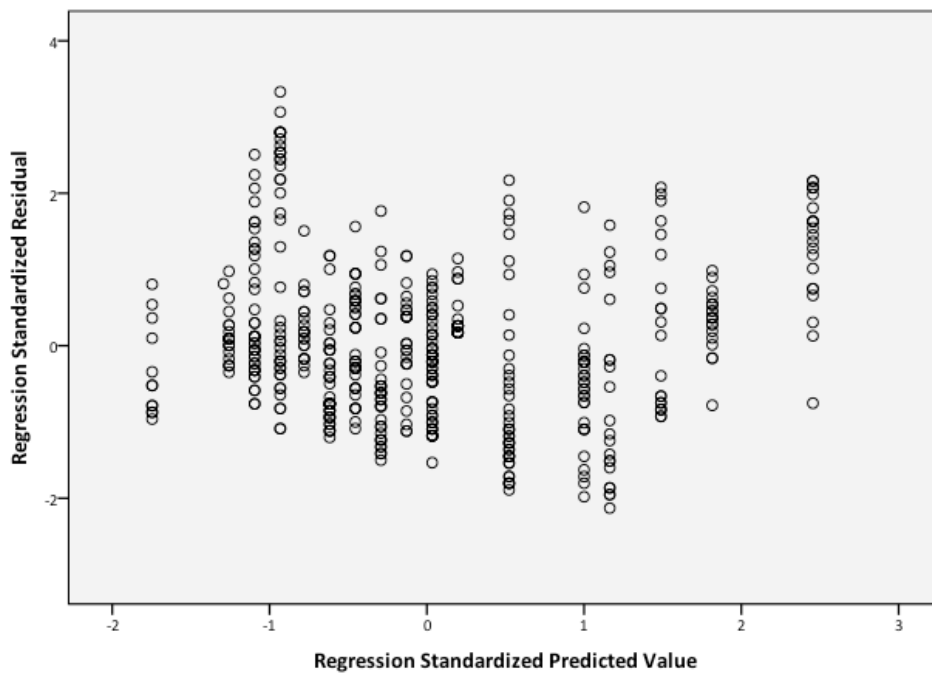


Figure M.14 Standardised residual scatterplot for PBQ-SF obsessive-compulsive personality beliefs scale

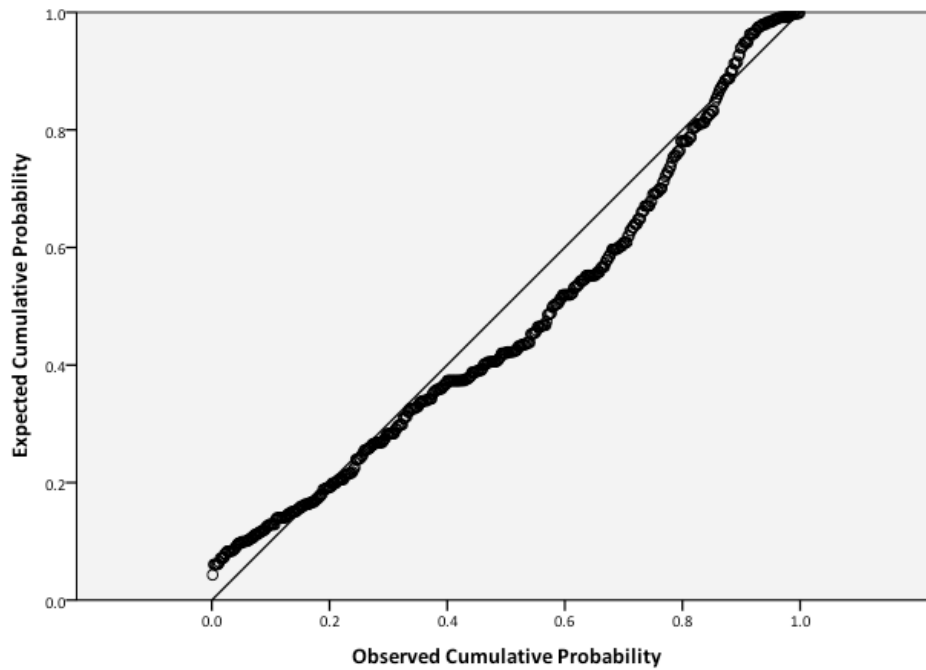


Figure M.15 Normal P-P Plot of standardised residual for PBQ-SF dependent personality beliefs scale

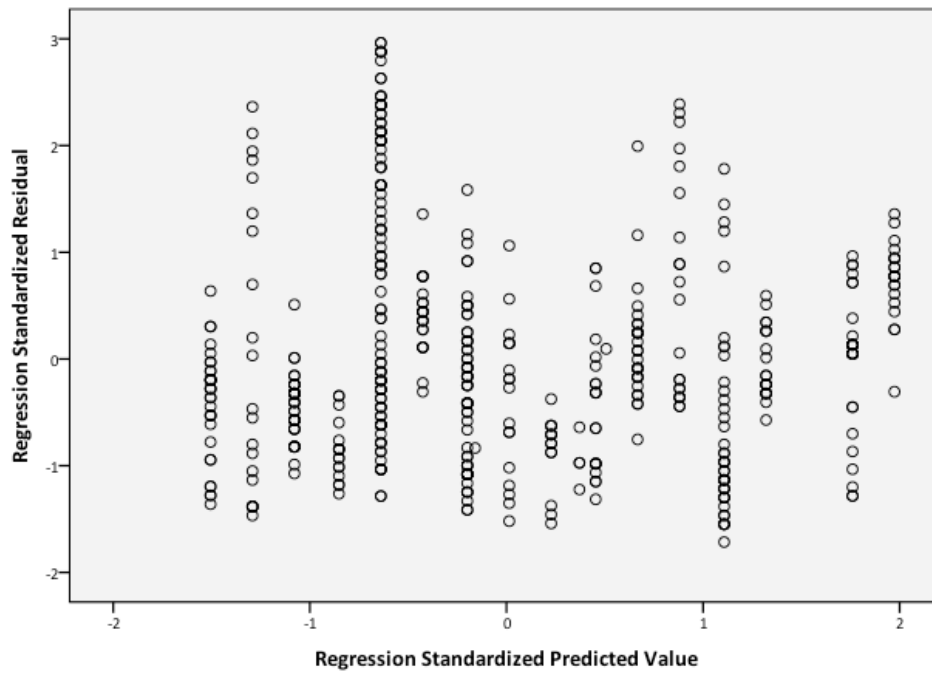


Figure M.16 Standardised residual scatterplot for PBQ-SF dependent personality beliefs scale

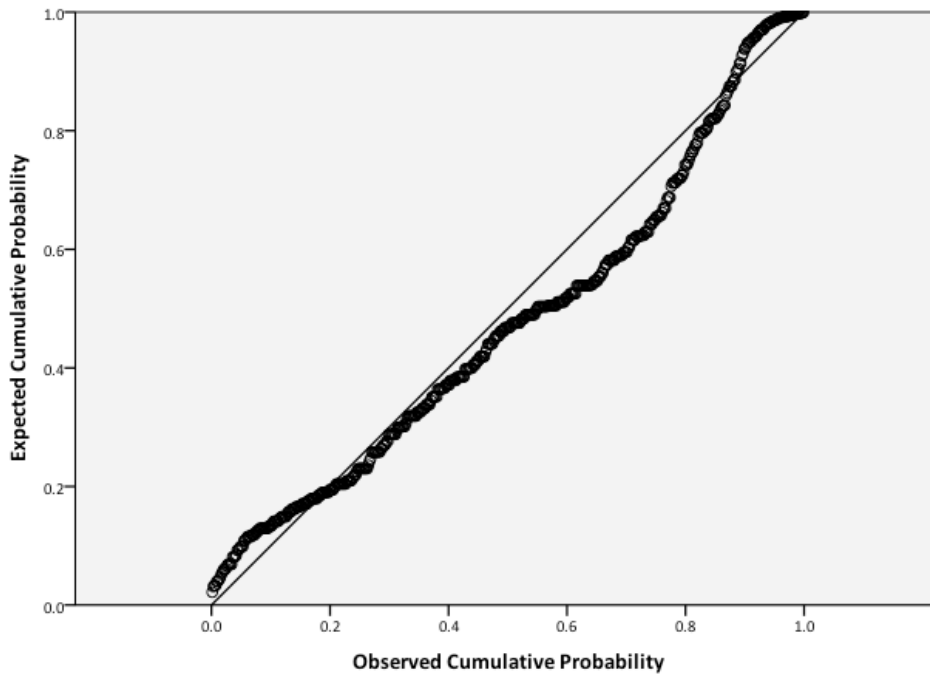


Figure M.17 Normal P-P Plot of standardised residual for PBQ-SF avoidant personality beliefs scale

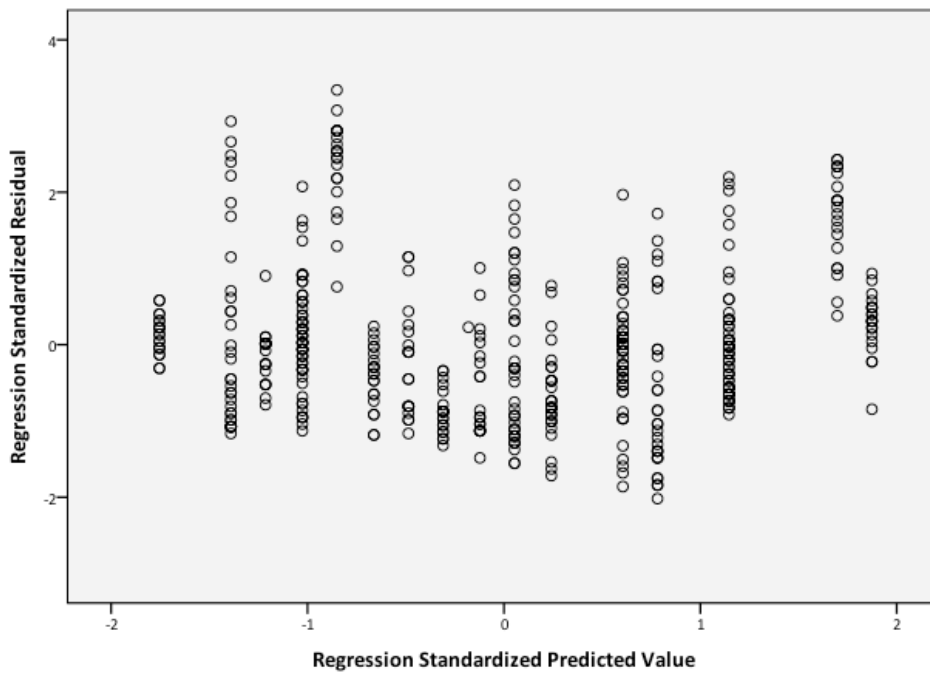


Figure M.18 Standardised residual scatterplot for PBQ-SF avoidant personality beliefs scale

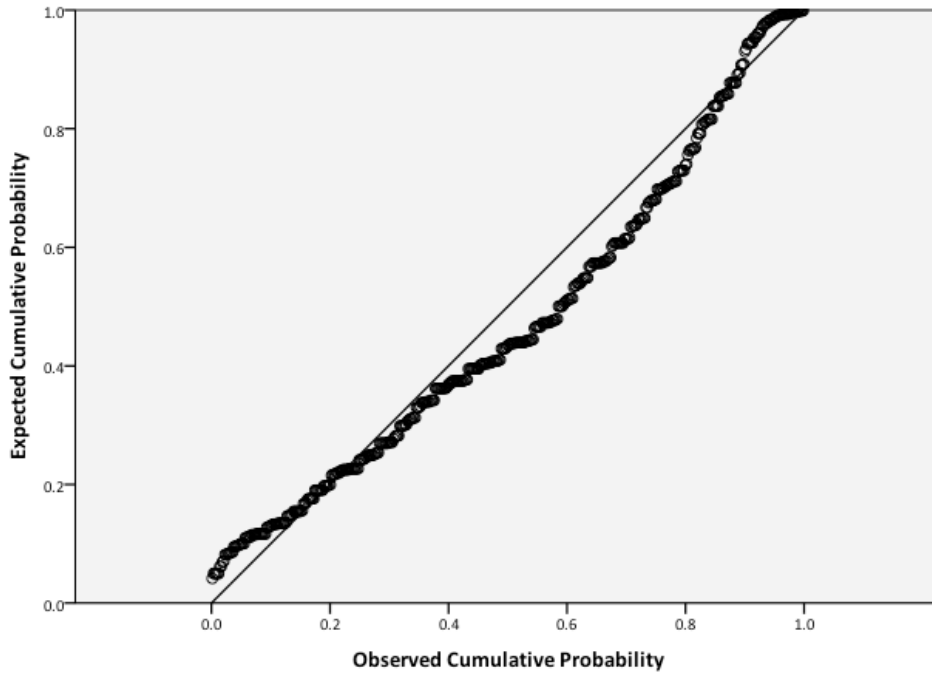


Figure M.19 Normal P-P Plot of standardised residual for cognitive therapy scale

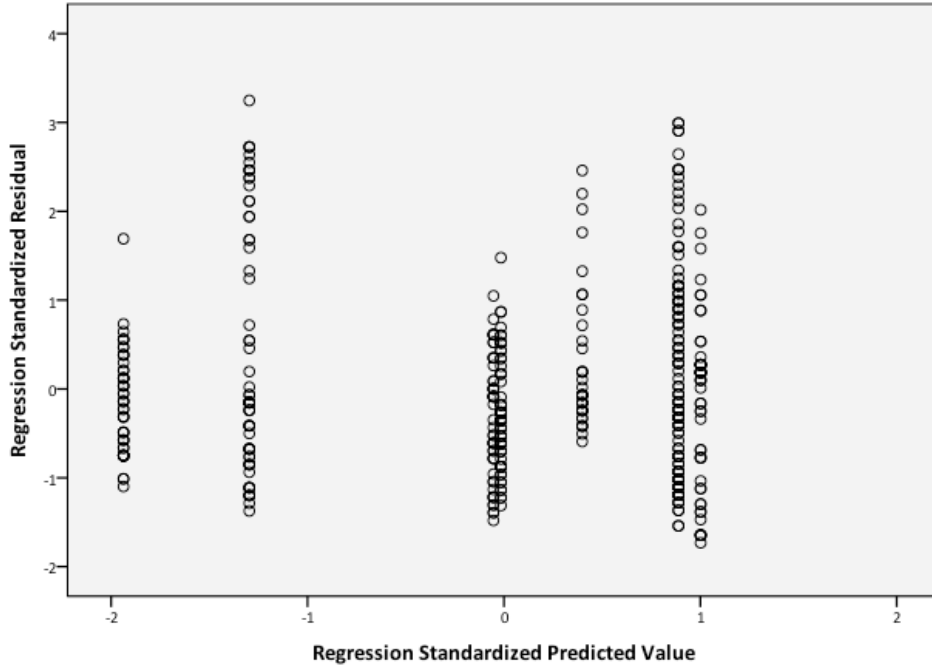


Figure M.20 Standardised residual scatterplot for cognitive therapy scale

Appendix N

Table N.1

Participant BDI-II Change Over the Course of Treatment

<i>Client #</i>	<i>Intake BDI-II</i>	<i>Intake Severity</i>	<i>Final Session BDI-II</i>	<i>Final Session Severity</i>	<i>Improvement at Final Session</i>
57	21	Moderate	4	Minimal	81%
63	28	Moderate	15	Mild	46%
66	33	Severe	11	Minimal	63%
69	46	Severe	0	Minimal	100%
84	15	Mild	1	Minimal	93%
106	32	Severe	6	Minimal	81%
111	24	Moderate	6	Minimal	75%
113	33	Severe	22	Moderate	33%
116	48	Severe	24	Moderate	50%
133	43	Severe	10	Minimal	77%
143	18	Mild	8	Minimal	56%
160	37	Severe	19	Mild	49%
165	26	Moderate	2	Minimal	92%
169	49	Severe	15	Mild	69%
188	13	Minimal	4	Minimal	69%
195	23	Moderate	18	Mild	22%
206	21	Moderate	6	Minimal	71%
218	42	Severe	0	Minimal	100%
220	19	Mild	3	Minimal	84%
223	28	Moderate	11	Minimal	61%
236	38	Severe	3	Minimal	92%
244	53	Severe	31	Severe	42%
247	23	Moderate	2	Minimal	91%
262	25	Moderate	11	Minimal	56%
271	44	Severe	15	Mild	66%
273	24	Moderate	16	Mild	33%
295	30	Severe	4	Minimal	87%

Appendix O

Table O.1:
Alternative Model D Personality Beliefs Global Level of Distress

		Parameter	Model A	Model B	Model C	Model D	Alternative Model D Behaviour Factor
Fixed Effects							
Initial Status π_{0i}	Intercept	γ_{00}	17.60*** (1.81)	23.60*** (2.23)	22.29*** (2.46)	15.72** (5.31)	16.09** (5.25)
	Quantity	γ_{01}	-	-	0.17 (0.60)	0.17 (0.60)	-
	Quality	γ_{02}	-	-	0.41 (0.76)	0.44 (0.76)	-
	PBQ	γ_{03}	-	-	-	0.84 (0.61)	0.09 (0.06)
	Behaviour	γ_{04}	-	-	-	-	0.15 (0.12)
Rate of Change π_{2i}	Intercept	γ_{10}	-	-0.89*** (0.12)	-0.64*** (0.18)	-0.43 (0.30)	-0.50 (0.29)
	Quantity	γ_{11}	-	-	-0.02 (0.08)	-0.02 (0.08)	-
	Quality	γ_{12}	-	-	-0.10 (0.09)	-0.10 (0.09)	-
	PBQ	γ_{13}	-	-	-	-0.00 (0.00)	-0.00 (0.00)
	Behaviour	γ_{14}	-	-	-	-	-0.03* (0.01)
Variance Components							
Level 1	Within Person	σ^2_{ϵ}	45.55*** (3.07)	22.26*** (1.54)	21.96*** (1.53)	21.96*** (1.52)	22.00*** (1.53)
Level 2	Initial Status	σ^2_0	85.82*** (24.08)	129.85*** (36.54)	129.69*** (36.50)	120.77*** (34.08)	112.02*** (34.12)
	Rate of Change	σ^2_1	-	0.28** (0.09)	0.27** (0.09)	0.25** (0.09)	0.26** (0.09)
	Covariance	σ^0_1	-	-3.32* (1.51)	-3.24* (1.49)	-2.97* (1.41)	-2.97* (1.41)
Pseudo R² Statistics and Goodness-of-fit							
		R^2_{ϵ}	-	0.500	0.518	0.517	0.517
		R^2_0	-	-	0.001	0.069	0.136
		R^2_1	-	-	0.036	0.074	0.040
		Deviance	3202.96	2932.12	2925.76	2923.28	2924.91
		AIC	3208.96	2944.12	2945.76	2947.28	2944.91
		BIC	3221.40	2968.99	2987.22	2997.04	2986.37

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Appendix P

Table P.1:
Behaviour Factor Alternative Analysis HRS-II

			Parameter	Primary Model C	Primary Model D	Model C Behaviour Factor	Model D Behaviour Factor / PBQ
Fixed Effects							
Initial Status π_{0i}	Intercept	γ_{00}	22.29***	19.21***	22.73***	19.60***	
			(2.46)	(3.05)	(2.33)	(2.94)	
	Quantity	γ_{01}	0.17	0.18	-	-	
			(0.60)	(0.60)	-	-	
	Quality	γ_{02}	0.41	0.43	-	-	
			(0.76)	(0.76)	-	-	
	Behaviour	γ_{03}			0.14	0.15	
					(0.11)	(0.11)	
	PBQ	γ_{04}	-	6.30*	-	6.44*	
			-	(3.93)	-	(3.93)	
Rate of Change π_{2i}	Intercept	γ_{10}	-0.64***	-0.50***	-0.72***	-0.59**	
			(0.18)	(0.20)	(0.14)	(0.18)	
	Quantity	γ_{11}	-0.02	-0.02	-	-	
			(0.08)	(0.08)	-	-	
	Quality	γ_{12}	-0.10	-0.10	-	-	
			(0.09)	(0.09)	-	-	
	Behaviour	γ_{13}	-	-	-0.03*	-0.02	
			-	-	(0.01)	(0.01)	
	PBQ	γ_{14}	-	-0.27*	-	-0.28*	
			-	(0.22)	-	(0.22)	
Variance Components							
Level 1	Within Person	σ^2_{ϵ}	21.96***	21.97***	22.01***	22.01***	
			(1.53)	(1.52)	(1.52)	(1.52)	
Level 2	Initial Status	σ^2_0	129.69***	116.90***	130.15***	117.10***	
			(36.50)	(33.07)	(36.61)	(33.09)	
	Rate of Change	σ^2_1	0.27**	0.25**	0.27**	0.25**	
			(0.09)	(0.09)	(0.09)	(0.09)	
	Covariance	σ^0_1	-3.24*	-2.82*	-3.27*	-2.82*	
			(1.49)	(1.38)	(1.49)	(1.37)	
Pseudo R² Statistics and Goodness-of-fit							
		R^2_{ϵ}	0.518	0.517	0.517	0.517	
		R^2_0	0.001	0.098	0.002	0.100	
		R^2_1	0.036	0.074	0.036	0.074	
		Deviance	2925.76	2923.28	2926.83	2924.23	
		AIC	2945.76	2947.28	2942.83	2944.23	
		BIC	2987.22	2997.04	2976.00	2985.70	

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Appendix Q

Table Q.1:
Therapist Rated Homework Quantity and Quality (HRS-II)

		Parameter	Primary Model C	Primary Model D	Model C Therapist Rating	Model D Therapist Rating & PBQ
Fixed Effects						
Initial Status π_{0i}	Intercept	γ_{00}	22.29*** (2.46)	19.21*** (3.05)	22.12*** (2.51)	19.16*** (3.07)
	Quantity	γ_{01}	0.17 (0.60)	0.18 (0.60)	0.60 (0.57)	0.58 (0.57)
	Quality	γ_{02}	0.41	0.43	-0.12 (0.61)	-0.10 (0.61)
	PBQ	γ_{03}	- -	6.30* (3.93)	- -	6.14* (3.95)
Rate of Change π_{2i}	Intercept	γ_{10}	-0.64*** (0.18)	-0.50*** (0.20)	-0.57** (0.18)	-0.45* (0.21)
	Quantity	γ_{11}	-0.02 (0.08)	-0.02 (0.08)	-0.09 (0.07)	-0.09 (0.07)
	Quality	γ_{12}	-0.10 (0.09)	-0.10 (0.09)	-0.01 (0.08)	-0.01 (0.08)
	PBQ	γ_{13}	- -	-0.27* (0.22)	- -	-0.27* (0.22)
Variance Components						
Level 1	Within Person	σ^2_{ϵ}	21.96*** (1.53)	21.97*** (1.52)	22.82*** (1.52)	21.84*** (1.52)
Level 2	Initial Status	σ^2_0	129.69*** (36.50)	116.90*** (33.07)	129.94*** (36.55)	117.41*** (33.20)
	Rate of Change	σ^2_1	0.27** (0.09)	0.25** (0.09)	0.29** (0.09)	0.27** (0.09)
	Covariance	σ^0_1	-3.24* (1.49)	-2.82* (1.38)	-3.32* (1.52)	-2.91* (1.42)
Pseudo R² Statistics and Goodness-of-fit						
		R^2_{ϵ}	0.518	0.517	0.521	0.521
		R^2_0	0.001	0.098	.001	0.096
		R^2_1	0.036	0.074	0.036	0.070
		Deviance	2925.76	2923.28	2924.81	2922.47
		AIC	2945.76	2947.28	2944.81	2946.47
		BIC	2987.22	2997.04	2986.27	2996.22

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Appendix R

Table R.1:
Beliefs Factor Alternative Analysis HRS-II

			Parameter	Primary Model C	Primary Model D	Model C Beliefs Factor	Model D Beliefs Factor / PBQ
Fixed Effects							
Initial Status π_{0i}	Intercept	γ_{00}	22.29***	19.21***	23.89***	20.72***	
			(2.46)	(3.05)	(2.34)	(2.98)	
	Quantity	γ_{01}	0.17	0.18	-	-	
			(0.60)	(0.60)	-	-	
	Quality	γ_{02}	0.41	0.43	-	-	
			(0.76)	(0.76)	-	-	
	Beliefs	γ_{03}			-0.003	-0.002	
					(0.007)	(0.007)	
	PBQ	γ_{04}	-	6.30*	-	6.33*	
			-	(3.93)	-	(3.96)	
Rate of Change π_{2i}	Intercept	γ_{10}	-0.64***	-0.50***	-0.86***	-0.72***	
			(0.18)	(0.20)	(0.15)	(0.18)	
	Quantity	γ_{11}	-0.02	-0.02	-	-	
			(0.08)	(0.08)	-	-	
	Quality	γ_{12}	-0.10	-0.10	-	-	
			(0.09)	(0.09)	-	-	
	Beliefs	γ_{13}	-	-	-0.000	-0.000	
			-	-	(0.00)	(0.00)	
	PBQ	γ_{14}	-	-0.27*	-	-0.25*	
			-	(0.22)	-	(0.22)	
Variance Components							
Level 1	Within Person	σ^2_{ϵ}	21.96***	21.97***	22.23***	22.26***	
			(1.53)	(1.52)	(1.55)	(1.54)	
Level 2	Initial Status	σ^2_0	129.69***	116.90***	131.52***	118.72***	
			(36.50)	(33.07)	(37.15)	(33.82)	
	Rate of Change	σ^2_1	0.27**	0.25**	0.27**	0.25**	
			(0.09)	(0.09)	(0.09)	(0.09)	
	Covariance	σ^0_1	-3.24*	-2.82*	-3.30*	-2.87**	
			(1.49)	(1.38)	(1.52)	(1.42)	
Pseudo R² Statistics and Goodness-of-fit							
		R^2_{ϵ}	0.518	0.517	0.512	0.511	
		R^2_0	0.001	0.098	0.013	0.086	
		R^2_1	0.036	0.074	0.036	0.138	
		Deviance	2925.76	2923.28	2931.00	2928.58	
		AIC	2945.76	2947.28	2947.00	2948.58	
		BIC	2987.22	2997.04	2980.17	2990.05	

Note. *** $p < .001$; ** $p < .01$; * $p < .05$