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Online Treatments for Depression: A Randomised Controlled Trial on an Adult Student Population

Thesis presented to the School of Psychology,
University of Dublin, Trinity College, for the degree of
Doctor of Philosophy
by

Derek Richards
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Declaration

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Publications

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Abstract

Background: Depression is a serious and growing mental health concern with associated economic, social and personal costs. Depression can be effectively treated, however, only a small percentage of those who suffer, receive treatment. Online-delivered treatments may increase access and help remove some of the barriers that impede help-seeking thereby closing the gap between demand and supply. Online psychosocial treatments for a variety of disorders, including depression, have demonstrated clinical efficacy. For example, based on research, NICE have recommended Beating the Blues™ in the treatment of mild to moderate depression. In addition to efficacy, Marks et al. (2007) point out in their worldwide review of computer-aided therapy; "more needs to be known about the best type, duration and site of human support for users." (P.222) It is important therefore to learn more about the role that therapist support plays in the delivery of online interventions.

Aims: To determine the effectiveness of online CBT treatments for depression and to determine the impact and value of therapist responsiveness to treatment.

Method: A sample of 101 participants with symptoms of depression were randomly allocated to receive either 8 sessions of therapist-delivered asynchronous e-mail CBT counselling treatment (eCBT) for depression, or 8 sessions of computerised CBT self-administered treatment (cCBT) for depression. The principal inclusion criterion was the presence of depressive symptoms; a score of between 14 and 29 on the Beck Depression Inventory (BDI-II).

Results: Of the 101 randomised 80 began treatment. Attrition from the study was high for both conditions, but within the established range for online attrition. The available data shows that the participants, in both groups, post-treatment report significant reductions in depressive symptoms, BDI-II, $F(2.25,67.59)=6.872$, $p<.001$. The results demonstrate that significant improvement was achieved from baseline to week 8, $F(1,30)=15.015$, $p<.001$, and improvements are maintained at follow-up. A corresponding benefit to mental health was observed for both groups on the Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM), $F(3,90)=5.056$, p

<.001. The results demonstrate that significant improvement was achieved from baseline to week 8, $F(1,30)=4.910$, p <.001, and improvements maintained at follow-up. Effect sizes are large for both conditions on the BDI-II (eCBT: d=2.30; cCBT: d=1.44) and CORE-OM (eCBT: d=1.77; cCBT: d=1.20) at post-treatment and these are maintained at follow-up. At post-treatment, results demonstrate a large between-group effect size in favour of the eCBT group on BDI-II (d=.86) and a medium between-group effect size on CORE-OM (d=.57). At follow-up the effect size for the BDI-II is d=.36 at week 16, and d=.67 at week 32, and for the CORE-OM they are d=.49 at week 16, and d=.52 at week 32. However, participants demonstrate reliable and clinically significant change of equal proportions in both conditions at end of treatment, week 8, χ^2 (2; N=46) = .139, p >.05, and at follow-up at week 16, χ^2 (2; N=41) = .001, p >.05 and week 32, χ^2 (2; N=33) = .206, p >.05. User's perception of working alliance correlates positively with the outcome for those in the eCBT condition at week 2, r =-.269, week 4, r =-.518, and week 6, r =-.585. In addition the bond subscale is significantly stronger in the eCBT condition. Generally, the reverse is true for the cCBT condition; participant's perceptions of working alliance with the voice over self-administered computer program are lower, especially for week 2, r =-.119, and week 4, r =-.050, but improve for week 6, r =-.373. Data collected and analysed from both the Helpful Aspects of Therapy (HAT) and the satisfaction with treatment instruments provide further insight in addressing the study objectives and research questions.

Conclusions: It is clear that the online treatments may be useful in reducing depressive symptoms and improving general functioning, any benefits are maintained at follow-up. The study also suggests that the therapist-delivered treatment shows a potential for better outcomes. Results from the main outcome measures and auxiliary quantitative and qualitative data analysis support the general hypothesis that online treatments are effective and the presence of a therapeutic alliance can be developed online and potentially adds value to treatment efficacy. Qualitative comments highlight issues for design and future delivery of online treatments.

Abbreviations

MDD	Major Depressive Disorder
ECA	Baltimore Epidemiologic Catchment Area Survey
BDI	Beck Depression Inventory
DSM-I	Diagnostic and Statistical Manual of Mental Disorders-First Edition
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders-Third Edition - Revised
DIS	Diagnostic Interview Schedule
ODIN	European Outcome of Depression International Network (ODIN)
EU	European Union
GP	General Practitioner
GBD	Global Burden of Diseases
GLADS	Group for Longitudinal Affective Disorders Study
HRDS	Hamilton Rating Scale for Depression
ICD-10	International Classification for Diseases and Related Disorders
MOS	Medical Outcomes Study
NCS	National Comorbidity Survey
NCS-R	National Co-morbidity Survey – Revised
NIMH	National Institute of Mental Health (NIMH) Collaborative Depression Study (CDS)
WHO	World Health Organisation

Tables

Table 1 Key change points in depression and their definitions 49

Table 2 Effect size of e-therapy by communication modality (27 studies).....156

Table 3 Research conducted into Beating the Blues™ 166

Table 4 Studies included in the review of online treatments for depression.....172

Table 5 Eligibility criteria employed in the study.....213

Table 6 Participants demographic details.....215

Table 7 Adherence measure items, means and Kappa values 226

Table 8 Interpretation of Kappa values 227

Table 9 Exclusion criteria for each of the instruments – Pilot.....234

Table 10 Exclusion criteria for each of the instruments - Phase 1, 2, and 3 235

Table 11 Compliance (Dropout) rates in the study.....252

Table 12 Summary measure analysis for BDI-II and CORE-OM, means, standard deviations, effect sizes and confidence intervals, end of treatment and follow-up ...261

Table 13 Reliable and clinically significant change.....262

Table 14 Correlations for WAI-SR and BDI-II outcomes at week 8 for each group 263

Table 15 Mean scores on each of the WAI-SR subscales: Goals, Tasks, and Bonds 264

Table 16 Helpful events and impacts and their definitions 266

Table 17 Hindering events and impacts and their definitions 269

Table 18 Instances of helpful events and helpful impacts in the eCBT group, N=18 271

Table 19 Instances of helpful events and helpful impacts in the cCBT group, N=18 272

Table 20 Instances of hindering events and hindering impacts in the eCBT group, N=18.....274

Table 21 Instances of hindering events and hindering impacts in the cCBT group ..274

Table 22 Results from the satisfaction measure.....276

Table 23 How helpful was the online treatment program.....276

Table 24 What participants most liked about the online treatment.....277

Table 25 What participants least liked about the online treatment.....280

Figures

Figure 1 Flow of participants through the trial 217

Figure 2 Structure of the CBT Protocol used in the study (condition 1 and 2). 244

Figure 3 Outcomes on BDI-II T1-T2, post-treatment 253

Figure 4 Outcomes on BDI-II T1-T3, week 16 follow-up 254

Figure 5 Outcomes on BDI-II T1-T4, week 32 follow-up 255

Figure 6 Outcomes on CORE-OM T1-T2, post-treatment 256

Figure 7 Outcomes on CORE-OM T1-T3, week 16 follow-up 257

Figure 8 Outcomes on CORE-OM T1-T3, week 32 follow-up 258

Table of Contents

Declaration ii

Publications iii

Acknowledgements iv

Abstract v

Abbreviations vii

Tables viii

Figures x

Table of Contents xi

CHAPTER 1: INTRODUCTION 15

Introduction 16

Background 20

Theoretical Framework & Design 23
Hypothesis 23
Objectives 23

Overview of Chapters 28
Chapter 2 Depression and its Treatment 28
Chapter 3 Therapist Responsiveness; Relationship and Alliance 28
Chapter 4 Online Treatments for Depression 29
Chapter 5 Method 29
Chapter 6 Results 30
Chapter 7 Discussion 31

CHAPTER 2: DEPRESSION AND ITS TREATMENT 32

Introduction 33

Historical Development 34

Classification and Assessment 35
Assessment of Depression 36

Epidemiology of Depression 38

The Course of Depression: Remission, Recovery, Relapse and Recurrence 48
Remission and Recovery 51
Relapse 58
Recurrence 60

Comorbidity and Response 62

A Conceptual Understanding of Depression 65

Psychotherapeutic Treatment of Depression 73
Cognitive-behavioural Therapy for Depression 77

Conclusion 96

CHAPTER 3: THERAPIST RESPONSIVENESS; RELATIONSHIP AND ALLIANCE 99

Introduction 100

Responsiveness in Counselling and Therapy 101

The Therapeutic Relationship 108

The Working Alliance: Development, Defining Attributes and Empirical Base 116
Development of the Concept of Working Alliance 116
Definition of the Concept of Working Alliance 122
Empirical Research Aligning Alliance to Successful Outcomes 127
Therapeutic Relationship/ Alliance and CBT 133

Measuring Alliance and Responsiveness 141

Conclusion 143

CHAPTER 4: ONLINE TREATMENTS FOR DEPRESSION: A REVIEW OF STUDIES 145

Introduction 146

Technology and Mental Health 147
Online Counselling 147
Self-administered Treatments 156
Beating the Blues™ and its evidence base 158

Online Treatments for Depression 170
Review of the Studies 170
Method 171
Online interventions for depression used in the studies 179
Design of the studies 182
Outcome measures used in the Studies 187
Results from the Studies 188
Satisfaction with treatment in the Studies 194
Limitations in the Studies 195

Support in Online Treatments for Depression 199

Conclusion 206

The Current Study 209

CHAPTER 5: METHOD 211

Introduction 212

Participant Characteristics 213
Sampling procedure 214
Sample size 216
Ethics 218

Instruments 220
Brief Symptom Inventory (BSI) 220
Beck Depression Inventory (BDI-II) 221
Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM) 221
History 222
Helpful Aspects of Therapy (HAT) 223
The Working Alliance Inventory – Short Revised (WAI-SR) 223
Satisfaction with Treatment Measure 224
Treatment Adherence Measure 225

Research Attrition 228

Research Design 229
Objectives 229
Research questions 230
Hypothesis 230
Procedure 231
Screening and outcome management 233
Descriptions of the interventions and how they operated 240
Therapists 242
Data analysis 244

Conclusion 247

CHAPTER 6: RESULTS 248

Introduction 249

Effects of the Interventions 250
Baseline characteristics 250
Treatment Response Rate 251
Outcomes on BDI and CORE-OM 252
Effect sizes 259
Reliable and clinically significant change 260

Outcome and Therapeutic Alliance Correlations 263

Helpful Aspects of Therapy 265

Satisfaction with Treatment 275

Conclusion 284

CHAPTER 7: DISCUSSION 285

Introduction 286

Principal Results 286
Efficacy of online CBT delivered treatment 286
Alliance in online delivered treatments & its relation to outcome 296
Helpful and hindering aspects of therapy 300
Satisfaction with treatment 306

Limitations 314

Future Research 319

Conclusion 323

Appendices 326

References 377

Chapter 1: Introduction

Introduction

Recent decades have witnessed a dramatic increase in the rate of depression reported in the general population (Gotlib, 2002). The World Health Organisation has ranked depression as the single most burdensome disease in the world (Gotlib, 2002). In an assessment of the global burden of depressive disorders in the year 2000 for the World population Üstün et al. (2004) report that the prevalence throughout the world is 16 per 100,000 per year for males and 25 per 100,000 per year for females. Their results show depression as the fourth leading cause of disease burden in the world accounting for 4.4% of total disability adjusted life years (Üstün, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004).

The WHO report that in the Europe Area the prevalence of depressive episodes for males is 16 per 100,000 per year and for females is 27 per 100,000 per year (Ayuso-Mateos et al., 2001). This data includes information from Ireland among other European centres. An analysis of the sample of 8,764 gave an overall prevalence of depressive disorders of 8.56%. Based on the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) (American Psychiatric Association, 2000a) criteria the survey returns Ireland, urban areas, with the highest weighted mean prevalence of 15.1% for a major depressive episode among the countries surveyed. The same assessment criteria globally, for both rural and urban areas, shows Ireland returning the highest weighted mean of 10.3%, followed by Norway (7.74), the U.K. (6.95) and Finland (4.4). It is clear from the data that Ireland ranks high among the countries surveyed for prevalence of depressive disorder in the population, urban and rural. The data supports the notion that depressive disorders are highly prevalent among adults in Europe.

Epidemiologic studies have also been responsible for highlighting the occurrence of depression in younger age groups [20-25 years] (Murray & Lopez, 1996). What is also clear from these studies is that depressive disorders rank higher among the leading causes of disease burden for women than for men (Üstün, et al., 2004). The prevalence rates and gender differences are relatively constant across the adult lifespan and given the earlier age onset suggest that lifetime prevalence will be higher in the future for younger cohorts (Craighead, Sheets, Brosse, & Ilardi, 2007). The most recent report on duration states a median length of three months and like prevalence it is commonly longer for females than for males. Epidemiological studies also uncover the extent of co-morbidity, often present in upwards of 75% of cases of depression (Gotlib, 2002). The high percentages of comorbidity establishes it as the norm among people with depression to have a coexisting DSM-IV classified disorder (Gotlib, 2002). The strongest comorbidity is with anxiety disorders (Coryell et al., 1988; M. R. Johnson & Lydiard, 1998).

The many detailed studies into depression over the last 20 years or so have lead to a revolution in our understanding of the course of depression and consequently informed the development and application of treatments. A graphic picture is created that informs more clearly the complexity of the nature and course of depression. Presently it seems that the majority of individuals who experience depression will recover within one year. However, recovery is not permanent and future episodes carry the continued threat of chronicity for the individual, and for some recovery escapes them (Boland & Keller, 2002a). Furthermore relapse and recurrence are milestones in appreciating the complexity of depression.

Our understanding of depression has certainly developed, yet much is still to be known about the causes of depression. Biological and psychosocial factors have been identified and researched, their relative importance varies between individuals, but depression is the product of a complex interaction between them. The current biologic conceptual model of depression posits that many aspects of depression can be understood in terms of dysregulation of Central Nervous System (CNS) responses to stress. Biology has been successful in developing medications to compensate for such dysregulation. A range of psychosocial conceptualisations of depression have evolved and with them associated treatments including Behavioural, Psychodynamic, Interpersonal and Cognitive. Randomised controlled trials and also meta-analysis have demonstrated their efficacy (Craighead, et al., 2007). Cognitive therapy and the related cognitive-behavioural therapy (CBT) interventions have been the most extensively researched (American Psychiatric Association, 2000a). CBT has established itself as a robust option for the treatment of depression, in some cases, superior to other alternative treatments both for short-term gains and also for maintaining gains therefore preventing relapse and recurrence (Hollon & DeRubeis, 2006).

Depression can be treated, however only a small percentage of those who suffer receive treatment (Cuijpers, 1997). The World Health Organization has estimated that during any 12-month period, about 34 million depressed individuals worldwide go untreated (Kohn, Saxena, Levav, & Saraceno, 2004). Barriers to accessing treatment include a shortage of trained professionals, waiting lists, costs and personal barriers such as stigma (Cuijpers, 1997). In recent years attempts to

overcome barriers to access have been addressed through the delivery of tailored treatment programs using the Internet and related information and communication technologies (ICT's). For example, research into online delivered treatments for a range of disorders, including depression, has yielded findings supporting their efficacy (Marks, Cavanagh, & Gega, 2007; McKendree-Smith, 2003). The use of the internet and related technologies in treatment delivery may be pertinent for certain client groups such as young adults. Young adults, particularly, are high users of the internet and related tools (Demunter, 2005). Young adults, for one reason or other, often do not access traditional services, but may demonstrate a preference for online formats. The noted increase in online help-seeking behaviours for mental health among young adults would indicate this (Gallagher, 2008).

People's use of the internet to access information and support for their mental health can be harnessed, and the perceived benefits may in fact contribute positively to mental health service delivery into the future. It is predicted that the increasing growth and prevalence, as well as user demand, will solidify technology as an integral aspect of healthcare into the future (Alleman, 2002; Grohol, 2009; Morahan-Martin, 2004; Yellowlees & Brooks, 1999). In this way it may help address common concerns for the delivery of effective mental health care, such as increasing access, managing waiting lists and human resources, reducing costs and realising the benefits of early intervention. The need for innovation is clear and anything that can contribute to an alternative would be welcome.

Background

In the last 15 years the internet and communication technologies have developed to the point where CBT-based treatment programs can be easily delivered through this media (Ritterband et al., 2003). Self-help has until recently been largely in written format and commonly referred to as bibliotherapy. The self-help format is generally a book or a workbook and is implemented by the symptomatic individual, with either no or minimal therapist support (McKendree-Smith, 2003). Largely self-help has been based on the principles of CBT and has been demonstrated to be successful with people ranging in age from adolescents to older adults (McKendree-Smith, 2003). In recent years written self-help materials have been transformed with technology such as graphic and image software, voice and video recordings, and other multimedia. Such technologies have been used to great advantage to enhance provision of self-help available to users and potentially increases access to mental health services.

Kaltenthaler (Kaltenthaler, 2004) describes Computerised Cognitive-Behaviour Therapy (cCBT) as one variety of self-help available that can be of therapeutic benefit to users while reducing therapist involvement. Computerised Cognitive-Behavioural Therapy (cCBT) is CBT delivered by an interactive computer program. The program guides a user through the principles of CBT as would a therapist. An interactive cCBT program can respond to a user's particular circumstances, or problem, and ensure that the training of new ways of thinking and behaving are completed at a comfortable pace. The majority of research to date concerns cCBT developed for specific difficulties, that can be administered locally,

the pace of which is controlled by the user and with minimal therapist contact. Worldwide studies have demonstrated clinical usefulness in the delivery of packages such as FearFighter for anxiety and phobias, Interapy for PTSD and complicated grief, MoodGYM and Beating the Blues™ for depression and anxiety (Marks, et al., 2007).

Recently, Marks (2007) published a comprehensive review of the worldwide studies in the area of cCBT. Marks (2007) review concludes that the results of their clinical effectiveness are encouraging. However, many questions remain unanswered in respect of the implementation of cCBT in everyday clinical practice. For example, further research is required to determine the best type, frequency, and duration of human support for users, and the cost implications of various implementation models (Marks, et al., 2007).

Addressing directly the issue outlined above, the current project is a randomised controlled trial investigating the efficacy of online delivery of psychological interventions for the treatment of depression. Two arms were constructed, firstly there was a therapist-delivered asynchronous e-mail counselling (eCBT) condition and secondly there was a self-administered condition (cCBT) with no therapist contact. The study hypothesised that using established CBT principles, both treatments would therefore demonstrate effectiveness, but that the therapist-delivered intervention (eCBT) would most likely demonstrate greater improvement given the added value of therapist responsiveness.

The current study hopes to build on a growing body of literature investigating online treatments for depression, which for the most part has delivered positive outcomes. It also builds on other general online counselling literature that has assessed the relevance of the therapeutic relationship online and in particular the working alliance. To date however, there is a general lack of research that compares a standard intervention using two delivery modes; no published study has compared the CBT intervention using the two online delivery modes named in this study. To that end the current study is interested not only in effectiveness but also the impact of an added element for one group, that of therapist responsiveness. In the conduct of the investigation the project sought to research an innovate form of delivering established treatments principle in the hope that, if successful, they may address some of the barriers experienced by people in seeking treatment and also help in increasing access to treatments for depression. Indeed, given the pervasiveness of technologies, effective online interventions have the potential to make a large public health impact. Further, it is proposed that the research may support already established connections that have been uncovered with regard to the importance of therapist responsiveness to outcome. The research may advance some considerations for the nature, type, frequency and amount of a responsive relationship required for the success of online interventions for the treatment of depression and perhaps other related disorders. Finally, within an Irish context, this is the first contribution investigating the effectiveness and practice of online delivered psychological interventions. The research design, methodology and study framework can be transferred to other similar studies.

Theoretical Framework & Design

Hypothesis

The study hypothesised that in using established CBT principles, both treatments would therefore demonstrate effectiveness, but that the therapist-delivered e-mail CBT intervention (eCBT) would most likely demonstrate greater improvement given the added value of therapist responsiveness.

Objectives

The objective of the study was to investigate the innovative delivery of a standard intervention for treating depression. Specifically, the study sought to assess the effectiveness of an online self-administered cCBT program compared to a therapist-delivered e-mail CBT counselling intervention for depression. Contributing to this main objective was an assessment of outcomes based on depressive symptoms (BDI-II) and general mental health functioning (CORE-OM), within groups and between groups at post-treatment and follow-up. A further analysis made an assessment of working alliance and its correlation to outcome in online counselling (eCBT) and self-administered therapy (cCBT). The working alliance construct is prevalent in the literature and captures important relational aspects of therapist responsiveness. Exploratory analysis assessed participant's experiences of helpful and hindering events in online counselling and self-directed therapy. Lastly, participant's satisfaction with online delivery of treatments for depression was assessed.

The CBT model of depression is based on the underlying theoretical rationale that an individual's affect and behaviour are largely determined by the way in which he structures the world (Beck, Rush, Shaw, & Emery, 1979). If one structures the world according to dysfunctional thought schemas and behaviours this can lead to hopelessness and depression (Beck, et al., 1979). The model proposes that depression-prone individuals possess latent dysfunctional schemas characterised by negative content. When these are activated they give rise to negative cognitions and corresponding patterns of information processing that serve to precipitate depression. Schemas are not necessarily negative; however the schemas of depression-prone individuals are considered dysfunctional because they contain information and process incoming information preferentially to reinforce a rigid and negative view of themselves, the world and their future (Beck, et al., 1979; Kovacs & Beck, 1978). Such vulnerability in the individual is viewed as dormant until activated by some experience that has the effect of disrupting a person's physiological and psychological stability. The cause can be either one major event or experience, or an accumulation of smaller experiences (Beck, et al., 1979). Beck (1987) describes, "... life stressors, chronic or acute, primary or secondary, will have their greatest depressogenic effect if they impinge on ...specific vulnerabilities" (p. 23). The cognitive model of psychopathology is based on the idea that erroneous beliefs and maladaptive information processing can lead to emotional distress and problems in behavioural adaptation (Hollon & DeRubeis, 2006). Consequently treatment involves modification of dysfunctional thinking and beliefs (Knapp & Beck, 2008).

This current study delivers, through online formats, cognitive behavioural therapy for the treatment of depression. As such the delivery follows the established theoretical principles of CBT for treatment. This includes working through cognitive modules alongside problem-directed behavioural components. The specific content in both online delivery modes aims to help people change negative thinking and unhelpful behaviour. Appropriate and effective delivery of CBT online is still questioned and this study addresses this, especially the important factor of human support in cCBT (Marks, et al., 2007; NICE, 2006) and its value to treatment outcome.

In addition to the specific CBT aspects of treatment in this study one of the conditions (eCBT) includes a responsive therapist (Norcross, 2002). This is understood as the added element for the eCBT group and realised itself principally through the exchange of free text from session-to-session, where a client could write free text about any concerns, difficulties, questions etc., and thereafter the therapist delivered a tailored response to this free text alongside providing the specific CBT content for a given session. The free text was unregulated and could therefore be used as the client saw fit.

The action of the therapists tailored engagement with and responding to the client's free text can be understood as the added element, named throughout as therapist responsiveness (TR). A trained therapist potentially brings to bear a range of different therapeutic skills in this intervention. This range of clinical skills can further be understood as being aspects of the provision of therapist responsiveness as it involves the therapist engaging with and responding to the client. What

therefore exists as the added element, or therapist responsiveness, is the responsive delivery of a range of relational and technical skills. Relational skills largely concern the development of a working alliance and technical skills concern the responsive and tailored engagement with what clients present in the free text. It is argued that these relational and technical skills can be present in online CBT self-administered treatments, however, not to the extent and in the responsive form as in online CBT therapist-delivered treatments. Therapist responsiveness draws more on and utilises more responsive principles that exist beyond the CBT framework, for the most part these are relational and it is the case that the therapeutic relationship captures a large part of responsiveness. Also it is reasonable to postulate that in the current study such a provision is unique to the therapist-delivered e-mail condition (eCBT) and cannot exist to the same extent in the self-administered condition (cCBT).

Arising from this conceptual framework the study sought to analyse the efficacy of the two CBT treatment conditions and further investigate the significance of the key variable of therapist responsiveness. It does this through a randomised controlled design that establishes two treatment conditions, one self-administered and the other therapist-delivered. Principal outcome measures employed would establish effectiveness of the treatments regarding depressive symptoms and general mental health functioning. The added element's contribution was examined by several means, principally through an examination of the effectiveness of the treatment conditions and furthermore through an analysis of the WAI-SR results and their correlation with BDI-II outcomes. Alliance elements represent an important portion of responsiveness. The theory of the working alliance

that focuses on the goals, tasks and bonds of a responsive therapeutic relationship contributes to informing the additional non-specific aspect of the study (Bordin, 1979; Horvath & Bedi, 2002). In addition, the therapist responsiveness and tailored engagement with non-specific clinical skills such as empathy and acknowledging emotions (Bohart, Elliott, Greenberg, & Watson, 2002; Rogers, 1951), tailored provision of guidance (Norcross, 2002), and validating the client successes (Rogers, 1951) are included and assessed through an adherence to their delivery in the eCBT condition. It is argued that the integration of therapist responsiveness with the specifics of the CBT treatment brings added value and increases the likelihood of a successful outcome.

The project is a randomised controlled trial and every effort has been made to reach the highest standards in research for psychological interventions. However, some preliminary limitations can be noted. Findings can be generalised to adult student populations and this is positive, but also acts as a limitation for generalising to other population groups. Diagnosis of symptoms was based solely on self-report measures, although the measures used are robust, reliable and valid the study did not include psychiatric diagnosis of each participant. While noting these predetermined limitations the study has been carefully and robustly designed and executed.

Overview of Chapters

Chapter 2 Depression and its Treatment

The chapter begins with an historical overview of our developing understanding of depression. The chapter describes the current classification of depression and its assessment. Thereafter, the chapter seeks to describe the current knowledge in the field of depression, its epidemiology and course. Conceptual understandings of depression are introduced and a theoretical framework for understanding depression known as the cognitive-vulnerability stress model is elaborated. The chapter considers the general success of psychotherapies for the treatment of depression and in particular pays attention to the cognitive-vulnerability stress model of depression and its related psychotherapy treatment protocols. The chapter will furnish the established knowledge in the understanding of depression, its prevalence and course. It will also give the reader a view into the rationale, empirical base and treatment choice for this study.

Chapter 3 Therapist Responsiveness; Relationship and Alliance

Therapeutic responsiveness is a relatively new construct in counselling and psychotherapy. It is pervasive in that it refers to the relationship being affected by the emerging context between the therapist and client. Historically, the therapeutic relationship is a key construct in counselling and psychotherapy and is reflected in most theoretical approaches. The working alliance is one way of conceptualising the therapeutic relationship, independent of any particular psychotherapy tradition. The chapter elaborates on the concept of responsiveness; it provides a brief and general analysis of the concept of the therapeutic relationship. The chapter explores

the working alliance concept through its development, its defining attributes, and empirical base. The chapter continues to discuss the therapeutic relationship/ alliance and CBT. Lastly, the chapter explores possibilities for measuring responsiveness and alliance in treatment.

Chapter 4 Online Treatments for Depression

Principally, the chapter reviews the development of therapeutic services that have being offered through technology for the treatment of depression. The chapter begins with an overview of the area technology in mental health in general; looking at a variety of work carried on in the area of online counselling and also self-administered software programs, including detailing the evidence base for Beating the Blues™, the program used in the current study. Later the chapter concerns itself more precisely with a comprehensive review of research studies in online treatments for depression to date, focusing on the interventions employed, design of the studies and their execution, outcomes, satisfaction and limitations. Do the studies to date provide evidence to support the efficacy of online interventions for treating depression and secondly what is the place of human support in the success or otherwise of these interventions.

Chapter 5 Method

The chapter considers the method for the current study including participant demographics, sampling procedures, including procedures for selecting participants, setting and location of the data collection and ethical standards. The sample size and power calculations are also considered. Each of the instruments employed in the

study are described, their psychometric properties included, and Cronbach's alphas established for their use in the study sample. All instruments were administered online apart from the therapist adherence scale and this is described along with training for raters and reliability estimates reported. Research response rates in the study are considered. The research design is fully described including the study objectives, the research questions addressed, and the hypothesis. The design further describes the procedure for participants, including the screening and outcome management employed. The interventions used in the study are detailed along with the therapists involved in the delivery of the e-mail delivered intervention. The method for randomisation is described and the data analysis that was performed is outlined as a prelude to the results chapter.

Chapter 6 Results

Baseline differences in demographic and clinical characteristics were investigated using *t*-tests. The analyses were based on the intention-to-treat principle, including all those who provided follow-up data irrespective of treatment compliance. Effects were tested at the 0.05 level (two-tailed). All analyses were carried out using SPSS (version 16.0 for Windows). To test the main hypotheses, mixed ANOVAs, using baseline scores as a covariate, were performed for both BDI-II and CORE-OM. In case of significant time x group interactions, contrasts were conducted comparing changes from baseline to each subsequent time point for each group separately. The magnitude of the within-group effects of each of the interventions (Cohen's *d*) was calculated alongside their associated confidence intervals; also the magnitude of between-group effects was calculated. Analysis was also made to determine the proportion of participants who made clinically

meaningful changes, those who recovered and improved and those who made no change or deteriorated at end of treatment, and at week 16 and week 32 follow-up. Chi-squared tests were used to test the frequency differences in clinically meaningful change. Mean scores on the WAI-SR were calculated for each of the groups and this data correlated with outcomes on the BDI-II. The results of the WAI-SR subscales were calculated and *t*-tests used to determine any significant differences between the groups. The results from data collected through the Helpful and Hindering Aspects of Therapy (HAT) instrument were qualitatively analysed. The quantitative data from the satisfaction measure were analysed and *t*-tests were used to determine any significant differences between the groups, also qualitative analysis was made of the qualitative data reported.

Chapter 7 Discussion

It is the case that the current randomised controlled trial compared two active treatment delivery modes. The discussion begins with a description of the principal finding regarding the main outcome measures and also the outcomes from the WAI-SR and its correlation with the BDI-II outcomes for both groups and the significance of these results are considered. Thereafter, the results from the data collected and analysed from the HAT instrument are discussed in the context of the results and also the results from the satisfaction measure contribute to this broader discussion of principal results. The discussion considers prior work in the area and its relation to the outcomes from the current study. This is followed by a discussion of noted limitations regarding the study. Lastly, future research is considered.

Chapter 2: Depression and its Treatment

Introduction

Depression is one of the most commonly diagnosed disorders among adults with prevalence rates of between 6%-9% for Major Depressive Disorder (MDD) and for Dysthymic Disorder between 3%-6% as reported by the Epidemiological Catchment Area Survey (ECA) and National Co-morbidity Survey-Revised (NCS-R). Narrow (2002) corrects these values for clinical significance and return figures of between 4.6%-5.4% for MDD and 1.7%-1.8% for Dysthymic Disorder. The prevalence of depression is of enormous concern as the cost that depression exacts is extraordinary. It is not only economically detrimental, but also engenders significant personal and interpersonal suffering alongside its societal impact (J. Johnson, Weissman, & Klerman, 1992).

The current chapter begins with an historical overview of our developing understanding of depression. The chapter describes the current classification of depression and its assessment. Thereafter, the chapter seeks to describe the current knowledge in the field of depression, its epidemiology and course. Conceptual understandings of depression are introduced and a theoretical framework for understanding depression known as the cognitive-vulnerability stress model is elaborated. The chapter considers the general success of psychotherapies for the treatment of depression and in particular pays attention to the cognitive-vulnerability stress model of depression and its related psychotherapy treatment protocols. The chapter will furnish the established knowledge in the

understanding of depression, its prevalence and course. It will also give the reader a view into the rationale, empirical base and treatment choice for this study.

Historical Development

Our understanding of the course and nature of depression has changed significantly in the last twenty years from being seen as an acute and self-limiting illness to a growing clarity that for many depression is now considered a lifelong illness. The current descriptive, phenomenologically based approach has implications for how we perceive depression in individuals, its impact on their lives and how treatments are developed and delivered.

Historically, mood disorders have been conceived as either "organic" or "reactive". This etiological approach can be found in the first Diagnostic and Statistical Manual of Mental Disorders-First Edition (DSM-I) and is an attempt to classify psychiatric disorders. The second edition of the same manual continues this basic distinction using the terms "psychotic" and "neurotic". The basic distinction therefore involved an understanding of mood disorder as either a disease of the brain and organic or neurotic and therefore a disease of the mind (Boland & Keller, 2002a). Disorders of a neurotic or reactive variety were consequently understood to occur and could be cured once the cause was removed. Those of a psychotic or organic nature were viewed less favourably. Considered as a brain disorder and therefore chronic their fate was

institutionalisation combined with somatic treatment. The prevailing understanding left no room outside of the categories curable or chronic.

It was not until the late 1970's and early 1980's are that this dualistic presumption was challenged. The Diagnostic and Statistical Manual of Mental Disorders-Third Edition (DSM-III) favoured a descriptive approach, where individuals were diagnosed with a mood disorder based on whether or not they met the criteria for such. Individuals who met the criteria were then administered treatment. The goal of treatment was limited to symptom reduction or extinction if possible. However, treatment outcomes including continued relapse and non-recovery posed challenges to developing adequate treatments. It became clear that effectiveness of interventions while useful was reduced without the context of natural course informing them. From the 1980's onwards long-term studies of depression in patients began to be reported (Angst, 1986), providing information on the course of depression and its relation to outcome.

Classification and Assessment

Throughout this literature review a number of terms are used interchangeably including the generic term depressive episode, depression, index or primary episode, major depressive disorder and major depression. The terms however share a common ground and refer to a diagnosis that meets the criteria of the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) (American Psychiatric Association, 2000a) that describes a Major Depressive

Disorder (MDD). A MDD diagnosis prevalent in the literature is based on the presence of a specified number of symptoms with a specified duration (Rounsaville, Prusoff, & Padian, 1980). Primary in the diagnosis of a major depressive episode is that at least 5 items from the DSM-IV list are present for a duration of 2-weeks and represents a change from previous functioning (American Psychiatric Association, 2000a). It includes depressive mood and loss of interest in most activities. Depressive symptoms can include appetite and sleep disturbance, feelings of worthlessness and guilt, suicidal thoughts and ideation (Roth & Fonagy, 2005).

Dysthymic disorder is characterised by depressed mood and loss of interest in just about all activities. The disorder is chronic and symptoms should not be as severe as that for MDD, but present for at least 2-years. It includes symptoms of depressed mood for most of the day, poor appetite, insomnia, low energy, and poor self-esteem, lack of concentration and feelings of hopelessness. If, for example, an individual is symptoms-free for 2 months or more then it is not diagnosable. The range of symptoms cause social and/or occupational impairment and distress (Roth & Fonagy, 2005). Double depression is dysthymia with MDD (Roth & Fonagy, 2005).

Assessment of Depression

There are a wide variety of assessment tools available for the measurement of depression. However there is no definitive strategy that can be applied wholesale and the decision to use one instrument over another is largely based on

the goals of the assessment at hand. Nezu and Nezu (Nezu & Nezu, 2008) propose that in identifying a suitable instrument for use one should begin with a consideration of the goal of any given assessment. The goal will influence what instrument is chosen depending on whether it is for screening purposes, diagnostic classification, for description of symptoms, for treatment planning or treatment outcome. In addition a consideration of the population being assessed will inform ones choice, for example, the age group being assessed or whether one is attempting to assess multiple symptoms. The instrument chosen will have to meet the criteria that it will provide the necessary and appropriate information that is required; this includes a consideration of the reliability and validity of any measure being used. Lastly, there are advantages and disadvantages to both self-report and clinician-rated instruments. The former are certainly less time consuming but are more susceptible to respondent bias (Nezu, Nezu, McClure, & Zwick, 2002).

The BDI-II is the most widely used, reliable, and valid self-report measure of depression (Nezu, et al., 2002). The content of the BDI-II reflects the diagnostic criteria outlined in the DSM-IV for MDD (Steer, Clark, Beck, & Ranieri, 1999). The instrument allows the determination of minimal, mild, moderate and severe depressive symptomatology (Nezu, et al., 2002).

Epidemiology of Depression

Recent decades have witnessed a dramatic increase in the rate of depression reported in the general population (Gotlib, 2002). A number of major epidemiological studies have been carried out to determine the prevalence of depressive disorder in the general population. Two such large scale surveys from the U.S. are the Baltimore Epidemiologic Catchment Area Survey (ECA) (Eaton et al., 1989) and the National Comorbidity Survey (NCS), initially conducted in 1991 and replicated in 2001 (R. C. Kessler et al., 2003; R. C. Kessler et al., 1994). Using the Diagnostic Interview Schedule (DIS) based on the DSM-III the ECA surveyed 18,571 households and 2,290 institutional residents aged 18-years and older. In general terms the data from this survey reveals that in any 6-month period, 19.5% of the adult U.S. population, or 1 in every 5 persons 18-years and above, suffers with a diagnosable mental health disorder (Bourdon, Rae, Locke, Narrow, & Regier, 1992). In detail, the ECA reports 1-month (5.2%), 6-month (5.8%), 12-month (6.3%), and lifetime prevalence (8.3%) of depressive disorder in the population (Bourdon, et al., 1992).

The National Comorbidity Survey (NCS) epidemiologic investigation was designed to study the prevalence of Diagnostic and Statistical Manual of Mental Disorders-Third Edition Revised (DSM III-R) disorders and associated use of health and mental health services. The survey administered a structured psychiatric interview to a sample of over 8,000 respondents. The NCS results report a 12-month prevalence of 8.6% and a life time prevalence of 14.9% (R. C. Kessler, et al., 1994), and like the earlier ECA study they also report on the early

age onset of depression. These figures are higher than those reported by the earlier ECA survey. However, the NCS did extend the age range to 15 as opposed to 18 years and given that they noted the early age onset perhaps the extension allowed for this to be recorded with more accuracy. The high prevalence estimates found in both the ECA and NCS surveys was a cause of concern. At the time of the first NCS survey the DSM-IV was being prepared that would emphasise the clinical significance requirements for diagnosis of a depressive disorder more clearly than had been the case in earlier versions. This was a criticism laid against both the ECA and NCS studies and one report argues that this may have led to overestimation of 12-month depression prevalence in the region of 29% in the ECA study and up to 58% in the NCS survey (Narrow, Rae, Robins, & Regier, 2002).

Based on the publication of the DSM-IV a new National Comorbidity Survey-Revised (NCS-R) was administered. The prevalence reported for depressive disorder in the population was 16.2% for lifetime and 6.6% for 12-month prevalence (R. C. Kessler, et al., 2003). The rate for 12-month prevalence is slightly higher than the rate reported in the earlier ECA survey but lower than the rate reported in the first NCS survey. The reported rate for lifetime prevalence is higher than that reported in the earlier NCS and also the ECA surveys. A plausible explanation might be that the increasing prevalence reflects a finding first noted in the 1980's related to the increased incidence of depression among younger age cohorts (Üstün, et al., 2004; Weissman et al., 1993). Other contributory reasons are perhaps an increased willingness to report and a general

increase in accurate reporting, aided by methodological advances in data collection instruments and interview schedules developed in stem-branch format. Stem-branch format allows a question to be asked and then follow-up questions to support and add detail to the initial answer given.

A point of interest and concern is the location of the onset of depression as a feature more so of younger age groups, combined with the likelihood of recurrence throughout adulthood (Gotlib, 2002). Based on results from these epidemiologic studies (R. C. Kessler, et al., 2003; R. C. Kessler, et al., 1994; Regier, Boyd, Burke, & Rae, 1988) of the U.S. population it seems safe to conclude that about 1 in 6 adults meet the criteria for major depressive episode at sometime during their life and about 1 in 4 meet the criteria for a depressive episode. What is clear is that depressive disorder is frequent in the general population. What is also clear from these studies is that depressive disorders rank higher among the leading causes of disease burden for women than for men (Üstün, et al., 2004). The prevalence rates and gender differences are relatively constant across the adult lifespan and given the earlier age onset suggests that lifetime prevalence will be higher in the future for younger cohorts (Craighead, et al., 2007).

Outside of the U.S., the World Health Organisation (WHO) (Üstün, et al., 2004) completed a systematic review of all available published and unpublished population studies on depressive disorders. They demonstrate that depressive disorders are one of the leading causes of disease worldwide (Üstün, et al., 2004).

The reported prevalence throughout the world of depressive episodes is 16 per 100,000 per year for males and 25 per 100,000 per year for females.

Their results show depression as the fourth leading cause of disease burden in the world accounting for 4.4% of total disability adjusted life years and assess depression as the cause of the largest amount (12%) of non-fatal burden of years lived with disability (Üstün, et al., 2004). They highlight the occurrence of depression in younger age groups [20-25 years]. The younger age peak prevalence has also been confirmed in the two NCS studies described earlier (R.C. Kessler, et al., 1994, 2003). Craighead et al. (2007) in a review of the literature posits the peak years for onset to be presently located between 15-29 years of age. Consequently depression is a major health problem for which it is important to develop treatments.

The WHO study provides useful information on the prevalence of depression throughout the world and its impact. The WHO report that in the Europe Area the prevalence of depressive episodes for men is 16 per 100,000 per year and for Females is 27 per 100,000 per year. This data includes information from countries including the U.K., Ireland, the Netherlands, the Czech Republic, Spain, Norway, Germany, Finland, Greece, France, Italy, Turkey, Georgia and Slovakia. A cross-sectional community study by the European Outcome of Depression International Network (ODIN) (Ayuso-Mateos, et al., 2001) of five areas within the European Union (EU) yields further interesting results. The study included urban and rural areas within Ireland, Spain, the U.K., Norway, and

Finland. An analysis of the overall sample of 8,764 gave an overall prevalence of depressive disorders of 8.56%. Similar to the WHO survey depressive disorder was defined in two ways based on both the International Classification for Diseases and Related Disorders (ICD-10) and the DSM-IV.

The ICD-10 allowed for a more expansive definition that could include mood and adjustment disorders outside the clinical frame presented by DSM-IV. It is the case that the ICD-10 has a lower threshold than DSM-IV in the number of symptoms required for the diagnosis of a depressive disorder (Ayuso-Mateos, et al., 2001). In the ODIN study the prevalence rate of 8.56% is exactly the same as the 12-month reported prevalence in the initial NCS study (8.6%), but higher than what is reported in the 12-month prevalence NCS-R survey (6.3%). It is worth noting that unlike the first NCS study and similar to the revised survey the age range was 18-years and older for the ODIN survey. Again the gender divide is noted with a far greater burden of depression in women (10.05%) than men (6.61%).

In Britain and Ireland the ODIN survey (Ayuso-Mateos, et al., 2001) found that urban rates were two to three times higher than their rural communities. In other areas this difference did not manifest, such as in Finland and Norway. The ODIN survey reports on the prevalence of depressive episode as assessed using the ICD-10 and the prevalence of depressive disorder as assessed by the DSM-IV. In Ireland the mean prevalence of depression in urban areas was 12.3%, whereas for rural areas this figure was 7.9%. Alongside the U.K. (17.1%) these

are the highest prevalence rates for the urban areas assessed. Second to Norway (9.3%), Ireland reports the highest rural prevalence rate (7.9%) of the countries included in the survey (Ayuso-Mateos, et al., 2001). The global sample comprising the five countries returns a weighted mean prevalence of 6.6% for depressive episode as assessed by the ICD-10. Of the countries included in the ODIN survey Ireland, urban areas, returns the second highest weighted mean prevalence (8.9%) for depressive disorders as assessed by the ICD-10 criteria. The first is returned by the U.K. urban areas returning a weighted mean prevalence of 15.01%. The same assessment for rural areas shows Norway to lead with prevalence at 8.4%, followed by Ireland returning a weighted prevalence of 6.2%. The global weighted prevalence of depressive disorder for Ireland returns a mean of 7.5%, which places Ireland joint second with Norway (7.7%) after the U.K. (9.9%) for prevalence of depressive disorder in the population.

Similar to what has been reported based on the ICD-10 criteria, the global mean prevalence for major depressive disorder as assessed by the DSM-IV is 6.7%. Based on the DSM-IV criteria the survey returns Ireland, urban areas, with the highest weighted mean prevalence of 15.1% for MDD among the countries surveyed. The same assessment criteria globally, for both rural and urban areas, shows Ireland returning the highest weighted mean of 10.3%, followed by Norway (7.74%), the U.K. (6.95%) and Finland (4.4%). It is clear from the data that Ireland ranks high among the countries surveyed for prevalence of depressive disorder in the population, urban and rural.

The global means reported for the prevalence of depressive episode as measured with the ICD-10 or DSM-IV are not far removed from what has been reported in earlier epidemiologic research. However, the detail presented for prevalence estimates for each country and for different areas within countries is striking and needs attention. The confidence limits reported are often wide. For example, the prevalence of depressive disorders reported for Ireland urban centres (12.3%) has a confidence interval (CI) of 5.7-26.3. Further critique of the data could include the low response rate for the Irish centres; this may indicate a non-representative sample. Also given that the survey was administered through Irish general practitioner (GP) practices this may also compromise the sample in that subgroups of the urban population characterised by the presence of negative affect were potentially over-represented (Ayuso-Mateos, et al., 2001). This may have been due to a bias in the socio-economic areas accessed for sampling. While limitations exist the survey confirms that the prevalence of depressive disorders is higher among females than among males (Bebbington et al., 1998; Weissman, et al., 1993). Lastly, the data supports the notion that depressive disorders are highly prevalent among adults in Europe.

Another survey of the prevalence of depression in Europe was carried out by the EURODEP consortium (Copeland et al., 2004). The report is based on prevalence of diagnosis in subjects aged 65 and older. This survey complements the earlier ODIN survey whose age range included 18-64 years. For Dublin, Ireland they report a prevalence rate of 11.9%, which closely aligns with the reported prevalence for diagnosis in subjects 18-64 years in the Dublin area

(12.3%) and also with the reported 1-year prevalence of depressive disorders in Northern Ireland (12.2%) for 18-64 year olds (Copeland, et al., 2004; McConnell, Bebbington, McClelland, Gillespie, & Houghton, 2002). The survey further supports the gender divide literature giving overall prevalence of depression of 14.1% for women and 8.6% for men (Bebbington et al., 1998; Copeland et al., 2004; Ohayon, Priest, Guilleminault, & Caulet, 1999).

Epidemiological studies highlight the magnitude of the problem and also uncover the extent of co-morbidity. Previously assumed to be less, what is becoming clear now is that co-morbidity is present in the greater percentage of cases of depression (Gotlib, 2002). In the two U.S. epidemiological studies both found that up to 75% of cases display at least one of the other DSM-IV disorders (R. C. Kessler, et al., 1994; Robins & Regier, 1991). Questions still exist about the accuracy of this report especially concerning the diagnostic systems used, which may have unintentionally inflated the estimate of co-morbidity (First, Spitzer, & Williams, 1990).

The strongest comorbidity is with anxiety disorders of one form or other (Coryell et al., 1988; Johnson & Lydiard, 1998). Comorbidity has also been established between depression and physical conditions such as cardiac and respiratory syndromes (Angst, Gamma, Rossler, Ajdacic, & Klien, 2009; Wells et al., 1989), other forms of depression such as major depression combined with dysthymia referred to as 'double depression' (Keller, Lavori, Lewis, & Klerman,

1983; Keller & Shapiro, 1983), personality disorders (Reich & Green, 1991) and substance abuse (Mueller et al., 1994).

Many of the large epidemiologic surveys report on duration of depressive episodes. Understanding duration can help in understanding the very nature of depression and consequently inform the development of effective treatment strategies. The first Worldwide survey of the Global Burden of Diseases (GBD) estimated average episode duration to be 6 months (Murray & Lopez, 1996). This estimate compares favourably to the overall mean reported by the ECA study of 6.5 months and also the NCS-R survey reporting an overall mean of 5.5 months duration. In 1997 there was a 12-year follow-up of the ECA survey that reports a mean duration of 6.75 months irrespective of gender (Eaton et al., 1997). The most recent report of the ECA follow-up states a median episode length of 3 months (Eaton et al., 2008). Generally, like prevalence, duration is commonly reported as being longer for females than for males (Ayuso-Mateos et al., 2001; Bebbington et al., 1998; Üstün et al., 2004). It is clear that duration of depressive disorders reported in epidemiologic research varies (Spijker et al., 2002). In addition to the research already mentioned the NEMESIS survey reports a mean time to recovery of 8.4 months (Spijker, et al., 2002).

Differences in reported duration can be because different definitions of recovery are being utilised. Also mean duration reported in clinical population studies is different from that in general population studies. Differences caused by methodological difficulties with some studies also feature, for example, data has

been gathered at different times from participants, or data has been gathered from selected populations, both these can impact on outcome and generally bias the research towards an overrepresentation of chronicity (Spijker, et al., 2002). One example of this was cited earlier, the ODIN survey that utilised GP practices in certain urban areas of Dublin, Ireland (Ayuso-Mateos, et al., 2001). It needs also to be remembered that duration of a depressive episode is impacted and influenced by a large host of variables such as whether someone is living with a partner, the severity of the depressive case and whether comorbid dysthymia is present (Keller, Shapiro, Lavori, & Wolfe, 1982; Mueller et al., 1996), whether one is unemployed, or for example if a person has experienced a recent bereavement (Ohayon, Priest, Guilleminault, & Caulet, 1999).

The NEMESIS survey also reports that episodes of longer duration were found to exist with comorbid dysthymia and increased severity whereas episodes that were of shorter duration were characterised as being recurrent (Spijker, et al., 2002). Comorbidity and other confounding variables can have the impact of almost doubling or more the duration of the depressive episode whereas if the episode is recurring this trend can be reversed (Spijker, et al., 2002). This latter point differs from the clinical population of the National Institute for Mental Health (NIMH) study where duration of recurrent episodes was similar (Solomon et al., 1997). This may therefore only be a feature of general population surveys (Eaton, et al., 1997).

Summary

Overall the picture painted is similar across the surveys of prevalence throughout the world. What becomes clear is that depressive disorders are highly prevalent. Because depression displays high rates of lifetime prevalence, early age of onset, high chronicity and role impairment the WHO has ranked depression as the single most burdensome disease in the world in terms of years lived with disability (Murray & Lopez, 1996). Depression exacts a huge cost on the individual and their personal circumstances. It contributes to enormous loss for society too. It can be witnessed in dropout from school or university, relationship instability, welfare dependence, heavy use of primary care services, difficulties in maintaining employment, and functional impairment in many other personal and interpersonal areas of one's life. The global cost of depression far outweighs the cost to understanding it accurately and treating successfully those who suffer.

The Course of Depression: Remission, Recovery, Relapse and Recurrence

Early empirical studies investigating the course of depression were hindered by a lack of consensus about key points of change that were being observed in the results (Prien, Carpenter, & Kupfer, 1991). This was resolved and the key change points, episode, remission, response, recovery, relapse and recurrence, were named and defined by a task force, see Table 1 (Frank et al., 1991). While they lack valid biological markers, they are definitions and

descriptions that are reasonable and workable and major natural investigations into the course and outcome of depression utilise them (Boland & Keller, 2002a).

Table 1 Key change points in depression and their definitions

Key Terms	Definition
Episode	Defined as having a certain number of symptoms for a certain period of time
Remission	The point at which an episode ends – a period of time where one no longer has the presence of a certain number of symptoms
Response	A remission due to a treatment intervention
Recovery	Defined as a full remission, symptom free for a certain length of time
Relapse	An early return of symptoms following a positive response
Recurrence	Refers to a new episode of symptom presence

The focus on these key change points will provide the reader with a detailed view and understanding of what to date is considered to be the course of depressive episodes. In particular what is the course towards remission and recovery from a depressive episode, how common relapse is and whether recurrence is chronic? Boland and Keller (Boland & Keller, 2002b) write that there have only been a small number of studies that have significantly contributed

to the understanding of the course of depression: remission, recovery, relapse and recurrence.

What follows is a detailed discussion of what the research reports on the course of depression. These are generally very large studies that have included major attempts to follow-up over the course of many years the subjects included. Three large scale studies can be noted here and they are firstly, the National Institute of Mental Health (NIMH) Collaborative Depression Study (CDS), a second is the Zurich Study, and lastly the Medical Outcomes Study (MOS). The CDS and the Zurich studies are the only prospective long-term naturalistic studies of the natural course of depression (Angst, 1986; Angst et al., 1973; Katz, Secunda, Hirschfeld, & Koslow, 1979). Participants in the CDS were recruited from individuals who sought psychiatric treatment. The survey recruited participants from several U.S. university hospitals between 1979 and 1981. Participants were then assessed every 6-month for a period of 5 years, and then further assessed annually for a 15 year period. Recently the study has received further funding to continue follow-up for 23 years. Between 1959 and 1963 the Zurich Study recruited hospitalised patients with a diagnosis of depression. Participants were treated and followed-up every five years for up to 21 years.

The MOS survey examined the course of several diseases in a variety of health care settings, participants (n=20,000) were assessed yearly for a period of 3-years (Wells, Burnam, Rogers, & Hays, 1992). Recruitment took place at three different U.S. cities between February and October 1986. While it is recognised

that these three studies are substantial and certainly representative the current discussion will not be limited to these representative studies and will also draw on other published literature that contributes to the discussion of course of depression: remission, recovery, relapse and recurrence.

Remission and Recovery

Remission and recovery are treated together and are understood to exist on the continuum of course towards a reduction in symptoms and eventual extinction. The essential difference in remission and recovery is time free of symptoms. In the literature remission is used to refer to a reduction or end to symptoms for a period of time, but this period of time is generally conceived as shorter than eight weeks which is considered the point of recovery from an episode. A number of early studies began to question the established wisdom about remission and recovery from depression. Kerr and colleagues (Kerr, Roth, Schapira, & Gurney, 1972) in a follow-up study of 126 patients who had been hospitalised for depression showed 60% recovered or improved, but that 6% remained depressed after four years. The study demonstrates that the majority of patients seem to recover 12-months post treatment, but a significant number can continue to experience partial remission or indeed no reduction in symptoms for a number of years. Kerr (Kerr, et al., 1972) notes that more men showed favourable outcomes, as did patients with later onset, shorter duration of illness and less impairment.

Findings from other large scale studies validate the claim that most recover within one year from a depressive episode but that there is a percentage

that do not achieve remission or recover at an early stage and can progress on a chronic course for some years. For example, 13% percent of participants in the Zurich Study did not recover from their index episode of major depression (Angst, et al., 1973). Similarly, Rounsaville and colleagues (Rounsaville, et al., 1980) study, where participants underwent four months of treatment with follow-up of one year, of the 96 patients who met the diagnostic criteria for major depressive disorder, 14% of subjects did not show remission at the end of an initial 4-month treatment with antidepressants and/or psychotherapy. At the end of the 4-months 86% had experienced a reduction in depressive symptoms, enough to demonstrate recovery. At 16-month follow-up with 72 patients, 9 (12%) patients were still depressed, and 10 (14%) had relapses and had recovered in that time. Overall 53% of the 72 patients followed-up had recovered sufficiently from impairment.

However, the authors also note that in a retrospective global symptom judgement using a 7-point likert scale evaluating individually the previous 12-months it became clear that only 22 of the 72 patients were entirely symptom free. Twenty-six reported being depressed with gradual improvement, 10 described as being mostly well over the 12-months, 5 experienced periodic depressive symptoms, 4 reported an increase in depressive symptoms and 5 assumed chronically depressed (Rounsaville, et al., 1980). Therefore, despite generally favourable findings in the study only a minority were entirely symptom free during the 12-month follow-up period (Rounsaville, et al., 1980). Like other studies the majority of those experiencing a depressive episode recover within one year, yet, a proportion can continue to have clinically significant relapses or

chronic symptoms after one year post-treatment. Further the study highlights the pervasiveness of residual symptoms, a point of significance regarding course of depression (Judd et al., 2000; Mojtabai, 2001; Paykel et al., 1995). Notably the study shows men showing more favourable outcomes than females who demonstrate higher risk for onset, longer duration of episodes and higher risk for recurrence. Traditional wisdom is challenged as these findings are supportive of longer duration to remission and recovery, varied, incremental and cyclical paths towards remission and recovery and also, at times, non-recovery. These understandings are certainly borne out by the research, and further supporting evidence on the course of depression is provided by the NIMH Collaborative Depression Study (CDS).

The CDS study described earlier reports on recovery rates from a clinical sample over the course of a 15-year follow-up period. Given the length of time researchers were in the unique position to observe prospectively subsequent episodes of depression experienced by participants. Their data shows that there was no significant difference in the rates of recovery between the primary episode and subsequent, second, third and fourth, episodes of depression reporting that almost 8% of participants did not recover after 5 years. They note that the majority (70%) of participants recovered from their index episode of depression within 1-year (Keller, Shapiro, Lavori, & Wolfe, 1982). By 2-years 20% had still not recovered, by 5-years 12% were still depressed (Keller et al., 1992), by 10-years 7% had not experience remission (Mueller et al., 1996) and by 15-years the percentage of participants not recovered was 6% (Keller & Boland, 1998). Only

on the fifth episode was there some notable change in the recovery rate, but not significant. The trajectory towards remission and recovery detailed in the 15-year CDS follow-up survey reaffirms the understanding of course of depression in that the majority of those who experience a primary episode of depression will recover satisfactorily within 12-months. The rate of recovery is slower for subsequent years but at the same time recovery continues to occur.

The slower pace is influenced by the length of the episode; the longer the episode the less likelihood of recovery. The median rate of recovery reported by the CDS for year 1 is 67% and this contrasts greatly the median rate for years thereafter of 9% (Mueller et al., 1996). Apart from those who recover within the year remission for a percentage of patients is varied and incremental, for example, Keller (Keller, et al., 1992) reports that by 5-years 12% of patients were still depressed, but a later follow-up (Mueller et al., 1996) reveals that 38% of those patients had recovered by the next 5-years. They conclude that for each episode of depression about 10% remain ill for about 5-years (Solomon, et al., 1997), but that by 10-years the majority will have recovered from their primary episode of depression.

Based on their observations for 15 years the CDS provides probability estimates of rates for recovery to be 67% for year 1, 81% recovery by 2-years, by 5-years 88% recovery and by 10-years 93% (Mueller et al., 1996). Despite lengthy periods of illness people continue to recover (Mueller et al., 1996; Van Londen, Molenaar, Goekoop, Zwinderman, & Rooijmans, 1998) and that the

course towards remission and recovery seems to level out at between 5-10 years. The overall median duration was set at 20-weeks, yet many were symptomatic even after the acute phase of illness, while not meeting criteria for major depression they were more likely to meet criteria for chronic minor depression (Dysthymic Disorder) with major depressive episodes. The finding on median duration of 5-months for the CDS is similar to the median length of 5.75 months recorded by Angst (Angst, 1986), but differs from the recorded duration by Maj et al (Maj, Veltro, Pirozzi, Lobrace, & Magliano, 1992). An explanation for the difference is perhaps the varied analytic techniques (Solomon, et al., 1997).

In the CDS study the sample being reported on are clinical therefore the results concerning rates of recovery and chronicity may not be representative of the general population (Boland & Keller, 2002a). It can be debated whether these represent the most severe cases and therefore biased towards an overrepresentation of chronicity. A recent analysis of data provided form the ECA general population survey is however supportive of clinical findings and notes that about 50% of first episode participants recover with no future episodes, but that about 15% experience an unremitting and chronic course, and lastly that 35% go on to experience recurrent episodes (Eaton, et al., 2008).

The Sterling County Study (SCS) of a community sample also support the reported clinical data on course and chronicity (J. M. Murphy, 1990). The results indicate that depression carries a significant prognosis as measured in terms of mortality and chronicity of relapse and recurrence. The results suggest that

depressions found in the community are similar in seriousness to clinical samples. Chronicity also influences time to recovery as shown in the CDS study (Coryell, Endicott, & Keller, 1990) where chronic patients took a much longer time to recover. Seventy-five percent of those determined as non-chronic recovered within 1-year, where the same percentage of those determined as chronic took 4-years to achieve recovery. The MOS study, described earlier, does not alter the perception being generated by the research in this area. The study provides an insight into the relationship between depressive disorder and severity. Of those with milder depression almost 65% recovered within one year as opposed to only 54% recovery within 1-year for severely depressed (Wells, et al., 1992).

The high rate of chronicity reported is surprising and certainly has the impact of changing our understanding of the nature and course of depression. The data from the MOS again supports the finding that a large percentage of people do not recover within a 9-month or even 1-year period and also that a percentage never achieves remission and of those that do recover the possibility of relapse is high. It seems that approximately 50%-70% of individuals will recover from a depressive episode within 1-year, between 14-35% will experience periods of recurring depressive episodes, and 6-15% will experience a chronic course of depression over many years.

For those with double depression the CDS study observed improved rates of recovery than for those diagnosed with major depression. Approximately 25% of participants in the CDS study had double depression. At 12-month follow-up

88% of patients with double depression had recovered whereas this fell to 69% for those with major depression (Keller, Lavori, Endicott, Coryell, & Klerman, 1983). However, double depression recovery seemed largely to represent a recovery from major depressive episode to dysthymic disorder and not complete absence of symptoms. Keller & Shapiro (Keller & Shapiro, 1983) in a study on double depression found that in a sample of 101 patients who met the criteria for major depressive disorder and had an underlying chronic depressive disorder for at least two years showed that their rates of recovery were greatly different from those with only a single diagnosis. Patients with double depression [76%] and recurrent depression [65%] have more chronic symptoms than those experiencing their first major depressive episode [46%] (Judd et al., 1998).

The recovery rate is lower for those with compound depression and significantly they also report poorer functioning (Keitner, Ryan, Miller, Kohn, & Epstein, 1991). Recovery was also influenced by how it was defined, whether recovery meant from the MDD or recovery from both disorders. When recovery is considered as recovery from acute depression the recovery rate is 89%, but when considered as recovery from both acute and chronic depression the rate is 31% (Keller & Shapiro, 1983). The symptomatic course for double depression and recurrent depression is seen as chronic and changeable over time (Judd, et al., 1998).

Relapse

Relapse is an early return of symptoms following what appears at least to have been a positive response to treatment. One early report on relapse from major depressive disorder as part of the CDS (Keller, et al., 1982) documents the rate of relapse in a cohort of 75 patients in naturalistic settings. The study defined recovery as a period of 8-weeks symptom free. The research reports a high rate of relapse (25%) after 12-weeks and notably the majority of those (25%) relapsed after 4-weeks. Risk of relapse is high in the months immediately after recovery (Keller, Lavori, Lewis, et al., 1983). Some patients are at a higher risk of relapse if there is an underlying presence of chronic depression for at least two years duration, a finding supported by research into double depression by the CDS (Keller & Shapiro, 1983). This increased risk is also dependent on the number of previous episodes of depression experienced, where a history of at least three previous episodes increases risk of relapse. In the CDS study 22% of those who recovered from their primary episode of depression had relapsed within the year (Keller, Lavori, Endicott, et al., 1983). The Group for Longitudinal Affective Disorders Study in Japan (GLADS) study reports a similar rate of relapse for 12 month period of 21%, 30% by two years and 42% by five years (Kanai et al., 2003).

Many factors can contribute to relapse and these include a history of depressive episodes, old age, and a history of psychiatric illness and where double depression is present. A particularly strong predictor of relapse relates to an individual's history and the recurrence of depressive episodes experienced. A

study by Faravelli and colleagues (Faravelli, Ambonetti, Pallanti, & Pazzagli, 1986) where fifty percent of their participants relapsed within 12-months show that relapse was not accounted for by differences in drug treatment but rather a host of factors related to increased risk which amount to a recognition that for some recovery from MDD is only partial and more apparent than real and not accompanied by a return of positive indicators of well-being. They display a higher level of residual symptoms and inferior social integration, and their personality remaining somewhat pathological.

A study by Lin et al (Lin et al., 1998) reports a relapse rate of 37% within 12-months for primary care patients. The study (Lin, et al., 1998) supports the contention that a history of depressive episodes and residual or sub-threshold symptom presence 7-months after treatment increases by threefold the risk of relapse. Similarly Judd and colleagues (Judd, et al., 2000) reports on the significance of incomplete recovery and its relationship to chronicity. They conclude that residual symptoms are a key indicator of a more severe, relapsing and chronic future course of depression (Judd, et al., 2000). The data from the ECA community sample verifies this course towards chronicity (Mojtabai, 2001). The most recent contribution to this debate comes from the CDS (Solomon et al., 2008) and confirms that assessing psychosocial impairment could identify patients less likely to recover from a depressive episode. In addition the authors found that any increase in morbidity positively correlates with a decrease in the probability of recovery.

Recurrence

Both naturalistic and treatment studies highlight that for many with depression recurrence after recovery is the rule (Mueller et al., 1999). Studies have indicated that the possibility of future episodes of depression is as high as 30%, and this rate seems to increase with subsequent episodes. As early as 1976 Weissman and Kasl (Weissman & Kasl, 1976) report that for the most part patients were asymptomatic at follow-up, but a substantial number had a return of acute symptoms; 60% sought further treatment during the year. Another study followed-up cases of depression after their index diagnosis 3-13 years earlier (Rao & Nammalvar, 1977) and report that recurrence occurred in 75% of the 109 cases. They observe that the onset of depression before the age of 40 predisposed one to recurrences and an increased risk of chronicity. The Zurich Study data supports high recurrence rates where they found that 75% of participants had more than a single episode of depression (Angst, 1992).

Empirical data from the CDS supports the claim that the rate of recurrence increases with subsequent episodes. The CDS reports an initial recurrence rate of between 25-40% after 2-years. This however increases dramatically over time, up to 60% recurrence after 5-years, 75% after 10-years and 85% after 15-years (Keller & Boland, 1998). The CDS also point out in their research that recurrence also occurred for 58% of subjects who had recovered and remained well for 5-years (Mueller, et al., 1999). Characteristics that increased the likelihood of recurrence include being female (43%), never having married (55%), a history of prior depressive episodes (11%), and longer duration of prior episodes (18%)

were significant in the group with recurrence. However none of these characteristics were determining of the 58% who were recovered and well for 5-years before recurrence (Mueller, et al., 1999). It seems that few demographic or clinical factors can be identified with reasonable certainty that might predict an individual's likelihood for recurrence especially those who have recovered from an index episode and remained well for some time.

Muller and colleagues (Mueller, et al., 1999) note their disappointment at the paucity of predictors for recurrence and therefore the persistent possibility of recurrence. At the same time they also highlight that recurrence after recovery from depression is not always inevitable. In their 15-year prospective follow-up they observe that some people do not develop another episode (Mueller, et al., 1999). The recurrence trajectory and associated rates over time are alarming and in contrast to rates of recovery which seem to level off after between 5-10 years. Individuals seem to continue to be at high risk of recurrence after 10 years and also it has been observed that the length of time between episodes shortens (Boland & Keller, 2002a). The CDS analysis of 481 recurrences in a sample of 318 subjects followed-up for a period of between 5 and 10 years demonstrate that the median time to recurrence for the first episode was 150-weeks, for the second recurrence 83-weeks, the third was 77 weeks, fourth 68-weeks and the fifth 57-weeks (Solomon et al., 2000). On average, the CDS study reports that individuals who recovered from their index episode of depression suffered two recurrences in the 10-year follow-up period (Solomon, et al., 2000). Consistent with the data

regarding relapse if individuals have experienced several previous episodes of depression their time to reoccurrence seems to shorten.

A key factor in the rate and timing of recurrence is the quality of recovery that has been made from an episode of depression. Individuals in the CDS study who fully recovered, that is, were asymptomatic at follow-up had much lower rates (66%) of recurrence than did those with some symptoms (87%) at follow-up (Mueller, et al., 1999). Other studies support this finding and report that residual symptoms at time of recovery predicted earlier recurrence; the probability of staying well without symptoms is less than 50% for two years or more after recovery (Kanai, et al., 2003). The risk of recurrence increases by 16% with each successive recurrence, but consequently decreases with the extension of recovery duration (Solomon, et al., 2000). Like relapse of symptoms recurrence can be influenced by some key risk factors such as the individuals and their family's history of depressive episodes and their duration, any co-morbidity for example dysthymia, age especially older being more vulnerable, and those with poor response to treatment and relapse prevention interventions (Boland & Keller, 2002a).

Comorbidity and Response

Comorbidity is present in the greater percentage of adult, adolescent and child cases of depression (Gotlib, 2002). The high prevalence establishes comorbidity as the norm among people with depression, and concurrent illness whether it is psychiatric or medical negatively affects outcomes (R. C. Kessler, et

al., 1994; Robins & Regier, 1991). The Medical Outcomes Study (MOS) found that medical and psychiatric illnesses coexisting with depression effected physical, social, and role functioning, perceived current health, and perception of greater bodily pain for individuals and consequently impacted on outcome (Wells, et al., 1989).

A study of 78 patients with a diagnosis of major depression were observed while hospitalised and for 1-year after discharge (Keitner, et al., 1991). Forty-one of the 78 patients had a coexisting DSM classified disorder and they reported significantly poorer psychosocial functioning and also poorer recovery rates over the 12-months compared with patients who had a single diagnosis of depression (Keitner, et al., 1991). Interestingly, there was no gender difference in the recovery pattern of the comorbid group, whereas more men than women recovered with single diagnosis depression. Double depression similarly modifies course towards chronicity making recovery more difficult (Keller & Shapiro, 1983).

Depression and anxiety traditionally have been categorised as separate clinical entities, but now they are often considered to coexist. A recent survey of comorbidity prevalence reveals that 2.1% of the population had a lifetime diagnosis of both depression and panic disorder (Andrade, Eaton, & Chilcoat, 1994). Anxiety disorders occur frequently with depression and it has been noted that depressive symptoms are often more severe in individuals with comorbid

anxiety, may require earlier treatment, more hospitalisation and have poor outcomes from treatment (Coryell et al., 1988; Johnson & Lydiard, 1998).

Other studies report similar high lifetime comorbidity between anxiety and depression; Brown et al. (2001) report the lifetime association with depression is particularly strong for post-traumatic stress disorder (PTSD), generalised anxiety disorder (GAD), obsessive-compulsive disorder, and social phobia (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). The Zurich study notes higher prevalence of depression and panic disorder reporting that 12% of their sample displayed comorbidity (Volirath & Angst, 1989). Similarly substance abuse can reduce recovery time by up to 50% as shown in a study that examined the predictive effect of patients alcohol use on the course of major depressive disorder. Their findings provide long-term, empirical evidence for the detrimental effect of alcoholism on recovery from depression (Mueller, et al., 1994).

Summary

A graphic picture of recovery rates has begun to be built and shows more clearly the complexity of the nature and course of depression. Generally it seems that the majority of individuals who experience depression will recover within 1-year. Alarmingly however, a substantial portion may not experience recovery, and show no signs of remission even after 5-years or more. Lastly, recovery is not permanent and future episodes of depression carry the continued threat of chronicity for the individual (Boland & Keller, 2002a). It seems clear that about 20% of individuals can experience relapse of symptoms after recovery and for

some achieving remission from relapse can be more difficult. The data presented on the prevalence of recurring episodes of depression is particularly stark and concerning. It seems that a majority of individuals will experience subsequent episodes of depression within 5-years. The rate of recurrence continues to increase over time with a notable shortening of duration between episodes. A key variable influencing rates of recovery, relapse and recurrence is the presence of comorbid illnesses, whether medical or psychiatric. Research from several large studies support the claim that the deleterious effects of comorbidity are significant.

A Conceptual Understanding of Depression

The aetiology of depression is far from understood. Many cases of depression are triggered by stressful life events, but such events do not always cause depression. It seems to be dependent on the individual and their biological and psychosocial predisposition. The relative importance of these factors may vary across individuals but it is clear that depression is the product of a complex interaction between biological and psychosocial factors. Successful work has been conducted into a wide range of neurochemical, neuroendocrine, neurophysiological, and structural correlates of depression. This work has given rise to different understandings of aetiology such as the monoamine hypothesis (Gotlib, 2002). The current biologic conceptual model of depression posits that many aspects of depression can be understood in terms of dysregulation of Central Nervous System (CNS) responses to stress. Dysregulation refers to both a longer duration and greater intensity of CNS stress responses that are normally transient

and adaptive. Similar to psychosocial conceptions of depression a host of moderating variables contribute to biological understandings and these include genetics, age, sex, and developmental history. Biology has been successful in identifying key neurobiological processes and developing medications to compensate for dysregulation in the CNS.

In addition to biological understandings a range of psychosocial concepts of depression have evolved. Largely, the risk factors for depression are located within the psychological makeup of the individual and these can be triggered by some stressful event. Generally, risk factors have been, for example, learned behaviours as postulated by behaviourism. Or more deeply rooted matrixes woven into the personality of the individual throughout childhood; experiences of trauma, through for example, neglect or abuse, as can be found in psychodynamic theory.

In the 1960's and 70's Arran T. Beck describes a model of depression from cognitive and phenomenological perspectives. Disenchantment with traditional psychoanalytic understandings and also the inadequacy of purely behavioural accounts of psychological phenomena paved the way for cognitive theorists such as Beck and Seligman (Abramson et al., 2002). Beck developed a cognitive theory of depression that placed an emphasis on negative automatic thoughts that can trigger depression in a person. Beck (Beck, 2005) ascribes a central place in his theorising to cognitive vulnerability; "a crucial hypothesis of the cognitive model has been the notion that certain beliefs constitute a

vulnerability to depression" (Beck, 2005, p. 954). He also outlines how recovery from depression needs to include treatment and prophylaxis.

Beck hypothesised that the interpretation that a person comes to and the meaning they give their experience importantly influences whether they will become depressed or not. Beck's clinical insights quickly developed into the procedures and strategies that are now cognitive therapy for depression and related therapies based on the cognitive model such as CBT. The concepts of cognitive vulnerability and stress that he proposed were developed and refined through empirical research. The cognitive model of psychopathology is based on the idea that erroneous beliefs and maladaptive information processing can lead to emotional distress and problems in behavioural adaptation (Hollon & DeRubeis, 2006) consequently treatment involves modification of dysfunctional thinking and beliefs (Knapp & Beck, 2008).

The model Beck proposes postulates three concepts that contribute to explain depression. The first of these is the cognitive triad, the second schemas and lastly faulty information processing or cognitive errors. The cognitive triad is composed of a person's negative view of themselves and their world and also a tendency to interpret ongoing experiences in a negative light. Beck's initial proposal based on research into depression was that the symptoms could be explained cognitively as biased interpretations of events attributed to the activation of the negative triad (Knapp & Beck, 2008). The cognitive triad are based on deeply rooted cognitive structures, also known as Schemas or more

generally, stored bodies of knowledge that can interact with incoming information the consequence of which can be selective attention and memory (Segal, 1998; Williams, Watts, MacLeod, & Mathews, 1997).

The concept of schemas helps to explain the phenomena of why some people maintain self-defeating attitudes despite the presence of objective evidence to the contrary. Incoming information from different experiences is generally selectively attended to, the data combined to form a pattern and conceptualised for understanding. People generally conceptualise experiences with relatively stable cognitive patterns (Beck, et al., 1979). This produces a regularity of interpretation of different events in one's life. Essentially what occurs is the incoming information evokes a related schema that forms the basis for moulding the new information into meaning. Schemas are formed out of the experiences of life particularly early formative experiences. As Beck (1979) writes:

> In childhood and adolescence, the depression-prone individual becomes sensitized to certain types of life situations. The traumatic situations initially responsible for embedding or reinforcing the negative attitudes that comprise the depressive constellation are the prototypes of the specific stresses that may later activate these constellations. When a person is subjected to situations reminiscent of the original traumatic experiences, he may then become depressed. The process may be likened to conditioning in which a particular response is linked to a specific stimulus; once the chain has been formed, stimuli similar to the original stimulus may evoke the conditioned response. (p. 278)

For example, if one's early life experience is characterised by negativity, it may disproportionately attune ones attention and recall towards the negative

(Scher, Segal, & Ingram, 2004). The given schema activated that serves the processing of incoming information consequently determines how the person responds. Beck (1979) describes that "in psychopathological states such as depression, patients' conceptualisations of specific situations are distorted to fit the potent dysfunctional schema" (p. 13). Maladaptive schemata contain dysfunctional attitudes with themes such as loss, failure, and worthlessness. Of course, preferential allocation of attention only affords to strengthen the schema's body of knowledge creating a more stagnant and continuous view of the self and the world; the cognitive triad is thus affirmed.

Schemas are not necessarily negative; however Beck would argue that the schemas of depression-prone individuals are considered dysfunctional because they contain information and process incoming information preferentially to reinforce a rigid and negative view of themselves, the world and their future (Beck, 1967/1972; Kovacs & Beck, 1978). The schema activated in depression-prone individuals cause a range of faulty information processing or cognitive errors such as over-generalisation, magnification, and absolutistic, dichotomous thinking that culminates in what Beck refers to as primitive modes of organising reality (Abramson, et al., 2002). In such primitive thinking the complexity, variance and diversity of experience and behaviour are reduced to fit certain limited categories. The thinking is restrictive and contributes to the development of negative ideas about oneself and one's life. Following this theoretical rationale means that individuals affect and behaviour are consequently determined by the way in which he thinks about himself and his world and his ongoing experiences.

The roots of negative automatic thoughts are the deeply held schemas that have been generated and engendered from early attachments. The uniqueness of attachment relationships in childhood makes them a fertile place for schemas to develop that can lead to cognitive vulnerability. The very longevity and reoccurrence of the primary relationships ensures this as they include repeated interactions over the course of childhood. It seems that cognitive vulnerability will have developed and be consolidated before late childhood (Nolen-Hoeksema, Girgus, & Seligman, 1992; Turner & Cole, 1994). Depending on the context and the experiences the person may conclude that they are fundamentally wanted and loved or the opposite (Scher, et al., 2004). Research into the relationship between early attachment and depression vulnerability has supported this possibility (Ingram, Overby, & Fortier, 2001; Ingram & Ritter, 2000; Randolph & Dykman, 1998). Schemas once developed act as filters for the interpretation of and processing of current experiences. "The schemas of well-adjusted individuals allow for realistic appraisals, while those of maladjusted individuals lead to distortions of reality, fostering in turn psychological disorder" (Knapp & Beck, 2008, p. 58). Such core beliefs foster the persons thinking style and provide a point of vulnerability for the development of psychopathology.

Theory and research on vulnerability have highlighted its key features (Ingram, Miranda, & Segal, 1998). Central is that vulnerability is conceptualised as a trait; it is constant and endogenous to the person. It is therefore not a state that simply characterises the appearance of depression. While vulnerability is constant that does not mean that it is necessarily unchangeable. Much of the work of

therapy is based on the premise of being able to alter or attenuate vulnerability in persons. Although some authors have argued that vulnerability is a sub-set of risk, generally risk is conceived as a predictive variable that is largely associated with external factors and acts in concert with vulnerability that is internal to the person (Ingram & Luxton, 2005).

Research has provided compelling support for cognitive-vulnerability as theorised by Beck (Alloy et al., 2000) and demonstrates that cognitive-vulnerability increases risk for first episode and recurrences of depression and suicidality (Abramson, et al., 2002). Vulnerability is viewed as dormant until activated by some experience that has the effect of disrupting a person's stability or physiological and psychological homeostasis. The cause can be either one major event or experience, or an accumulation of smaller experiences (Beck, 1967/1972). Collectively they are grouped under the rubric of stress. Stress therefore is a central aspect of vulnerability because it is understood that cognitive vulnerability alone cannot bring about depression in an individual, the occurrence of some stressful experience(s) is also required that can unearth and activate a schema that otherwise lies dormant (Beck, 1967/1972, 1987; Kovacs & Beck, 1978). The majority of research investigating possible links in depression consistently finds that there is a link between the experience of a stressful life event and the onset of depression (Ingram & Luxton, 2005).

Research (Hankin & Abramson, 2002) has found that Beck's hypothesised negative automatic attitudes that arise out of dysfunctional schema interact with

negative life events to cause depression. Similarly Lewinsohen et al. (Lewinsohn, Joiner, & Rohde, 2001) report that negative attitudes and attributional styles interact with stress to predict the onset of depression. Cognitive therapy based therapies would argue that each disorder, not just depression, is characterised by a personal set of dysfunctional cognitive contents, which constitute the individuals cognitive vulnerability. When this is activated by some stress event the schema tends to bias the information processing with its contents. Beck (1987) describes, "... life stressors, chronic or acute, primary or secondary, will have their greatest depressogenic effect if they impinge on ...specific vulnerabilities" (p. 23).

Schemas associated with depression give rise to negative information processing that precipitates depression in an individual. The process of activating schemas has been further developed by Ingram and Segal (Segal & Ingram, 1994) in two ways. Essentially, a stressful life event may cause the full activation of a partially activated schema and the possibility of exceeding the threshold required for the schema to fulfil its purpose. Alternatively, an already active schema may be stimulated to activate a related body of knowledge, then in concert may exceed the threshold level required and fulfil, to detrimental effect, their function.

Summary

Beck proposes that depression-prone individuals possess latent dysfunctional schemas characterised by negative content. When these are activated they give rise to negative cognitions and corresponding patterns of

information processing that serve to precipitate depression. Beck (1967/1972) describes it in this way:

> An individual who has incorporated a negative constellation of attitudes... has the necessary predisposition for the development of clinical depression in adolescence or adulthood. Whether he will ever become depressed depends on whether the necessary conditions are present at a given time to activate the depressive constellation. (p. 278)

The scope of the current study is an investigation into the online delivery of a treatment of depression using a Cognitive-Behavioural therapy (CBT) protocol. CBT is the treatment of choice for this study and refers to a group of techniques that combine the cognitive approach and a set of behavioural procedures that are grounded in the cognitive-vulnerability stress model. It aims to correct erroneous beliefs and thinking that occurs in information processing with depression prone individuals, in doing so distress is alleviated and strategies and skills are taught to help the person cope more effectively with life's challenges (Beck, et al., 1979).

Psychotherapeutic Treatment of Depression

The benefits of psychotherapy have been examined through a large body of published quantitative and qualitative research. The development and application of meta-analytic techniques have enabled investigators to extrapolate insight into the efficacy of psychotherapy across a range of studies, interventions, diagnoses and treatments. Generally, the use of weighted effect sizes in

psychotherapy treatments return similar results, between .4 and .6 (Lambert & Ogles, 2004).

Results from meta-analysis investigating the use of psychotherapy interventions for the treatment of depression are consistent in surpassing no treatment and waiting list controls, applying to a diverse range of populations (Cuijpers, 1998), and even when the intervention can be considered 'narrow', e.g., bibliotherapy alone (Cuijpers, 1997) have proven successful in treating depression. Neitzel et al. (1987) in an early review of 31 studies maintains that on average those treated by psychotherapy would have an approximate post-treatment BDI score of 10 (Nietzel, Russell, Hemmings, & Gretter, 1987). A study by Dobson (Dobson, 1989) reports robust findings for the use of psychological treatment for depression. The author conducted an analysis of 28 publications of cognitive therapy for depression, with or without drugs and behaviour therapy. The results are positive and also show that on average clients of therapy did better than 70% of individuals treated by antidepressants. This last point supports the argument that psychosocial treatments are at least equal to antidepressant treatment (Dobson, 1989). The relative merits of medication and psychological therapies have for a long time been debated.

DeMatt and colleagues (De Maat, Dekker, Schoevers, & De Jonghe, 2006) conducted a meta-analysis of previous studies and found that irrespective of chronicity, remission between the two active interventions did not differ. Both treatments performed better with mild than with moderate depression. They do

note that dropout was higher for pharmacotherapy than for psychotherapy and that during follow-up pharmacotherapy shows greater relapse than does psychotherapy. Their work asserts the equal efficacy of the two interventions in treating depression, especially mild forms, whether chronic or not, and at follow-up psychotherapy outperforms pharmacotherapy.

Jarrett and Maguire (1991) identified 22 randomised controlled trials of different forms of therapy including cognitive therapy, behaviour therapy, interpersonal therapy, brief dynamic therapy and marital therapy. The various forms of therapy treatments combined yielded an overall efficacy of 50%. When contrasted to waiting list there was a 26% advantage and to placebo the advantage was 16%. In a comparison of the therapies to medication an advantage of 14% was found to favour therapy (Jarrett & Maguire, 1991). A criticism of this analysis is that they used a particular statistical method called Confidence Profile Method (CPM) which makes relatively few studies appropriate for inclusion into the analysis; therefore the results may not be representative and consequently misleading.

However, researching the average outputs makes no statement regarding the clinical meaning of the findings for treated individuals. It was for this reason that an examination of individual changes occurring in treatments became important. Generally studies return a result that between 50% and 60% of individuals treated will meet the criteria for clinically significant improvement.

The CDS study found that 55% of individuals who participated in 15 weeks of treatment displayed significant improvement (Ogles, Lambert, & Sawyer, 1995).

Given the high rate for relapse in depression treatment those interested in whether treatment gains are maintained has led many researchers to include follow-up. Currently, any comprehensive investigation of a treatment for depression is not considered adequately studied unless there is follow-up (Lambert & Ogles, 2004). A variety of investigations (Elkin et al., 1989; Hollon et al., 2005; Lambert & Ogles, 2004; R. W. Shapiro & Keller, 1981; Shea et al., 1992) have found enduring consistency in post-treatment and follow-up results for up to one year. Longitudinal research of this type is made difficult because of dropout from study and follow-up data collection, lack of comparisons or data from control groups at follow-up.

Some studies in depression have gone further and investigate interventions that potentially aid in maintaining treatment gains and prevent relapse (Jarrett et al., 2001; Jarrett, Vittengl, & Clark, 2008). These studies demonstrate the usefulness of active interventions in the post-treatment period to help reduce the rate of relapse and recurrence. A 20% plus difference can be observed in outcome for those provided with such interventions compared with no active maintenance interventions.

In general psychotherapy is effective and equally as effective as other interventions such as pharmacology for treating depression. The current work

investigates the use of CBT for the treatment of depression. CBT has been well established in the treatment of depression among other disorders. In fact, it has recently been evaluated as the fastest growing and most heavily researched orientation on the contemporary scene (Beck, 2005). What follows is a treatment of the empirical bases for the success of CBT in the treatment of depression that also provides a rationale for it use in the current study.

Cognitive-behavioural Therapy for Depression

Cognitive therapy and the related cognitive-behavioural interventions have been researched in over 80 trials making them the most extensively researched psychosocial treatments for depression (American Psychiatric Association, 2000a). Typically the results have demonstrated the approach to be superior to minimal treatment controls and equal to if not more effective than other types of treatment (Gaffan, Tsaousis, & Kemp-Wheeler, 1995). There is usefulness in describing a number of high quality trials that will contextualise the broader body of evidence supplemented with other studies that complement and extend the evidence.

CBT is the generic term used where a group of techniques combine the cognitive approach and a set of behavioural procedures (Beck, et al., 1979). It aims to correct erroneous beliefs and thinking that occurs in information processing with depression prone individuals, in doing so distress is alleviated and strategies and skills are taught to help the person cope more effectively with life's challenges (Beck, et al., 1979). CBT is a short-term treatment option; it is

directive and incorporates exploration, examination and experimentation into the treatment to help the patient replace maladaptive information processing proclivities with more adaptive patterns of thought and belief (Hollon, Haman, & Brown, 2002).

The therapy generally begins with an introduction to the model of therapy including an explanation of the process of change, highlighting the collaborative nature of the therapy and the roles and responsibilities of each of the participants. Early strategies aim to increase active behavioural performance, so as to monitor behaviours and their associated thoughts and feelings. Behavioural modification, however, is not considered the central focus in changing depression. The course of therapy expands to elicit the relationship between thoughts and feelings and behaviours and the evaluation of thinking errors and other cognitive distortions such as overgeneralisations, magnifying, etc. This work is generally followed with the introduction of the schema or core beliefs concept and how they inform our thinking and the therapy works towards their attunement. The end of therapy focuses on strategies to prevent relapse or future recurrence (Beck, 1976; Beck, et al., 1979).

During the 1970's as cognitive therapy was emerging the standard practice for treating depression was the administration of medication. Medications had demonstrated their superiority over no treatment or placebo (Morris & Beck, 1974), in addition psychotherapy was typically less effective than medication and in combination did little to increase effectiveness (Covi, Lipman, Derogatis,

Smith, & Pattison, 1974; Friedman, 1975; Klerman, Dimascio, Weissman, Prusoff, & Paykel, 1974). A number of early studies of CBT began to question the primacy of treatment by medication and suggested that cognitive therapy may be equal if not perhaps better.

The first published study treated 41 depressed outpatients randomly assigned to a 12-week treatment of either cognitive therapy or medication (Kovacs, Rush, Beck, & Hollon, 1981; Rush, 1977). At the end of treatment 78.9% of those treated with CBT showed greater improvement or complete remission of symptoms as compared to 22.7% of the pharmacotherapy group, furthermore, reduced dropout and reduced risk of relapse was observed for the CBT group during a 12-month follow-up. Another trial that was completed in Edinburgh went to confirm these results (Blackburn, 1981), and reported that patients did better with combined medication and CBT or CBT alone than they did with Medication alone. Similarly a follow-up demonstrated the reduced risk of relapse for those who had responded to CBT treatment (Blackburn, Eunson, & Bishop, 1986). While the above reports help to demonstrate the effectiveness of CBT and even suggest the superiority of CBT in the treatment of depression a note of caution is advised as in each of these trials the adequacy of the implementation of the drug treatments is questionable (Hollon & DeRubeis, 2006).

To counter the criticisms of earlier work and to help establish more robustly the efficacy of CBT, researchers attempted to implement trials that

executed adequate drug treatment. Hollon and colleagues (Hollon, DeRubeis, Evans, & Wiemer, 1992) randomised 107 patients diagnosed with major depressive disorder to a 12-week treatment of either CBT, medication or a combination of the two. Rates of attrition were high, but not significantly different between the conditions and in total 64 completed the treatment. At post-treatment those who responded to either CBT or the combined treatment were withdrawn and followed-up for 2-years. Patients who responded to medication were further randomised to follow either medication for a further year or withdrawn from medication and followed-up for 2-years. The study paid particular attention to adherence for those on medication.

The results of the investigation demonstrate that all three treatments showed improvements for patients over time. The majority of the change occurred in the first 6-weeks of treatment. Combining CBT and medication did not significantly improve response but any such improved response trend found in the data did favour the combined treatment (Hollon, et al., 1992). Response rates were 50% for single conditions and 70% for the combined condition. The conclusion drawn was that CBT was about as effective as medication in the treatment of depression. The findings were replicated in another trial conducted at a different site (G. E. Murphy, Simons, Wetzel, & Lustman, 1984) where improvements did not differ between treatment conditions, nor did the combined treatment lead to either additive or negative interactions. Lastly, gains were maintained at one-month follow-up.

Both these studies also share largely similar finding regarding the enduring effects of CBT. Patients in CBT condition or the combined CBT and medication condition were about half as likely to relapse as treatment responders withdrawn from medication (M. D. Evans et al., 1992; Simons, Murphy, Levine, & Wetzel, 1986). Recovery was defined as 8-weeks symptom free and relapse as a continuing elevated BDI score. Because the number in follow-up are small (n=44) some caution is advised in interpreting the results (Roth & Fonagy, 2005). Nonetheless, adjusting for patient attrition, those in the medication group that were not continued on medication post-treatment showed the greatest relapse rate of 50%, and all within the first 4-months post treatment.

In contrast, for those who received CBT, alone or in combination, had a much lower relapse rate (18%) and also relapse occurred much later than was witnessed in the medication without continuation condition. Lastly for those receiving medication only, the relapse rate was 32%, similar to the CBT conditions (Roth & Fonagy, 2005). The researchers report that: "It appears that providing cognitive therapy during acute treatment prevents relapse, whether this preventive effect extends to recurrence remains to be determined" (Evans et al., 1992, p. 802). Hollon and DeRubeis (2006) conclude that the research suggests that CBT is at least as effective as medication in treating acute depression and quite possibly longer lasting.

The research into CBT establishes its robustness in the treatment of depression. However, its position in respect of more severely depressed patients

was challenged with the publication of results from the NIMH trial (Elkin, et al., 1989). The NIMH trial is the only study to date to suggest that drugs might be more effective than CBT in the treatment of depression (Hollon, et al., 2002). The trial randomised 250 participants to one of four treatment conditions being CBT, Interpersonal Therapy (IPT), medication and clinical management (IMP-CM), or a placebo medication and clinical management condition (PLA-CM). Clinical management amounted to a 20-30 minute weekly meeting to discuss medication, side effects and clinical progress. Two-hundred and thirty-nine began treatment, 60% had been depressed for more than 6 months and of these only 30% were first episode depression (Elkin et al., 1995). Dropout rates from the study were low and participants were assessed before treatment and at regular intervals throughout treatment and again at post-treatment and follow-up for up to 18-months. Standard measures were employed such as the Hamilton Rating Scale for Depression and the Beck Depression Inventory. In addition a longitudinal psychiatric evaluation interview was used to track the course of the depression in participants (Keller et al., 1987).

The potential of the active treatments to ameliorate depression were supported for those patients who completed treatment. The results from the trial show no significant difference among the treatment conditions for participants (as measured by the Hamilton Depression Rating Scale score of 6 or less; CBT, 51%; IPT, 55%; IMP-CM, 57%) (Elkin, et al., 1989), but it does show an advantage for medication or IPT over CBT for severely depressed patients. Of concern is that CBT for severely depressed patients did not differ from placebo. Furthermore

CBT demonstrated only minimal capacity for enduring effect following end of treatment. Given the size of the study and the fact that it was the first placebo-controlled trial in the literature the results of this trial held much weight and proponents of biological psychiatry, for instance, were encouraged as the results supported their position that psychotherapy alone could not be as effective as medication (Klein, 1996).

The results of the trial established medication as the cornerstone of treatment planning for severely depressed patients even though the authors, based on analysis of treatment-by-site-by-severity analysis, report that: "In regard to the general efficacy of CBT in the treatment of severely depressed (and functionally impaired) outpatients ... we believe ... that the answer is not yet in" (Elkin, 1995, p. 101). Further, the research design was never about testing the efficacy of therapy versus medication but rather it was about using medication as a benchmark against which to compare the efficacy of psychotherapy (Roth & Fonagy, 2005). Still though the primacy of medication in treating severe depression was endorsed by the American Psychiatric Association (American Psychiatric Association, 2000b).

Leading proponents of CBT (Jacobson & Hollon, 1996) were critical of the apparent differences in application of CBT across the different sites used in the trial. They claim that CBT was not adequately administered at two of the three sites in the trial. In their reanalysis of the data for each of the three sites Jacobson and Hollon (1996) found that at one of the sites CBT did as well as IMP-CM for

the severely depressed group. Interestingly this was also the site at which the implementation of CBT was rated best. At the second site the data favoured IPT or IMP-CM over CBT and PLA-CM, and lastly at the third site there did not exist enough subjects in the severely depressed group to warrant comparison (Jacobson & Hollon, 1996).

Therapy sessions were taped and monitored for adherence at each of the sites, and therapists were alerted when their performance was found problematic. Interestingly, alerts to therapists were issued for 33% of monitored CBT tapes compared to 3% of IPT tapes. While the supervisors had different criteria for scoring competence Roth & Fonagy (2005) note that "the standards for CBT do seem to have been more stringent" (p. 75). Lastly, Craighead et al. (2007) maintains that the central point is that the data from the TDCRP trial regarding the efficacy of CBT for severe depression are inconclusive.

Given what we currently know from epidemiological studies regarding the nature and course of depression a focus on relapse and prevention of recurrence is necessary. The NIMH investigation included up to 18-month follow-up of participants. Recovery in this trail was stringently defined as an absence of or minimal symptoms for an 8-week period. Relapse was understood to be a return of symptoms for a period of two weeks. Recurrence is a return of depressive symptoms for a period longer than two weeks and therefore defined as a separate episode (Shea, et al., 1992).

Only 20% of the original sample and 24% of those participants with follow-up data met the criteria for recovery with no relapse. At 6-months follow-up the percentages of those recovered without relapse at 18-months were for CBT, 30%; IPT, 26%; IMI-CM, 19%; and 20% in PLA-CM (Shea, et al., 1992). At 18-month follow-up the percentage of those remaining recovered without relapse were 24% for CBT; 23% for IPT; 16% for IPI-CM and 16% for PLA-CM (Shea, et al., 1992).

Overall a small number of patients actually recovered and stayed in recovery after the 16-week treatment program. The authors conclude that the treatment program alone is not sufficient for most patients to achieve recovery and prevent relapse (Shea, et al., 1992). The conclusion drawn is not surprising given the data considered earlier regarding the natural course of depression (Roth & Fonagy, 2005). However the results of the trial are also surprising regarding the enduring effects of CBT. The TDCRP trial is the only study to date not to have found evidence to support an enduring effect for CBT, even though any apparent differences did favour CBT (Shea, et al., 1992). However, it is also the first study that was not pure form CBT but included other therapies.

DeRubeis and colleagues (DeRubeis, Gelfand, Tang, & Simons, 1999) note that discussions of the efficacy of medications and CBT for the treatment of severely depressed patients have made contradictory claims. Finding from early studies (G. E. Murphy, et al., 1984; Rush, 1977) have led many to conclude that CBT is at least as effective as medications in the treatment of depression in this

group. However, reviewers who have focused on the outcomes from the TDCRP (Elkin, et al., 1995) have deduced that CBT is not as effective as medications for the severely depressed. Indeed, as already mentioned, some depression treatment manuals have likened CBT for severe depression as being no more effective than pill-placebo coupled with clinical management (American Psychiatric Association, 2000b). Similarly the Agency for Health Care Policy and Research guidelines state: "For severe and psychotic depressions, there is strong evidence for the efficacy of medication and little or none for the efficacy of psychotherapy alone" (Depression Guideline Panel, 1993). Both guidelines seem to have relied upon data from the TDCRP study to the exclusion of data from other studies more favourable to CBT (DeRubeis, et al., 1999).

Given the discrepancy between the studies a further investigation of the outcomes of pharmacotherapy and cognitive behaviour therapy in severely depressed group was conducted through the use of mega-analytic techniques using four randomised controlled trials including the results from the TDCRP (DeRubeis, et al., 1999). The studies chosen were most similar to the TDCRP study. In the initial reports from the previous studies by Murphy et al. (1984), Rush et al. (1977) and Hollon et al. (1992) they did not report specifically for the sub-group severely depressed patients. Based on the original data from these studies the authors aimed to compare the outcomes in the trials and secondly, compare the outcomes from the initial three with those from the TDCRP. They report that overall effect sizes comparing medication and CBT favoured CBT, but no significant advantage for either intervention was revealed and only a slight

non-significant advantage for medication in the TDCRP. Consequently the authors concluded that the combined results from four randomized trials do not support the contention that antidepressants are superior to CBT for severely depressed patients and that CBT has demonstrated equal effectiveness as medication with severely depressed patients (DeRubeis, et al., 1999).

Similarly, a trial conducted at the Newcastle Cognitive and Behavioural Therapies Centre supports the contention that CBT has a similar prophylactic effect to maintenance medication for acute recurrent depression (Blackburn & Moore, 1997). In the acute phase of treatment the authors report that all patients improved with no significant difference among treatment conditions or the pattern of improvement over time, the same was true for the maintenance phase of treatment. However the Newcastle trial did not include a placebo-control which leaves open questions about medication implementation and drug responsiveness. In that regard, Jarrett et al. (Jarrett et al., 1999) published a study that was double-blind and placebo-controlled. The response rates in this trial were significantly greater and equally effective for CBT (58%) and medication (58%) than for pill-placebo control (28%).

Another mega-analysis (Thase et al., 1997) came to a different conclusion. Using original data for 595 patients with major depressive disorder having been treated with either 16 weeks of CBT or interpersonal therapy (IPT) or a combination of IPT and medication the authors report that the combined intervention did not significantly show more effect than psychotherapy alone in

treating milder depressions, but a significant advantage was found for more severe recurrent depressions. Their evidence supports the view that combined therapy is superior to psychotherapy alone for treating more severely depressed patients characterised by chronic recurrent depression. Hollon et al. (2002) make the criticism that the studies included in the mega-analysis were drawn from only one site with the addition of data from the TDCRP, in which the adequacy of implementation of CBT has been questioned.

The literature is substantial in providing evidence for the effectiveness of anti-depressant medication for moderate to severe depression; the evidence is less when it comes to CBT and its affect in this population. The NIMH trial has been highly influential regarding the relative efficacy of CBT and medication, particularly for more severely depressed patients (Roth & Fonagy, 2005). In an attempt to address the inequality of data supporting CBT interventions for this group a large two-site, triple-blind, and placebo-controlled trial was designed with the objective of comparing the efficacy in moderate to severe depression of anti-depressant medication with CBT (DeRubeis et al., 2005). This trial builds on earlier research (M. D. Evans, et al., 1992; Hollon, et al., 1992) investigating the treatment of moderately to severely depressed patients with CBT and modern selective serotonin reuptake inhibitors (SSRI's). This trial was also the first to implement a minimal treatment control. The trial randomly assigned 240 patients, almost 50% of the participants screened met the criteria for chronic depression and 75% met the criteria for recurrent depression (DeRubeis, Hollon, et al., 2005). Participants were randomly assigned to either 16 weeks of medications

(n=120), 16 weeks of CBT (n=60), or eight weeks of pill-placebo (n=60). For ethical reasons patients were kept on placebo for only 8 weeks and then administered treatment.

At the end of the acute phase of treatment response rates in medication (50%) and CBT (43%) groups were superior to the placebo group (25%). The authors report the care taken to ensure that each treatment condition was appropriately administered and therefore adequate. For example, the authors make the claim that the cause of much of the variability in patient outcomes can be attributed to variability in therapist competence. Therefore, therapists at the Vanderbilt received ongoing training throughout the trial so that their CBT proficiency equalled their colleagues at Pennsylvania (Hollon & DeRubeis, 2006). By the end of treatment at 16 weeks response rates were virtually equal for the two active treatment conditions (58.3% for medication and 57.5% for CBT). The authors conclude that CBT is about as effective as anti-depressant medication in the treatment of moderate to severe depressed patients. They do however add the caveat that the degree of effectiveness may depend on the experience and expertise of the therapist (DeRubeis, Hollon, et al., 2005). Similarly the accurate implementation of a drugs treatment protocol can influence effectiveness.

To determine whether CBT has an enduring effect and to compare this effect against that produced by those administered medication the trial also included an extensive follow-up with participants (Hollon, et al., 2005). At the end of 8 weeks of acute treatment responders to CBT were withdrawn and

followed-up for 2 years, for responders to medication they were further randomised to continue on medication or assigned to pill placebo for one further year. Those who responded in the continuation phase without relapse were further withdrawn and followed-up for 12-months. Relapse and recurrence were defined similarly as a return of sufficient symptoms for at least a 2-week period.

The findings produced from the follow-up are consistent with earlier studies of CBT. During follow-up, patients treated with CBT were significantly less likely to relapse than patients withdrawn from anti-depressant medication and no more likely to relapse than the group continuing on with medication. This provides evidence for CBT's enduring effect and also provides some evidence of the effect of CBT to inoculate against future relapses, further it seems that this effect is at least as great as that produced by keeping patients on carefully administered maintenance medication. Moreover and typical of the literature, patients with earlier age onset, partial response to medication, noncompliance, or more prior experiences of depression were at greater risk of relapse. Further follow-up was initiated at the end of the first 12-months. Patients were withdrawn from ongoing maintenance medication and followed-up with the group who had received prior CBT. Half of the patients withdrawn from medications experienced a recurrence over the subsequent year, compared to 25% of those who had received prior CBT (Hollon, et al., 2005).

The study provides strong evidence for CBT's effectiveness in treating patients with chronic and recurrent depression. It also provides evidence to

support CBT's enduring effect and the effect of CBT to inoculate against relapse and recurrence. However, despite the trial being conducted to the highest methodological standard, Hollon and DeRubeis (Hollon & DeRubeis, 2006) are cautious and consequently claim the data is only suggestive as the sample size is too small to prove the case and cross-site differences, particularly for antidepressant medications, reinforces the need for caution (Roth & Fonagy, 2005). While this contrasts Evan's et al. (1992) earlier assessment that CBT's enduring effect seems to be robust whether provided alone or in combination with anti-depressive medication it does not negate it. The results of the research to date on CBT provide a basis for further research to assess the enduring effect of CBT and its potential role in treatment and prevention of recurrence. Currently Hollon and DeRubeis (Hollon & DeRubeis, 2006) are conducting a trial to help assess such outcomes from treatment with CBT and its enduring effect. The study is still ongoing and no findings have yet been reported in the literature.

Another large trial of psychotherapy including CBT for the treatment of depression was the Sheffield Psychotherapy Project (SPP) (D. A. Shapiro et al., 1994; D. A. Shapiro, Rees, Barkham, & Hardy, 1995). The trials design included stratifying patients according to symptom severity (Low, BDI: 16-20; Moderate, BDI: 21-26; High, BDI: 27+) and the subsequent randomisation of participants to psychotherapy treatments of varying lengths (8 or 16 weeks). The purpose of the design was twofold, firstly, to address concerns raised by the earlier NIMH trial about the appropriateness of CBT or psychotherapy in general for moderate to severe depression and secondly, to account for and analyse dose-response

relationships. The second reflects the work of some authors (Howard, Kopta, Krause, Merton, & Orlinsky, 1986) whom suggest that treatment gains often occur early on in therapy. Indeed, Hollon et al. (Hollon, et al., 1992) noted that in their trial the majority of change occurred in the first 6-weeks of treatment. A total of 257 people were screened and 169 met the criteria for inclusion and were stratified into low, moderate, and high and then randomised to follow either 8 or 16 weeks of treatment of CBT or psychodynamic/ interpersonal therapy. This created 12 distinct groups being treated and the authors completed allocation when each group was composed of 10 patients (D. A. Shapiro, et al., 1994).

Both active treatments produced equally effective results with equal rapidity. A correlation was found to exist between initial symptom severity and duration where patients with mild and moderate symptoms at screening seemed to have equal success with either 8 or 16 weeks of treatment. In contrast patients diagnosed with severe symptoms at screening seemed to require the 16 sessions for positive outcomes as those who completed only 8 demonstrated poorer outcomes (D. A. Shapiro, et al., 1994). Follow-up data of 1-year was obtained for 103 participants and of those 52% were classified as treatment responders, 57% maintained their treatment gains, 32% partially maintained their gains, and 11% relapsed or had a recurrence. Finally the number of people entering the trial and remaining asymptomatic from post-treatment to 1-year is 29%, a figure comparable to that found in the NIMH study (Roth & Fonagy, 2005).

While there was generally no difference in outcomes achieved by the different forms of psychotherapy it is noted that a trend existed towards better outcomes for those who received 8-sessions of CBT and also a trend towards better maintenance for those who received 16-sessions of CBT. Shapiro et al. (1994) tentatively postulate that the post-therapy outcome data suggests that those experiencing mild to moderate depressive symptomatology may gain no more benefit from 16 as they will do from 8-sessions of therapy. However simple recovery is not a mark enough to judge the success of an intervention. It seems that there is a trend towards evidence in this study to suggest that 16-sessions of CBT may be required to secure and maintain post-treatment recovery. A further concern that can be raised concerning these speculations is how well the findings can be transferred to clinical practice from a research sample. In fact a replication of the current study in clinical practice occurred (Barkham et al., 1996), with patients in a general clinical setting faring better in therapy after 16-sessions than 8 and also 3-month follow-up of these patients contradicts Shapiro's finding of a positive severity x duration interaction (Roth & Fonagy, 2005).

Other research that contributes to supporting the enduring and preventive effects of CBT with patients recovering from depression include therapy delivered after an initial delivery of another intervention such as medication. Fava et al. (1996) compared their version of CBT with clinical management following a course of successful treatment with anti-depression medication. Patients still had residual symptoms of depression on beginning the intervention. Typically, the 4-year relapse rate for patients withdrawn from short-term medication and not

administered maintenance treatment is 70%, however, in Fava's et al. (Fava, Grandi, Zielezny, & Rafanelli, 1996) study the relapse rate was 35% for those who received the CBT.

A second study by Fava and colleagues (Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998) first treated a group of depressed patients to remission with medication, thereafter all patients were kept on medication during an extended continuation period and half the group received CBT in addition. Once patients met the criteria for recovery they were withdrawn from treatment and follow-up for 36 months. The authors conclude that exposure to CBT not only reduced residual symptoms during the maintenance phase but also reduced risk of reoccurrence following termination of treatment. Thus CBT not only has an enduring effect but potentially may extend to preventing future recurrence (Hollon, et al., 2002).

Another study that included participants who had responded to medication but had residual symptoms after acute treatment were included into a study and randomised between CBT or clinical management (CM) with medication (Paykel et al., 1999). At the end of the maintenance phase while in total few had achieved full remission, those who received CBT showed greater response (25% vs. 13% in CM). Furthermore participants were continued on medication during maintenance period and the combination of medication and CBT (29%) produced a reduced relapse rate among participants than did CM and medication (47%) (Paykel, et al., 1999). Two studies can be referenced that investigate the usefulness of

mindfulness based CBT for the prevention of relapse/recurrence of depression (Ma & Teasdale, 2004; Teasdale et al., 2000). Compared with maintenance medication the mindfulness based CBT intervention reduced substantially the risk of relapse by 50% in participants with three or more previous episodes of depression. It did not however have such a positive effect for participants with later onset of depression or fewer than two episodes.

While medication is widely used in clinical practice there is little to suggest that it enhances the value of an effective psychotherapy. Some studies have shown that adding medications enhances the response in the more severely depressed group. However in studies where CBT's performance equals that of antidepressant medication alone, combined treatments do not exceed the effectiveness of the single interventions. A recent study (Keller et al., 2000) demonstrates the opposite and suggests that combined treatment of CBT and medication showed rapid early progress and continued performance for participants such that their overall response rate was significantly greater than that for the single interventions.

Like any therapeutic intervention a wide range of factors play their part in influencing the process and outcome. These include demographic and pre-treatment variables alongside within treatment variables such as the relationship, alliance and responsiveness. These are considered in depth in the next chapter and with reference to CBT.

Summary

The substantial number of studies that support the efficacy of CBT in treating depression provide robust evidence to support CBT as a viable treatment for patients with depressions (Craighead, et al., 2007). In addition, CBT seems to provide a resistance to relapse and future recurrence whether it is provided as the primary treatment or as a complement following another intervention. It would also appear that CBT is at least as effective as anti-depressant medications in treating mild, moderate and severe depressions (Hollon & DeRubeis, 2006). This continues to be a point of contention in the literature and further engrained because of the professional support for medication as the cornerstone of treatment planning for more severely depressed patients (American Psychiatric Association, 2000b). Still the bulk of studies seem to counterbalance this view. It seems clear that the implementation of CBT requires trained professionals, better outcomes are found to exist when therapists competently and closely adhered to the planned treatment (Roth & Fonagy, 2005). Clinical change seems to be able to be brought about in as few as 8-sessions; more is required for more severely depressed patients. In tandem however, many individuals require further treatment beyond the initial short-term intervention so that optimal functioning can be maintained and any potential recurrence offset (Roth & Fonagy, 2005).

Conclusion

The growing prevalence of depression worldwide is of concern especially given the associated economic, personal and interpersonal costs. The global cost

of depression far outweighs the cost to understanding it accurately and treating successfully those who suffer. Because depression displays high rates of lifetime prevalence, early age of onset, high chronicity and role impairment the WHO has ranked depression as the single most burdensome disease in the world in terms of years lived with disability (Murray & Lopez, 1996). Our understanding of depression has evolved in the last number of decades, no longer are simple assumptions adhered to. Research has now demonstrated depression to be far more complex. Generally it seems that the majority of individuals who experience depression will recover within 1-year. However, a substantial portion may not experience recovery, and show no signs of remission even after 5-years or more. Lastly, recovery is not permanent and future episodes of depression carry the continued threat of chronicity for the individual (Boland & Keller, 2002a). A key variable influencing rates of recovery, relapse and recurrence is the presence of comorbid illnesses, whether medical or psychiatric. Research from several large studies support the claim that the deleterious effects of comorbidity are significant.

The scope of the current study is an investigation into the online delivery of a treatment of depression using a Cognitive-Behavioural therapy (CBT) protocol. CBT is the treatment of choice for this study and refers to a group of techniques that combine the cognitive approach and a set of behavioural procedures that are grounded in the cognitive-vulnerability stress model. A substantial number of studies provide robust evidence to support CBT as a viable treatment for patients with depressions (Craighead, et al., 2007). Clinical change

seems to be able to be brought about in as few as 8 sessions; more is required for more severely depressed patients. In tandem however, many individuals require further treatment beyond the initial short-term intervention so that optimal functioning can be maintained and any potential recurrence offset (Roth & Fonagy, 2005).

Chapter 3: Therapist Responsiveness; Relationship and Alliance

Introduction

Responsiveness refers to the relationship being affected by the emerging context between the therapist and client. It suggests that the content and process of therapy emerges as treatment proceeds and the therapist attending to this dynamic is understood as being responsive (Stiles, Honos-Webb, & Surko, 1998). The therapeutic relationship is a key construct in counselling and psychotherapy and is reflected in most theoretical approaches. It can make a significant contribution to the responsive delivery of treatments. The therapeutic relationship has received considerable attention in the literature as it has long been considered a moderating variable in the success of any therapy intervention (Norcross, 2002). While the therapeutic relationship is constructed differently in different schools of thought, the working alliance is rather more pan-theoretical in its conceptualisation of the relationship and is shared by different therapeutic modalities (Horvath & Bedi, 2002). The working alliance refers to the quality of the collaborative relational bond between the partners and acts as the springboard for the work of therapy.

Chapter 1 has outlined in detail the theoretical framework employed in the study. The study seeks to examine the effectiveness of an established CBT treatment in online formats, so too it seeks to examine therapist responsiveness and its contribution to outcomes in online formats. Therefore one treatment condition also includes an added element, in that it is therapist-delivered. This brings the possibility of introducing the responsive engagement of a range of relational and technical clinical skills in the therapist-delivered condition. It is

proposed that the research will shed light and support already established connections that have been uncovered with regard to the importance of a therapeutic alliance to outcome. In addition the research may advance some considerations for the nature, type, frequency and amount of a responsive relationship required for the success of online interventions for the treatment of depression and perhaps other related disorders. While it is recognised that therapist responsiveness, the therapeutic relationship, and working alliance are interwoven concepts that co-exist and co-create, for the purpose of this chapter they are artificially separated.

Responsiveness in Counselling and Therapy

Stiles, et al. (1998) describe that "responsiveness is understood to describe behaviour that is affected by the emerging context, it considers how the therapist and client respond to each other, it implies a dynamic relationship between variables, it is bidirectional and includes feedback" (p.440). The purpose of being responsive is to appropriately deliver interventions and responses to the client that are in tune with the emerging context and information and which have the goal of producing the desired outcome, such as a reduction in symptoms and improved general mental health functioning. In a research study it is the case that randomly assigning participants is not that responsive, at least at the level of treatment choice. However, therapists can compensate for this through responsive delivery of the specific aspects of treatment. This contrasts the delivery of the specific aspects of treatment alone through a software program where unless some

strategies for responsiveness are included it is largely ballistic. It is noted that it would be impossible for such a program to be completely responsive as responsiveness implies responding *en vivo* to the unique variables, information and emerging context for a particular client.

It is argued that the provision of therapist responsiveness adds value to any treatment, a value that increases the likelihood of success in terms of effectiveness. Techniques alone cannot, it is argued, provide for optimal outcome. The research reviewed in this chapter supports the thesis that the provision of therapist responsiveness accounts for a far greater variance in treatment outcome than does technique. While CBT self-administered programs can include responsiveness to users, it is generally limited. For example, in the Beating the Blues™ cCBT program used in the current study, each week the program asks users if they had any disappointments, if they answer positively, irrespective of degree of disappointment the program delivers the same response. This, it is argued, is potentially useful but not responsive enough, or as Stiles (Stiles, Honos-Webb, et al., 1998) argues, appropriately responsiveness. It does not account for the emerging context; it is not dynamic, interactional or necessarily provides accurate feedback to the user. It falls short of the systematic responsiveness that is endemic in human relationships. The range, breadth and depth of responsive behaviour cannot therefore be replicated in fullness in computer software, at least not to date.

At the same time that is not to dismiss the value of delivering a treatment program through a self-administered format, which can or not have included responsive therapeutic content. In fact, a bulk of research has positively evaluated the effectiveness of the particular program being used in this study (Proudfoot et al., 2004; Proudfoot & Swain, 2003). Further, Stiles et al (Stiles, Shapiro, & Elliott, 1986) point out that positive change does not in all cases require the presence of a therapist. The person of the therapist does not provide the sole reason for the success or failure of a treatment. However the person of the therapist is the primary determinant of the type and quality of the psychotherapy offered (McConnaughy, 2001).

Cultivating the responsive use of relational and technical skills allows for close attention to the way a client may respond to a given intervention, suggestions can be made based on the clients emerging requirements. This notion is not entirely new. For example, Beck et al (1979) considered the following important in the selection of targets and techniques for therapy, that the therapist would gear his approach to the client's level of sophistication and personal style. The treatment programme will involve a variety of approaches based on trial and error in determining what will work. Several interventions may have to be experimented with to find what may be most helpful. Such responsiveness is shared across the therapies. Without therapists attending to the clients current condition and the requirements of the relationship risks impairing the effectiveness of the treatment being delivered (Stiles, Honos-Webb, et al., 1998).

A review of research (Wampold, 2001) concludes that the evidence demonstrates large therapist effects highlighting Norcross' (2002) point that multiple and convergent evidence indicate that the person of the therapist is central to outcome in psychotherapy. He goes on to report that over 6% of outcome variance (range: 1%-12%) was due to therapists. There is not an abundance of research in this area but it is beginning to emerge (Horvath & Bedi, 2002) and considerable heterogeneity exists regarding key therapist variables not to mention the difficulties in disentangling therapists from therapies (Roth & Fonagy, 2005).

A large part of the variables that can be accounted for are very much related to the therapist being a responsive agent in therapy and as such responding to the emerging realities and context of the therapy (Horvath & Bedi, 2002; Roth & Fonagy, 2005). Therapist's skills such as communication skills, openness, empathy, exploration, experience and training and generally their behaviours all compile and interact as a source of therapist functions that can either hinder or help the relationship and the work of therapy. For example, therapist ability to communicate with their clients in clear ways seems to positively contribute to a quality relationship (Kolden, 1996), this ability helps convey understanding of the clients world and their expressed difficulties. This very much relates to the expression of empathy, to accept the client and to individualise ones response to their particular needs (Bohart, et al., 2002). What's important is the client's perception of therapist's empathy, openness, and genuineness and positive

outcomes and relationship are associated with clients being in control (Horvath & Bedi, 2002).

Ackerman and Hilsenroth (2001, 2003) write that positive relationships tend to be fostered by therapist's empathy, warmth and understanding, perceived trustworthiness, experience and confidence, and perceived investment in the treatment relationship (Ackerman & Hilsenroth, 2001, 2003). It is argued that this can only be achieved through the responsive engagement of a range of relational and technical skills brought to bear on the relationship and the work of therapy by the therapist. In contrast therapist behaviours that are perceived as controlling are negatively correlated with a positive relationship. Other therapist behaviours can also contribute and impact, some negatively such as premature interpretation, therapist unresolved issues, and therapist own attachment styles (Horvath & Bedi, 2002).

The effort to develop a strong relationship is fraught with a myriad of variables that are brought to the partnership by the respective parties. Attending to the multitude of possibilities requires skill in being attuned to the client's process and the formation of the relationship. Further the relationship once established requires constant attention throughout the course of treatment and will come into difficulties along that path. Difficulties that can be considered as strains or ruptures that will require repair as an integral aspect of the therapeutic endeavour.

Safran et al (2002) define a rupture as a tension or a breakdown in the collaborative relationship between patient and therapist. A given rupture can be of varying intensity and consequence and if not addressed can lead to premature end or treatment failure (Safran, Muran, Wallner Samstag, & Stevens, 2002). A rupture can follow from a disagreement about the goal of therapy, about the tasks required for success or the development for one reason or another, of a strain in the relationship between therapist and client. Safran and Murran (2002) elucidate two dimensions for dealing with ruptures, the first is a direct or indirect response to any difficulty and the second responds to the surface or underlying meaning generated because of the difficulty. Sometimes it can mean a reframing of the goal or more explication of the task, providing, for example, a more robust rationale or information for the use of an intervention, or exploration of the meaning of a client's response to treatment as an exploration of underlying relational themes. In other words, it may require attention to any one of a broad range of different relational and technical skills that comprise therapist responsiveness. It is suggested that this possibility cannot fully exist outside of therapist-delivered treatments. Ultimately, what is important is that ruptures in the relationship need to be repaired.

Consistently it has been established that that a quality relationship is predictive of positive treatment outcome (Horvath & Symonds, 1991; Martin, 2000), similarly a poor therapeutic relationship can result in unilateral termination (Tryon & Kane, 1993, 1995). As a result it seems relevant to address any potential ruptures that can impact negatively. In practice however the task of recognising

and repairing ruptures can be difficult. Often, and for a variety of reasons, clients will not reveal dissatisfaction to their therapist and it is often therefore the case that the therapist only learns of the difficulties when the patient has decided to end the relationship (Safran, et al., 2002). Related is the difficulty for therapists to intuit that the client is experiencing difficulty and not expressing negative feelings about the treatment, the therapist or the relationship and its progress.

At times when negative reactions are expressed about one aspect or another of the treatment or the therapist or the relationship therapists can respond in kind and react negatively, this can manifest in a more rigid adherence to the techniques of the treatment program as opposed to being responsive and attempting to meet the needs of the client (Safran, et al., 2002). It may be useful to consider ruptures and repairs as part of the course of therapy and in that event prepare therapists and increase their awareness of these processes. Kivlighan and Shaughnessy (2000) point to the possible therapeutic benefit of rupture and repair sequences over the course of treatment (Kivlighan & Shaughnessy, 2000). Where patients and therapists agree on ruptures within sessions it positively impacted on outcome (Nagy, Safran, Muran, & Winston, 1998).

The evidence for repairing ruptures and their impact on outcome is limited but emerging. It supports the notion of the therapist responsiveness, tuning into the processes at work and engaging responsively in the creative use of relational and/or technical skills to overcome strains for the benefit of producing the desired outcomes. Also supporting the client in their expression of feelings,

acknowledging the variety of emotions and not reacting defensively. Responsiveness is a concept closely related to relationship formation and development and without it there exists a greater risk of impairing the treatments effectiveness. The current study seeks to evaluate the presence of therapist responsiveness as adding value to the delivery of specific aspects of a CBT based treatment for depression online. It seems obvious to state that the possibility of responsiveness as outlined here can only truly exist in a therapist-delivered condition and goes beyond the scope of the CBT framework.

The Therapeutic Relationship

The therapeutic relationship can be considered a vital part of the experience of psychotherapy and counselling (Clarkson, 2003; Gelso & Hayes, 1998; Norcross, 2002). Psychotherapy or counselling is unlikely to attain good outcomes without the establishment of a good enough client-therapist relationship (Gelso & Hayes, 1998). Empirical literature has supported the claim that crucial to positive outcomes in psychotherapy and counselling is the quality of the therapeutic relationship (Luborsky, Crits-Christoph, Mintz, & Auerbach, 1988; Whiston, 1993). Through the use of a range of relational and technical skills the therapeutic relationship captures a large part of what it means to be responsive. This section seeks to briefly explore the concept of the therapeutic relationship. The scope of this section is general and therefore does not seek to elucidate the theoretical models of the construct that exist in different school of psychotherapy. In addition, the section wishes to present some general empirical findings that

support the concept and its centrality and usefulness as a construct in psychotherapy irrespective of its precise formulation or articulation in any given theoretical framework.

The therapeutic relationship has received considerable attention in the literature. Yet despite the attention it has received, and despite what one might therefore expect, there have not been many definitions of the therapeutic relationship advanced (Gelso & Hayes, 1998). Because of its complexity the therapeutic relationship can be difficult to conceptualise, especially giving the range of variables that are associated with it and contribute to its formation, including therapist and client variables (Horvath & Bedi, 2002; Snyder, 2000).

Acknowledging that psychotherapy and counselling has a relationship part and a technical part, Gelso and Carter (1985, 1984) and Gelso and Hayes (1998) have operationally defined the relationship aspect as "the feelings and attitudes that therapist and client have towards one another and the manner in which these are expressed" (p. 24). They claim that the therapeutic relationship is composed of three components that are present in all theoretical orientations. They are the alliance, the transference relationship and what they call the 'real' relationship. Briefly, the alliance is understood as the aspect of the clients functioning ego aligning with the therapist in the work of therapy with the aim of achieving the goals of therapy. The transference configuration includes both the client's transference that is experiences of the therapist shaped by the client's historical psychological structures and the therapist's counter-transferences to the client's

material. Lastly the real relationship is understood as the dimension of the total relationship that is unencumbered by transference (Gelso & Hayes, 1998).

They argue that while these elements are ever present the centrality of each of them varies depending on the theory that may be guiding the therapeutic work. In addition they would argue that the alliance is the most fundamental component of the three (Gelso & Hayes, 1998). They operationally separate the technical part, including techniques and prescribed roles in psychotherapy and counselling, from the relationship part. Although they understand that in practice the two parts constantly interact and influence each other (Gelso & Hayes, 1998). Researchers, theoreticians and clinicians would understand similarly that there is a deep synergy between the relationship and techniques (Norcross, 2002).

Clarkson (2003) identifies an integrative framework for psychotherapy and counselling identifying five different modalities of client-therapist relationship. She argues that the five modalities of the working alliance, the transferential relationship, the real relationship, the developmental and reparative relationship, and the transpersonal relationship are present in any effective psychotherapy (Clarkson, 2003). The first three of these elements are identical to those proposed by Gelso and Carter (1985, 1994) and Gelso and Hayes (1985, 1994). Her additions of the two other modalities or elements are new and briefly, the reparative and developmental relationship is understood as that provided by the therapist and acting as a corrective and replenishing relationship that potentially repairs original and deficient primary relationships (Clarkson, 2003). Secondly,

the transpersonal relationships seeks to account for the inexplicable dimensions of counselling and psychotherapy, those which by their nature transcend our understanding and could be referred to as spiritual (Clarkson, 2003).

Clarkson's (2003) work describes an integrative model and like earlier work posits that such a framework can accommodate different theoretical orientations. Similar to Gelso and Hayes (1998) she understands that the different elements that constitute the therapeutic relationship can form the foreground or background to the relationship at different times and are dependent on a range of therapist and client variables such as the stage of the relationship, individual differences between clients, therapist experience and skill (Clarkson, 2003). However she does not advance a definition of the therapeutic relationship but rather she aligns it to an entering into a kinship relationship the characteristics of which include, a paid for contractual relationship where one party is a trained professional, the aim of which is the amelioration of distress and/or the improvement in mental health functioning (Clarkson, 2003).

A notable contribution in how the therapeutic relationship is conceptualised has been offered by Rogers (1951). His seminal work brought to the foreground the importance of the therapeutic relationship in affecting client change. He offers what are described as the necessary and sufficient conditions for change to take place. In short these are therapist congruence, empathic understanding of the client, and the conveyance of positive regard. These are largely therapist offered and the disposition of the therapist is key to the success

of any therapy. Rogers understanding of the therapeutic relationship is predicated on the ability of the therapist to come to a knowledge of the client from their own subjective awareness, irrespective of how bizarre or misguided that may appear (Thorne, 2006). Anything therefore that may cause an impediment to this effort is potentially destructive of the therapeutic relationship. It is therefore the client's subjective world that assumes centre place in the therapeutic endeavour and the therapist needs to cultivate a disposition to facilitate this so that the necessary and sufficient conditions are established for a relationship to be formed and therapy to progress. It is the case that if this disposition and therefore conditions of the therapeutic relationship can be achieved the client can grow, or self-actualise in Rogers terms, a tendency that is endogenous to the person, and may in the case of a client be thwarted or underdeveloped; a victim therefore of what Rogers names conditions of worth.

Conditions of worth are instances where the positive regard needed by the individual is not delivered or only delivered when the person performs or behaves in certain ways, even if those ways contradict the actualising of the total organism and thus creating incongruence in the client. Where the client may be incongruent, the therapeutic relationship realises its potential through the therapists display of congruence, the therapists prizing and acceptance of the client and the therapist efforts to ascertain an empathic understanding of the client's world as experienced by the client. Finally, the client to some degree can experience this milieu, the conditions of the therapeutic relationship that are cultivated and that can promote

therapeutic change. This, in total, is the facilitative therapeutic relationship that Rogers proposes.

Lambert & Barley (2002) in their review of research on the therapeutic relationship understand the relationship generally to be composed of a range of interdependent, overlapping and interrelated concepts that can be difficult to conceptually differentiate, and include therapist variables such as the therapists interpersonal style, facilitating empathy, warmth and positive regard are conditions included, along with the working alliance. Further it is useful here to note the importance of client variables too, such as readiness for therapy, motivation and the ability to maintain focus on the work. Lambert & Barley (2002) make it readily apparent from their review of 100 representative studies that the factors most closely associated with positive therapeutic outcomes are the therapist and the therapeutic relationship (Lambert & Barley, 2002).

At the same time Lambert and Barley (2002) also recognise that outcomes are highly influenced by individual characteristics and the context for any client. Specifically they reference a large body of work that has accumulated on the therapeutic relationship including extensive reviews and also meta-analytic work, that has examined the relationship between a diverse range of variables and client progress. They conclude that the psychotherapy relationship in general has been shown to be effective (Lambert & Barley, 2002; Lambert & Bergin, 1994).

What is clear from the literature on the therapeutic relationship is that there is little question as to its importance in attaining successful outcomes in therapy. Empirical studies over a number of years and across diverse approaches and presenting issues attest to the centrality and necessity of the therapeutic relationship as a key agent for change in the process of counselling and psychotherapy. The precise constitution of the relationship has been debated and certainly how its manifested will to a large degree depend on the theoretical orientation of the therapist and the consequent roles ascribed. The centrality of developing, through the engagement of responsive relational and technical skills, the therapeutic relationship is reflected in most theoretical approaches, it is therefore a key construct in psychotherapy and models of the therapeutic relationship depend on the theoretical orientation being discussed.

Prochaska (1979) and Norcross and Prochaska (1999) write that one's theoretical orientation will generally dictate ones conception of the importance and influence of the relationship on treatment. They observe (Prochaska, 1979; Prochaska & Norcross, 1999) that the therapeutic relationship is conceptualised differently in different therapeutic orientations and for some, such as humanistic and analytic orientations, it is central to both the process and the content of the therapeutic intervention and therefore central to change and outcome. In others, such as with CBT, while the relationship is considered important it does not hold an equal significance.

Significantly the therapeutic relationship is composed of influential therapist factors, such as the provision of facilitative conditions, ability to engage and be responsive, the creative use of clinical skills and interventions, and the capacity to establish and maintain a strong working alliance, among other elements. Client factors are also considered, such as readiness for change, hope and expectancy, and engaging with the clients immediate circumstances. The current study is a trial of a treatment for depression delivered through two different mediums, both online. However a key difference is that one is therapist-delivered, the other self-administered. It is argued that the therapist-delivered condition provides an added element that may add value to the treatment and consequently enhance outcomes. The added element can be understood as the provision of therapist responsiveness as it involves the therapist engaging with and responding to the client in and through the responsive delivery of a range of relational and technical skills. The necessity and value of a responsive and skilled therapist is clear and the therapeutic relationship captures a large part of what it means to be responsive. The therapeutic relationship is constructed differently in different schools of thought, the working alliance provides one conceptualisation that is rather more pan-theoretical or a generic factor that is shared by different therapeutic modalities (Horvath & Bedi, 2002). The working alliance is used in the current study as measuring a portion of therapist responsiveness.

The Working Alliance: Development, Defining Attributes and Empirical Base

The working alliance captures a portion of what is understood as therapist responsiveness as conceptualised earlier. It is noted that the early absence of the therapeutic alliance can mean the absence of a co-created collaboration on the part of the therapist and client and as Gelso and Hayes (1998) report, the failure of it to develop is a likely indication that the therapy will be unsuccessful. What follows will chart the historical development of the concept of the working alliance. Out of that a current working definition of the working alliance is proposed. The section reviews the empirical research aligning alliance to successful outcome in therapeutic treatments. The therapeutic relationship/ alliance and CBT are discussed. Lastly, a treatment of measuring alliance and responsiveness in treatments is included.

Development of the Concept of Working Alliance

Like so many other psychotherapeutic constructs the roots of the concept of the working alliance can be traced back to psychoanalysis and Freud. Meissner (1996) reports that as far back as 1893 Freud referred to the need to make the patient a collaborator and to do so requires a fostering of the attachment to the analyst, which will help create the 'analytic atmosphere'. An approximation of the idea of alliance is advanced by Freud in his understanding of the objectionable or positive transference (Freud, 1940). He refers here to the friendly and affectionate aspects of the analysand's transference to the analyst and the allying of the analyst with the ego of the patient, or at least the aspect of the patient's ego able to

collaborate in the therapeutic work (Meissner, 1996) Gelso and Hayes (1998) report how Freud believed that such transference should not be subjected to analysis and in fact that it support the creation of rapport between client and therapist. Freud declares "that it remains the first aim of treatment to attach him [the client] to it and to the person of the doctor" (Freud, 1958). This understanding was built on an initial formulation of his that there existed an 'analyst' within the patient. He extends this in the 1940's to mean a reality-based collaboration between therapist and client.

The idea of the 'analytic pact' was further developed by Sterba (1934, 1940) as the union between therapist and client in the aim of achieving collaboratively the purpose of therapy (Sterba, 1934, 1940). Sterba identifies this as a function of the ego-split between being a participant and also an observer thus allowing the ego to reflect on material of therapy and gain insight. Sterba's conceptualisation of the analytic pact or ego-alliance has been referred to as the 'rational transference' (Fenichel, 1941). In contrast Stone's (1961) view contains both rational and irrational elements (Stone, 1961). Alongside what's proposed by Sterba, Stone includes primordial transference, an irrational wish for nurturing mother, as a motivating factor or a driving force in the establishment of the alliance.

Zetel (1970) further explores the concept and extrapolates that the therapeutic alliance is based on a foundation of early and intact ego-object relations, consequently secure and able to trust, tolerate frustration and anxieties,

accept reality in the absence of pleasure, and distinguish between mature and regressive aspects of mental functioning. Out of this the client will be able to interact and collaborate with the analyst as an object of positive identification who can be trusted. Zetel (1970) differentiates between the therapeutic alliance and transference and suggests that the alliance reflects the non-neurotic part of the client that is able to engage in the task of therapy and therefore able to use the analysts interpretations and gain insight (Botella, 2008).

Greenson (1967) builds on the work of previous authors and identifies the alliance to be the rational part of the ego, much the same way as does Sterba (Sterba, 1934, 1940) and later Zetel (Zetel, 1970). Meissner (1996) notes that there are few differences between Greenson's and Zetel's conceptualisations of the alliance, however, Greenson (Greenson, 1967) distinguishes between the 'working alliance' and the 'therapeutic alliance'. What Greenson stresses in particular is the patient's capacity to engage with and work in the therapeutic encounter (Meissner, 1996). Greenson goes further and crystallises the notion that therapeutic success depends on the establishment and maintenance of a reliable working alliance (Meissner, 1996). He understands this as the clients ability to align with the tasks of therapy (Horvath & Bedi, 2002). Greenson also identifies the therapeutic alliance as the ability of the therapist and client to form a personal bond. He proposes a tripartite relationship model including transference, the alliance, and the 'real' relationship (Gelso & Carter, 1985).

The work of conceptualising the therapeutic relationship and the alliance was further explored by Rogers. His work placed a focus on the possibility between therapist and client of the relationship itself having a positive and healing function. Rogers theorising certainly marks a turning point and a departure from psychodynamic conceptualisations of the therapeutic relationship that had previously dominated. His work also adds crucial ingredients in establishing successful alliances and being responsive to the client in any form of therapeutic encounter. A wealth of research on the therapeutic relationship and the core conditions followed Rogers's conceptualisation. An increasing interest evolved in researching the specific ingredients responsible for positive therapeutic gains (Horvath, 2005). By the late 60's and early 70's advances in research synthesis began to yield significant evidence for common factors, independent of tradition, being responsible for improvement. In other words different therapies produce similar amounts of therapeutic gains (Horvath & Luborsky, 1993) and there existed little evidence that any one method of therapy was superior to other approaches (Horvath, 2000). Research began to support a synthesis of therapy and practice and the alliance was revisited anew.

An early refinement of the alliance concept was advanced by Luborsky (1976). His research led him to suggest that the alliance is a dynamic and responsive concept within therapy. He delineates two phases or types of alliance, Type 1 being more evident at the early stages of treatment and type two more typical of later phases of treatment (Horvath & Luborsky, 1993). Type I alliance can be witnessed in the establishment of the alliance early in treatment and

demonstrates qualities of client trust in the potential of the therapeutic encounter and the therapist who provides a warm, caring, accepting and facilitative relationship. Type 2 alliance develops after a stable relationship or personal bond is formed between therapist and client and it witnesses the investment of the client in the process and function of the therapeutic task. Luborsky (1976) argues that the strength of the alliance at different stages or phases of therapy will have an impact on success. In addition Horvath and Bedi (2002) argue that while Luborsky's work is grounded in the psychodynamic tradition his formulation and description of the alliance as a process is rather more general.

Bordin's (1979, 1994) work was built on earlier psychodynamic literature, specifically he acknowledges Greenson (1967) (Bordin, 1994). Bordin significantly revolutionises the concept of alliance and transforms it into a pan-theoretical concept. He essentially recast the original psychodynamic mould creating a more generic alliance concept that was primarily a conscious 'here-and-now' relationship. His understanding involves an agreement and collaboration between therapist and client, and that the alliance is bidirectional (Horvath, 2000).

Bordin cast his definition of the alliance as being composed of goals, tasks and bonds. He argues that these are essential ingredients of a healthy and successfully orientated working alliance. Bordin (1994) writes:

> A strong alliance refers to a condition in which a person seeking change has found that the change agent can participate in the effort to shed light and open new doors without reducing the partnership to the pairing of the therapist-leader and the assistant-patient. Its strength

> revolves around the experience of new possibilities in the patients struggle rather than faith in a charismatic therapist-magician. (p. 15)

Bordin carefully places an emphases on the search for an accurate goal, one that does not diminish nor exceed the patients need, but rather one that captures as adequately as possible the patients presenting problem(s). Arriving at what Bordin (Bordin, 1979, 1994) refers to as a 'penetrating, meaningful change goal' will involve negotiation (Bordin, 1994). Tasks then follow such a goal defined and refer to specific activities that the client and therapist will engage in to achieve the main goals for treatment. Activities introduced by the therapist for the benefit of goal attainment must have the sanction of the client so that the client's role and responsibilities can be realised in the effort for change (Bordin, 1994).

The goals and tasks of the therapy are couched in a bond that develops between the client and therapist. A primary ground, or a bond, characterised by mutual liking, respect, trust and understanding between client and therapist needs to exist so that a commitment on the part of the client and the therapist to collaboratively work together for success can occur (Bordin, 1994). Bordin maintains that the building of a bond is a delicate and at times slow process and depends largely on the object relational ability of the client and also of the therapist. However, while an individual's ability to form relationships can be fractured because of past relational experiences, Bordin (1994) would argue that any client coming to therapy has the capacity to form both adjusted and not so well adjusted relationships. In addition, forming a 'good-enough' bond will be

important not just for collaborative commitment but also to secure the passage of the relationship and the therapeutic work through the strains and counter-change that occurs in the therapeutic process (Bordin, 1994). Interestingly until now the alliance had been treated as a facilitator of techniques that could affect change. Bordin's conceptualisation sees the alliance as both a facilitative condition but also as a beneficial therapeutic agent in its own right (Horvath, 2000).

Research has time and again asserted the positive relationship between the alliance and outcome in therapy (Bordin, 1979; Hartley, 1983; Luborsky, 1984; Marziali, 1981). Luborsky and Bordin's work have remained centre stage in the alliance literature and in the development of instruments to investigate the concept. At the same time authors have noted that there remains significant residual ambiguity about the theoretical/conceptual definition of alliance (Horvath, 2005; Horvath & Greenberg, 1989; Horvath & Luborsky, 1993). The history of the concept has developed and contributed to how the construct is conceptualised and defined today. It is to this that I now turn, an elucidation of the defining attributes of the working alliance, with particular reference to the work at hand.

Definition of the Concept of Working Alliance

There exists no universally defined and accepted construct of what is commonly called the working alliance. While the literature presents a range of conceptualisations holding many similar characteristics and attributes they also diverge on some important aspects. Horvath & Bedi (2000) propose a definition

that captures Bordin seminal work while also attempting to encompass emerging clinical consensus. It can be argued that their definition also encompasses key points of understanding that have arisen from the work of previous authors named above. Horvath and Bedi (2000) define the alliance as:

> The alliance refers to the quality and strength of the collaborative relationship between client and therapist in therapy. This concept is inclusive of: the positive affect bonds between client and therapist, such as mutual trust, liking, respect, and caring. Alliance also encompasses the more cognitive aspects of therapy relationship; consensus about, and active commitment to, the goals of therapy and to the means by which these goals can be reached. Alliance involves a sense of partnership in therapy between therapist and client, in which each participant is actively committed to their specific and appropriate responsibilities in therapy, and believes that the other is likewise enthuastically engaged in the process. The alliance is a conscious and purposeful aspect of the relation between therapist and client: It is conscious in the sense that the quality of the alliance is within ready grasp of the participants, and it is purposeful in that it is specific to a context in which there is a therapist or helper who accepts some responsibility for providing psychological assistance to a client or clients. (p. 41)

The definition advanced by Horvath and Bedi (Horvath & Bedi, 2002) recognises two active processes and argue that these can form a model of the active ingredients of the therapeutic relationship. The two processes they identify are firstly, the alliance as a conscious real-time act and secondly, the recognition that both client and therapist factors, conscious or unconscious, can impact on the alliance. Both of these processes are recognised in the historical conceptualisation of the working alliance.

On further analysis the definition includes other key ideas that have emerged from the historical landscape and recent conceptualisations of the

working alliance. To begin with Horvath & Bedi (Horvath & Bedi, 2002) consider the quality of the alliance as an act of collaboration between the client and the therapist. Collaboration is a key component of the alliance as conceptualised by Bordin (Bordin, 1979, 1994) and Luborsky (Luborsky, 1976, 1994; Luborsky, et al., 1988). Horvath and Bedi understand the alliance as referring to the quality of the collaborative effort between client and therapist and Luborsky maintains that the quality of the alliance at different phases of therapy will impact on the final outcome (Luborsky, 1976).

Alongside collaboration as a central attribute of the concept of working alliance there has been an historical recognition of the importance of attachment or bonding. As Gelso and Hayes (1998) write: "regarding attachment or bonding, the therapist and client must form an attachment with each other for the purpose of furthering the work" (p. 24). In essence they are proposing that the client through the work of therapy has the possibility to develop a capacity for a positive, need-gratifying relationship with the therapist (Bowlby, 1988; Gitleson, 1962; Horwitz, 1974). This is akin to Clarkson's understanding of the reparative and developmental relationship. Also Bordin notes that while an individual's ability to form relationships can be fractured because of past relational experiences, any client coming to therapy has the capacity to form both adjusted and not so well adjusted relationships. Bordin's conceptualisation sees the alliance as both a facilitative condition but also as a beneficial therapeutic agent in its own right (Horvath, 2000).

Hovarth and Bedi (2000) consider the concept to be inclusive of positive affective bonds as described in Bordin's (Bordin, 1979, 1994) work. Earlier described as a primary ground characterised by mutual liking, respect, trust and understanding between client and therapist needs to exist so that a commitment on the part of the client and the therapist to collaboratively work together for success can occur (Bordin, 1979, 1994). They see that such a bond is necessary for the execution of the tasks required to achieve the meaningful goals set for the therapy. The context they describe as a partnership between the client and the therapist and the resultant active commitment displayed in meeting their respective roles and responsibilities (Gelso & Carter, 1985, 1994; Gelso & Hayes, 1998).

The concept proposed also considers the cognitive aspects of the therapeutic relationship. This is reflected in Bordin's acknowledgement and need to attain a 'penetrating and meaningful change goal' and that careful attention should be paid to the establishment of such a goal. The cognitive aspects also include the agreement on the activities that will further the task of the process towards attaining the created change goal. Gelso and Hayes (1998) write that it is often the case that there is no systematic establishment of the goals and tasks and at times never even discussed objectively. However, there can exist in this case a general understanding of a shared mission and a tacit acknowledgement between the partners that they are co-joined in the necessary tasks to achieve their mission (Gelso & Hayes, 1998). They also explicate that the tasks of the therapy do not necessarily only exist within the therapy time frame, they can also be a feature of the extra-session work to be done. For example, in CBT there is often out-of-

session homework tasks to be completed by the client (Gelso & Hayes, 1998). In addition the collaborative effort will require the assumption of certain roles and responsibilities on the part of each of the partners and that there is enthusiastic engagement in the execution of the therapeutic tasks, even in the face of resistances, conscious or unconscious (Clarkson, 2003). Lastly, they observe that the goals-tasks-bonds concept impacts on the alliance and are in turn influenced by the alliance. This reflects Luborsky's understanding of the alliance as a dynamic concept, forming and reforming through the phases of the therapeutic process (Luborsky, 1994).

The work of this research project is an investigation into the efficacy of online delivered treatments for depression. Specifically the work seeks to determine differences, if any, that exist between online treatments where one is therapist-delivered and the other is self-administered. The theory of the working alliance that focuses on the goals, tasks and bonds contribute to informing a portion of the additional therapeutic responsiveness aspect of the study (Bordin, 1979; Horvath & Greenberg, 1994). It is argued that the integration of therapist responsiveness with the specifics of the CBT treatment brings added value and increases the likelihood of successful outcome. The working alliance is an established concept and holds some significance in the literature and for those reasons it is given particular attention in the current study.

Empirical Research Aligning Alliance to Successful Outcomes

At the heart of the therapeutic endeavour is a belief that the systematic use of a responsive relationship between therapist and client produces changes in cognition, feelings and behaviours (Holmes, 1989). The working alliance is one conceptualisation of the therapeutic relationship and captures a significant portion of responsiveness. The construct has received abundant attention in psychotherapy research for many years. The positive links between the quality of the alliance and therapy outcome have been summarised and synthesised on a number of occasions (Horvath, 2006). Gelso and Hayes (1998) argue that the working alliance affects outcome in at least three salient ways. Firstly, the alliance has an effect in and of itself, above and beyond any responsive use of technical skills by the therapist. Secondly a good working alliance will support the client in being receptive to the treatment, adherence to the treatment and collaboration in achieving the goals of the treatment. Lastly, it can act as a buffer against the many strains and stresses that may occur during treatment.

Time and again it has been declared that the therapeutic alliance has repeatedly been found to be a consistent predictor of treatment outcome (Crits-Christoph, 2006). This section seeks to elucidate the evidence that has accumulated in support of this thesis. Horvath and Bedi claim that as many as 2000 research articles have been published addressing the therapeutic alliance (Horvath & Bedi, 2002). These include a number of large research trials that have established a positive and significant correlation between alliance and outcome (Castonguay, Goldfried, Wiser, Raue, & Hayes, 1996; Krupnick et al., 1996;

Stiles, Honos-Webb, et al., 1998). They also include a variety of meta-analysis that have continually reported reliable effects between the alliance and psychotherapy outcome (Crits-Christoph, 2006). Three meta-analysis (Horvath & Bedi, 2002; Horvath & Symonds, 1991; Martin, 2000) synthesise the research for this area and are presented here. Each has considered the importance of a quality alliance to outcome and as such they seek to establish a positive correlation between the two.

The first meta-analysis was conducted by Horvath and Symmonds (1991) and includes 24 studies (that included 20 distinct data sets) relating to the quality of the working alliance and outcome. Their research covered an 11-year period of published and two unpublished research studies. The average sample size across the studies was 49, the average sessions were 20.9 and therapists had a mean of 8.1 years of experience. The second meta-analysis was conducted by Martin and colleagues (2000) and incorporates in total 79 studies, of which 21 were unpublished. The meta-analysis adopted and used the inclusion criteria set out by Horvath and Symonds (1991). They included studies cover an 18-year span, the mean sample size was 60.39 and average number of sessions 22.18. They include an average of 20.22 therapists with a mean of 8.1 years of experience. Lastly, a third meta-analysis of the research literature by Horvath and Bedi (2002) combine a large portion of the data from the two previous analyses, the published studies, and combine a number of studies since 1997, that being the cut-off date from the last reported analysis. Therefore their sample is composed of published studies between the years 1977–2000. The inclusion criteria for each of these analyses

were identical. The sample population from the varied studies are largely outpatients, but not exclusively, and a small number included patients who were experiencing severe mental disorders (Martin, 2000). The majority of the studies included participants with various diagnoses and only some with specific diagnoses.

Horvath and Symonds (1991) report a moderate but reliable association between working alliance and outcome. A combined effect size (ES) of r=.26 was reported. This can be considered robust considering that it is measuring only one aspect of the therapeutic relationship as it relates to outcome (Bergin, 1994). It is also similar to values reported for other psychotherapy variables (Horvath & Symonds, 1991). Martin et al (2000) report an ES of, r= .22. This is lower than the weighted effect-size reported by Horvath and Symonds (1991). Martin (2000) however, did find that the sample was homogenous whereas Horvath (1991) sample was not. Martin concludes that the ES reported can be considered realistic. In the most recent analysis Horvath and Bedi (2002) report a more modest ES of r=.21 (median r=.25). The ES reported is closer to that reported by Martin (2000). However, unlike Martin they did not find the ES's in the data to be homogenous. One reason advanced for this was the inclusion of a subset of substance abuse studies that used unique alliance measures, and atypical outcome indices. When these studies (n=6) were subtracted from the group the sample (n=86) was homogenous and report an ES of r=.23. Horvath and Bedi allude to this as providing potential evidence for the presence of client mediators and moderators

on the results. They suggest that variation across distinct client/problem characteristics may be at force here and invite further investigation.

Each of the analysis explored the effect of 'source' through clients, therapists and observers reports of the working alliance. Across the variety of instruments employed by the different studies therapists' alliance scales have provided significantly poorer predications of all types of outcome than clients' or observers' assessments (Horvath & Luborsky, 1993; Horvath & Symonds, 1991). Martins et al (2000) exploration of source does not support this observation and no further variance was accounted for by type of rater; the reliability of therapists, client or observer ratings were adequate. However they do report that the ratings of therapists were slightly less consistent than those of clients or observers. Similar to Horvath, Martin reports that clients' ratings were consistent across therapy sessions. Like previous analysis's they (Horvath & Bedi, 2002) examine the source of the data on alliance and based on 100 ES's gleaned from 60 investigations they report that client- and observer-rated alliance have a similar relation to outcome; therapist-rated alliance and outcome appear to be less related.

Regarding the question as to the importance of alliance at different stages of treatment and the view that it is important to establish an early alliance (Crits-Christoph, 2006; Gelso & Hayes, 1998), the research found that early and late alliance ratings were almost identical. In Horvath et al (Horvath & Symonds, 1991) alliance ratings returned an effect size of r=.31 (N=12) and later alliance returned an effect size of r=.30 (N=3). The average effect size over time was

r=.21 (N=8). It appears from this that the average alliance may be a less efficient predictor of outcome than are early and later alliance ratings irrespective of length of treatment to which Horvath and Symonds (1991) found no significant correlation. Martin and colleagues failed to account for additional variance based on time of alliance rating (early, middle, late, or averaged across sessions). Horvath and Bedi (Horvath & Bedi, 2002) reported marked decreases in ES for measurement at early, middle and late phases including average over time of therapy than their earlier work. However the trend of their report is similar and indicates the relative importance of early and late alliance over and above mid or averaged reporting.

Horvath et al (Horvath & Symonds, 1991) did find significant effect size differences between types of treatment delivered. Dynamic therapy returning an effect size of r=.7 (N=17), eclectic/ mixed therapy having an effect size of r=.28 (N=10), and Cognitive therapies, r=.26 (N=2). The relation between alliance and outcome reported by these groups was statistically significant ($p<.05$) (Horvath & Symonds, 1991). Similar to time of alliance rating, type of psychotherapy model failed to account for additional variance in Martins analysis (Martin, 2000).

High inter-correlations exist between different instruments that set out to measure alliance. Horvath and Symonds (1991) report that overall the effect size within instrument families was homogenous but analysis of effect sizes across instruments found significant heterogeneity. This suggests that unique aspects of the alliance are being mined by different instruments. Martin (2000) however,

reports that the instruments used across studies shows reliability and strong inter-correlations. This is different to the experience reported by Horvath and Symonds (1991). However, similar to previous findings and complicit with the literature to date, Hovarth and Bedi (2002) in their most recent meta-analysis claim that the variety of instruments used are reliable and no further analysis was performed.

The analysis to date in these reports is robust and acknowledges a significant correlation between alliance and outcome in successful therapy. Further Martin (2000) executes a file drawer statistical procedure establishing the correlation found and leaving little room for doubt as to its significance. They suggest from this statistical manoeuvre that it would take quite a bulk of research to disconfirm the claim of the significance of alliance to outcome. However, what has been mentioned in the two earlier meta-analyses and made far more explicit in the later analysis is the presence of confounding variables, what Horvath and Bedi refer to as mediators and moderators. In the last 10 years these have grown in precedence as part of the broader work of alliance research. These can also be considered as client-, therapist- and client-therapist factors and their influence on the alliance. They relate to the relationship being affected by the emerging context between the therapist and client. It suggests that the content and process of therapy emerges as treatment proceeds and attending to this dynamic is understood as being responsive (Stiles, Honos-Webb, et al., 1998).

Therapeutic Relationship/ Alliance and CBT

Historically the therapeutic relationship has held minimal importance in the behavioural and cognitive therapies. Techniques were considered to be primary, if not the only, agents of client change. As Horvath (2000) writes, in the broadest terms cognitive and behavioural therapies see the function of the relationship in itself not an effective agent for change but rather instead the alliance is responsible for creating an environment of trust and safety, the conditions necessary to learn, implement and practice the techniques that are responsible for therapeutic change (Horvath, 2000). This view has slowly given way to change and what has emerged is a recognition of the importance of the therapeutic relationship as a necessary but not sufficient condition for promoting positive therapeutic outcome. In the last decade cognitive behavioural therapy has paid greater attention to the therapy relationship (Waddington, 2002). Today many cognitive-behavioural therapists conceptualise the relationship as an integral part of the treatment that can be used in conjunction with technique to drive change (Katzow & Safran, 2007).

CBT has been at the forefront of establishing empirically supported treatments and in many cases CBT has been recommended as the treatment of choice for several reasons, including its empirical validity, manualisation, and economic relevance. However, the dangers on overreliance of manualised treatments have been outlined by Norcross (2002). The empirical evidence produced in support of a responsive therapeutic relationship cannot easily be ignored (Norcross, 2002). Norcross estimates that 30% of outcome is related to

the relationship (Norcross, 2002). Time and again research has demonstrated effect sizes in the region of r=.22 to r=.29 associating the therapeutic relationship with treatment outcome (Gilbert, 2007). Earlier in this chapter the ES for alliance and its relations to outcome was reported and again it proves a consistent predictor of outcome. Taken together, the relationship has far more weight as a predictor of outcome than has techniques. Lambert and Barley (2002) identifies that techniques account for 15% of outcome variance. This has heralded a change for CBT from a solely research-focused approach to a recognition and inclusion of consideration of how the relationship affects outcome (Gilbert, 2007).

Cognitive and behavioural psychotherapies still argue the necessity for relationship as a secondary factor to technique. Some go further and argue that the therapeutic relationship arises out of the success in applying empirically supported techniques (DeRubeis, Brotman, & Gibbons, 2005). DeRubeis et al (2005) believe it is a mistake to elevate the nonspecific factors at the expense of specific techniques. However, the evidence has been shown to be inconsistent and further the bulk of evidence is in support of the centrality of the therapeutic relationship and therefore not easily undermined (Zuroff, 2006). Further Castonguay and Holford (2005) argue that in considering the relationship and technique there are a host a different variables that mediate and moderate and it is simply not possible in realistic terms to artificially separate the two, techniques are always applied in the context of a relationship (Castonguay & Holtforth, 2005). A number of reasons inform the use of CBT and the consequent investigation of therapist responsiveness as conceptualised in the current study, among these is the

proliferation of research in CBT and how widespread CBT has become, also that it is most easily and therefore commonly represented in online treatments. Further as the research discussed in this section demonstrates, it is the modality that has had considerable debate about the role and impact of the therapeutic relationship and responsiveness to treatment success.

Bordin's (Bordin, 1979, 1994) construction of the working alliance as composed of a relational bond, agreement on the goals and the tasks of therapy fits well in a cognitive-behavioural model of therapy. The bond is a requirement and with its establishment a collaborative partnership develops that can engage the tasks of therapy in the aim of alleviating the client's difficulties. Gelso and Carter (1994) suggest that the strength of the bond required for CBT may not be as deep as it needs to be with other orientations. They argue that the relational bond, being more central in other orientations, needs to be more robust because they engage clients in extended exploration of the self.

In addition to the relational bond establishing the alliance between the therapist and client and providing the ground for the work of therapy to precede the relationship also has other functions in CBT. The alliance is understood to help increase the social influence of the therapist and their consequent potency for the client. This can mean the therapist holds a reinforcement value for the client or a modelling of behaviour both of which can support treatment compliance and success. The alliance helps to promote the belief in the therapy and in the belief that change is possible. In this way and with a strong alliance therapists can hope

to promote positive expectations and prepare clients for change. For example getting clients to participate in the establishment of goals and the ways to achieve these goals will help to increase client's commitment and involvement in the process. Lastly, a quality alliance can provide ways to manage any resistances that arise during the work, ruptures or strains that the partnership may experience (Raue & Goldfried, 1994). These elements of a working alliance have been noted for CBT yet they are not exclusive to CBT and can in fact be found in many therapies that approach the work from the alliance perspective.

This position is further strengthened when one considers the experience of clients in CBT. While the bulk of research in CBT has been about the techniques and interventions employed some work has been prepared on clients experiences. This latter work highlights the importance of the relationship. A very early study (Ryan & Gizynski, 1971) led the authors to postulate that the client therapist relational bond may contribute more to outcome than do techniques. This study is interesting as it comes from the behavioural school of practice where at the time there was little emphasis placed on the relationship. They go further to suggest that adherence to techniques was associated with clients perceiving the therapist as less likable, less competent and interestingly finding the applied techniques less appealing. In this way there exists the possibility of the techniques contributing to some negative effects.

CBT therapists gradually revised their previously held position of ruling out the positive effects of relationship variables to outcome. One example of this

turnabout is presented in the results of a study (Alexander, Barton, Schiavo, & Parsons, 1976), again by behaviour therapists, that led the authors to conclude that both techniques and also relationship variables interacted in producing positive outcome. This was a change from the position that the same authors held previously and a newly assigned importance consequently ascribed to the relationship and its place in CBT. Lejuez et al (Lejuez, Hopko, Levine, Gholkar, & Collins, 2006) argue that in contemporary behaviour therapy ignoring the therapeutic relationship may be problematic and inconsistent with the basic behavioural principles as it is the case that even the most subtle and trivial actions on the part of the therapist may serve in reinforcing client behaviour, positively or negatively. Therefore it is argued that understanding relationship variables may be integral to understanding the success of behavioural interventions (Lejuez, et al., 2006).

Other studies in cognitive therapy and CBT have made similar contributions, suggesting that a responsive therapeutic relationship and the presence of a responsive bond contributes positively to outcome. Persons and Burns (Persons & Burns, 1985) demonstrates that the quality of the relationship in cognitive therapy, therapist warmth, empathy and trustworthiness, made additive contributions to within-session changes for clients. Burns et al (Burns & Nolen-Hoeksema, 1992) report that client's perception of therapist empathy, independent of severity of depression, had a moderate to large effect on clients recovery. One can of course argue that these more relate to therapist behaviours and contribution, and also that positive outcomes for clients can lead to positive recall

of their experience. Also these studies are based on clients perceptions and self-report and this is not necessarily accurate (Raue & Goldfried, 1994).

Tang and DeRubeis (1999) found causality of cognitive change in relation to alliance and outcome in a study of sessions where clients report rapid improvement of depression ratings. This does not address the relationship between alliance and outcome over the course of therapy. The Sheffield Psychotherapy Project also examined the role of the relationship in psychodynamic-interpersonal and cognitive therapy. The authors (Stiles, Agnew-Davies, Hardy, Barkham, & Shapiro, 1998) found a stronger association between mean alliance ratings and outcome over the course of treatment for cognitive therapy than they did for psychodynamic-interpersonal therapy. Gaston et al (Gaston, Thompson, Gallagher, Cournoyer, & Gagnon, 1998) found a similar relationship between alliance and outcome for depressed patients. With both of these studies it is difficult to establish direct causality as the results could be due to improved depression and its possible impact on the perception of the alliance (Waddington, 2002).

Studies in the area give weight to the quality of the alliance and the importance of techniques; that both interact to account for successful outcome. Burns et al (Burns & Nolen-Hoeksema, 1992) show that both technical and relational factors both had additive and independent effects on outcome. Similarly, Murren and colleagues (Murren, Gorman, Safran, & Twining, 1995) observe that the quality of the relationship and cognitive change were strong

predictors of outcome. This point was further supported in the research by Rector et al (Rector, Zuroff, & Segal, 1999) who found that the alliance itself was predictive of changes in pre-treatment cognitions, as were such pre-treatment cognitions predictive of alliance formation.

Feely, et al. (1999) found that the cognitive techniques predicted outcome but the relationship did not. Similarly, in a study of cognitive therapy for depression the therapy relationship emerged as a by-product of symptom change (Feeley, DeRubeis, & Gelfand, 1999). However the alliance measure used in the study can be considered poor and has lower reliability than other measures. The results are further complicated by the fact that they are based solely on observers ratings of transcripts and also only measured on a single session (Waddington, 2002). There exists a far greater weight of evidence to the contrary of these findings. Further there is some evidence that make even more robust the causal relation between the relationship and outcome in CBT. Castonguay et al (Castonguay, et al., 1996) study found a negative correlation between technical factors and outcome and at the same time a positive correlation between relational factors and outcome. The study also provides evidence that the positive alliance outcome is not an artefact of technical interventions (Waddington, 2002). Krupnik (Krupnick, et al., 1996) reports a similar finding and demonstrates a positive relation between alliance and outcome across a range of interventions including pharmacotherapy. This again supports the notion that a positive alliance and outcome association cannot be entirely attributed to technical factors.

Despite methodological and interpretation difficulties in the studies presented it seems clear that the clients in CBT see the therapeutic bond as important for change. Other studies have elicited this perception further and demonstrate clients identifying attributes of the relationship, such as understanding by the therapist, encouragement, and likability, as being important in accounting for change (Raue & Goldfried, 1994). More recent studies have examined the quality of the alliance across different therapies. For the most part researchers have failed to indicate any significant difference in the perception of therapist qualities and alliance across different therapies. For example a study by Marmar (Marmar, Gaston, Gallagher, & Thompson, 1989) compared alliance ratings between behaviour cognitive and brief dynamic therapies found that patients ratings early in treatment showed that the quality of the alliance was not different across different treatments. This result was further supported by alliance data collected from therapists involved which obtained the same finding.

An interesting study by Raue and colleagues (Raue, Castonguay, & Goldfried, 1993) found average alliance ratings for CBT and for psychodynamic-interpersonal (PI) therapy to be relatively high, yet they also report that the CBT condition demonstrated significantly higher scores and greater variability in the alliance scores for PI than for CBT. They found that severity of disorder was significantly related to alliance in PI and not in the CBT condition. The alliance ratings for this study were based on observers and past research has shown inconsistencies between clients, therapists and observer ratings (Raue & Goldfried, 1994).

Measuring Alliance and Responsiveness

The alliance forms part of a band of relational and technical skills that help develop therapist responsiveness. The working alliance is a concept of some import in the general literature and consequently a standard measure has been included in this study for its measurement. The Working Alliance Inventory – Short Revised (WAI-SR) is aligned with the current study and also is that which encapsulates most accurately the central consensus of the working alliance definition outlined earlier. In addition, the description and use of an adherence measure compliments the chosen alliance measure to map an accurate picture of the central construct being investigated in this study, namely, therapist responsiveness as adding value to the work of online delivered treatments for depression.

Horvath and Greenberg (1989) were responsible for the development of the WAI. Their aim in developing an alliance measure was two-fold. Firstly they wanted to create a measure of alliance that was theoretically grounded. Secondly, they wanted the measure to be independent of any particular theoretical orientation. As such they focus on Bordin's (Bordin, 1979, 1994) work which in itself describes a pan-theoretical alliance construct.

Horvath and Greenberg (1989) engaged a complex procedure to ascertain the final 36-items that they included into their first version of the WAI. The instrument has been developed by its original authors and alongside other

investigations. For example, a short version of the WAI was created (Tracey & Kokotovic, 1989). More recently Hatcher and Gillaspy (2006) have researched the WAI using a larger sample than did Tracy & Kokotowic's (1989). In addition, they employed more sophisticated statistical procedures. Their result was a redevelopment of a short- version of the instrument that aligned more closely with the full scale WAI instrument and closely parallels the total alliance level obtained with the regular WAI and its subscales (Goal, Bond, & Tack). Their work further adjusted the likert scale used for rating to improve score reliability and distribution in the new Short Revised. The resulting instrument seems to have far superior psychometric properties compared to the older short version (Hatcher & Gillaspy, 2006). The current study employs this new version of the WAI.

The study is interested in the contribution of therapist responsiveness towards effectiveness. This therefore considers a broad range of relational and technical skills being applied. Responsive relational skills are set primarily within the remit of building a strong working alliance. Responsive technical skills concern the tailored engagement with clients. There is overlap with these as many of the technical skills also impact on the development of a strong working alliance and vice versa.

An adherence measure has been established to determine the adherence of the therapists to the provision of therapist responsiveness through the engagement of a range of responsive relational and technical skills. In as much it therefore assesses the presence or absence of a range of key behaviours that can have an

impact on the treatment and consequent outcome. Responsiveness is implicit in the variables included in the adherence scale. They are for the most part clinical skills that can be responsively delivered, such as empathy and acknowledgement of emotions, validation of successes, provision of guidance and information, advocating self-care and social support and alliance building skills (Stiles, Honos-Webb, et al., 1998).

Conclusion

Responsiveness is understood to describe behaviour that is affected by the emerging context, it considers how the therapist and client respond to each other, it implies a dynamic relationship between variables, it is bidirectional and includes feedback (Stiles, Honos-Webb, et al., 1998). It is suggested that the range, breadth and depth of responsive behaviour cannot be replicated in fullness in computer software, at least not to date. At the same time that is not to dismiss the value of delivering a treatment program through a self-administered format, which can or not have included responsive therapeutic content. Cultivating the responsive use of relational and technical skills allows for close attention to the way a client may respond to a given intervention, tailored suggestions can be made based on the clients emerging requirements. Such a relationship can protect again the ruptures and strains that the relationship may face in the course of the difficult work that is therapy.

Empirical literature supports the centrality of a quality relationship, and supports the contention that such a highly effective relationship accounts for a greater variance in outcome than does technique. The working alliance is conscious and operates in the here-and-now. It is an alliance that is not linear in fashion but rather dynamic and whose pattern or shape over time depicts the quality and strength of the collaboration between the client and therapist in therapy. The construct is firmly situated in the establishment of an affective and responsive bond between the partners. The necessary attachment and collaboration develops the space for the required cognitive processes namely, the acquisition of a meaningful goal and the establishment and execution of the necessary tasks for the resolution of the shared and meaningful goal. Responsiveness, the therapeutic relationship and working alliance co-exist and co-create to have a positive impact on outcome.

Chapter 4: Online Treatments for Depression: A Review of Studies

Introduction

The growth of new technologies has made it possible for the online delivery of psychological interventions (Ritterband, et al., 2003). It is predicted that the increasing growth and prevalence, as well as the demand of users, will solidify technology as an integral aspect of healthcare into the future (Alleman, 2002; Grohol, 2009; Morahan-Martin, 2004; Yellowlees & Brooks, 1999). Glueckauf et al. (2003) predict that more clinicians will work online as it provides increased access, increases efficiency of health services, is cost-effective and essentially meets a growing demand for online provision (Glueckauf, Pickett, Ketterson, Rozensky, & Loomis, 2003). A broad range of forms of internet-delivered psychological interventions have been researched, including online counselling (Day & Schneider, 2002; Efstathiou, 2009; Richards, 2009), online psycho-education, and online peer support for mental health (Johnsen, 2002; Kummervold, 2002; Salem, Bogat, & Reid, 1997). In addition, self-administered software programs for treating specific disorders attest to the positive potential of online and remote delivery of psychological interventions (Marks, et al., 2007).

Principally, the current chapter is interested in reviewing therapeutic interventions that have being offered online for the treatment of depression. The chapter begins with an overview of a variety of work carried on in the area of online counselling and self-administered software programs. It details the evidence base for the Beating the Blues™ program used in the current study. The chapter reviews online treatments for depression, focusing on the interventions employed, the design of the studies, their outcomes, limitations and satisfaction with treatments. The review

details the evidence base for online interventions for treating depression and secondly the value of therapeutic support in their success is explored.

Technology and Mental Health

The range of applications of technology in mental health has been varied (Richards, 2008) and include online synchronous and asynchronous counselling (Efstathiou, 2009; Richards, 2009), videoconferencing (Simpson, 2009), virtual reality applications (Baños et al., 2009), multimedia games and mobile phones (Coyle, 2004; Matthews, Doherty, Sharry, & Fitzpatrick, 2008), stand-alone self-administered software, and internet-delivered interventions with varying support for users (Marks, et al., 2007).

Online Counselling

Online counselling has been called as cyber-therapy, cyber-counselling, cyber-psychology, and e-therapy (Smith, 2002), and can be understood as the provision of counselling using the communication technologies of the internet, such as synchronous and asynchronous communication, videoconferencing technology, and web-based messaging (Zack, 2004). Goss and Anthony (2003) in their seminal work: 'Technology in Counselling and Psychotherapy', provide a comprehensive guide to the practicalities of conducting online counselling in a variety of mediums (Goss & Anthony, 2003). Generally, the goal of counselling is to alleviate the distress, anxiety, and concerns that clients can present, return a client to pre-crisis functioning

and build on a client's strengths to help improve overall functioning (Mallen, 2005). Online counselling must also adhere to the same objectives.

It would seem that online counselling contradicts the very nature of the counselling relationship. Many have been critical of the remove between client and counsellor in online counselling. Lago (Lago, 1996) writes: "I have connected deeply with you psychologically and emotionally on my computer, yet still remain isolated from you in every physical sense." (p.288) This has been the ground from which critics have argued against the practice, disputing that it runs the risk of reducing the therapeutic encounter to mere advice giving (Pelling, 2000). In recent years, and supported by a growing body of research, critical voices have subsided and this is reflected in the recent updated editions of guidelines for counsellors and psychotherapists. Many professional organizations, such as the American Psychological Association (APA), International Society for Mental Health Online (ISMHO) and the British Association of Counselling and Psychotherapy (BACP), now treat online work as part of their guidelines for members. The Irish Association of Counselling and Therapy (IACP) are currently preparing such guidelines. BACP in the first edition of their guidelines (Goss, Anthony, Jamieson, & Palmer, 2001) state: "At present, it is not possible to assert that written communication over the internet should, or should not, be considered as an adequate replacement for, or equivalent to, face-to-face provision" (Goss, Anthony, et al., 2001, p. 2) In the later edition (Anthony & Jamieson, 2005) however, they write: "Anecdotal and empirical evidence suggests that it is not only possible to create deep, emotional relationships online but that, while not replicating them, these can closely resemble relationships formed in face-to-face therapy." (Anthony, et al., 2005, p. 5)

The idea of using technology in the aid of counselling and therapy is not new, for example, clinicians have engaged telephone, tape and videotape recordings among other technologies as a means of enhancing the work (Bailey, Yager, & Jenson, 2002), each bringing their own challenges to be overcome. It seems reasonable to assume that the engagement with internet technologies is no exception. The literature to date has presented the many benefits and challenges to engaging technology (Rochlen, 2004; Tate & Zabinski, 2004). From a mental health service perspective the potential benefits include providing treatment that is more cost-effective, reducing waiting lists, compensating for the lack of trained professionals, and relieving the burden often experienced by service providers in meeting demands (Griffiths, Lindenmeyer, Powell, Lowe, & Thorogood, 2006; Marks, 2000). More precisely there are benefits to reaching clients irrespective of logistical, time or other constraints such as a disability (Occhetti, 2002). For example, therapists with specialized training can be accessed even if they don't reside in the area (Goss & Anthony, 2003). A classic example is the work carried out by Simpson and colleagues (Simpson, 2009; Simpson, Deans, & Brebner, 2001) from Aberdeen in Scotland who, through video conferencing, provided psychological interventions for eating disordered clients on the Shetland Islands.

Online counselling is largely text-based and this allows users the ability to take the time needed to phrase their ideas and meanings; Suler (2004) calls this the 'zone of reflection'. According to Dunaway (Dunaway, 2000), e-therapy "decreases the typical inhibition of patients in a face-to-face session to fully disclose information and immediately get to the heart of the matter." (p.3) Online counselling seems to reduce

the traditional social stigma toward seeking help and as Efstathiou and Kalantzi-Azizi (2005) write, to counteract social factors that may hinder people in seeking help such as gender and physical appearance. In addition, it creates a written record that can be referred to again in the future.

Robson and Robson (2000) maintain that written interventions motivate professionals to adhere more closely to ethical principles (Robson & Robson, 2000). Some of the main obstacles, ethical and legal, in online counselling are confidentiality of information and risk management online. Alleman (2002) provides an interesting perspective:

> "...if a professional believes that the risks are too great to allow the practice of ethical psychotherapy online, he or she should not attempt to provide it. This does not change the fact that other professionals have already arrived at a different conclusion. Nor does it in the least influence the fact that potential clients will continue searching for counselling online ... If the ethical counsellor is not online, who is?." (p. 204)

The confidentiality issues can be addressed by using secure technology that is encrypted. One of the frequent criticisms of online counselling is the lack of visual and verbal clues that would aid the counsellor and Smith and Reynolds (2002) note a serious risk management issues regarding the counsellor's ability to assist the client when there is imminent danger, such as suicide. While the counsellor can outline proper procedures via email, there is no way to ensure that the client will heed the advice (Smith, 2002). Smith and Reynolds (2002) note that without the face-to-face contact with the client the counsellor is unable to "fully assess a clients' mental status and determine an appropriate clinical intervention..." (p.23) At the same time risks can be managed and protocols need to be devised so that risk is minimized and clients

receive the support and care they require (Richards & Timulak, 2009). Skinner and Zack (Skinner, 2004) maintain that the risk management and assessment issues that are posed online are no more insurmountable than those faced in traditional practices.

Several studies have researched aspects of online counselling using a variety of communication technologies. The findings have positively evaluated working alliance, helpfulness and impact and report client improvement and satisfaction (Barak & Bloch, 2006; Cook & Doyle, 2002; Efstathiou, 2009; Hanley, 2009; Knaevelsrud, 2006; Richards, 2009). For example, Efstathiou and Kalantzi-Azizi (2005) provide asynchronous online counselling to students at the University of Athens, according to their research the service is highly popular among students. They note the advantages of online provision for students, namely, " ease of use, speed and anonymity, followed by ambivalence about traditional counselling.' (Efstathiou, 2009, p. 248) This type of intervention offers some distinct advantages such as building a database of information on issues relevant to students that can be referenced time and again. Interestingly, their research highlights that students preferred to consult such a body of literature than to consult more traditional self-help materials. Further, such a database of information is quality controlled and therefore can be more easily trusted as a source of information on the web (Christensen & Griffiths, 2003). The building of such a database is also supported by Michaud and Colom's (2003) work, where after four years of operation, the number of visitors continued to increase but the number of questions dropped to half. In their research they found that 58% of users read other answers in advance of forwarding their own query (Michaud & Colom, 2003).

Efstathiou (Efstathiou, 2009) reports that users of their e-counselling were satisfied with the answers they received, and writes:

> "... that users evaluated the overall quality of the answers favourably (M = 7.02, SD = 1.62, on a nine-point Likert scale), as well as the level of understanding of their problem by the mental health professionals (M = 7.38, SD = 1.90) and the time the mental health professionals devoted to the answer to their question (M = 7.88, SD = 1.47). Concerns about misunderstandings due to written communication was ... not a ... serious problem for users (M = 3.64, SD = 2.78)." (Efstathiou, 2009, p. 246)

Similarly, Michaud et al., (2003) report that 92% of users felt the professionals had clearly understood them and were satisfied with the answer they received.

Yager (2002) worked with patients diagnosed with anorexia nervosa. When his practice moved, several patients asked if they could correspond with him via email. Since that time, Yager has incorporated email as a part of his ongoing treatment for anorexia nervosa. While the benefits of email are difficult to be precise about, the fact that they are part of a comprehensive treatment plan, Yager sees email as having been helpful in each of the cases (Yager, 2002).

At the University of Dublin, students too report that that asynchronous e-counselling is very helpful (Richards & Tangney, 2008). Richards (2009) highlights the potential for single session online contact, advancing reasons such as anonymity, the therapeutic benefits of writing, the cultivating of a 'zone of reflection', and the

resourcefulness of young adult students, all of which support the success of single session online counselling. The research highlights the positive effect of disinhibition reflected in the apparent ease for users in reporting difficult issues such as suicidal ideation, loneliness and depression. No difference was found to exist with the issues presented for online counselling as would be for face-to-face counselling. The model employed allows content to become a psycho-educational resource for all users, an advantage previously noted by Efstathiou et al, (2005). Online counselling places the pace and direction of where and when counselling occurs into the client's control. Seventy-seven percent (n=34) of the online counselling submissions were received outside of normal working hours and 29% (n=18) at weekends, demonstrating the value for users in accessing services on time and on demand. Many people do not access the help that they require. The online service in some way acts as a gateway for users to access other help. 24% (n=10) of users who used the online counselling thereafter accessed face-to-face counselling. Lastly, although the numbers surveyed are small, the research reports that clients were satisfied with the online counselling service.

Day and Schneider (2002) compared process and outcome variables across three treatment groups: face-to-face, telephone and video psychotherapy. They looked at the working alliance between the client and therapist and the outcome results assessed from both the clients' and the clinicians' point of view. Clients received five sessions of cognitive-behavioural therapy. All the sessions were videotaped and they were viewed by raters who watched three, five minute segments of each videotape. The results showed no statistically significant difference between the three delivery modes for either process or outcome. The only statistically significant difference was

that clients in distance therapy participated more actively than those in face-to-face therapy. The researchers speculated that the clients in the distance modes perhaps made more of an effort to communicate, or took more responsibility for the interaction, or perhaps the distance made those participants feel safer.

Barak & Bloch (2006) investigated the perceived helpfulness of emotional support conversations carried on by professional helpers through internet chat with distressed individuals. They report positive outcomes for clients who have used the service. They found no significant difference in clients' perceived session helpfulness for online than would be found with face-to-face services, despite what they refer to as "meaningful differences in these two modalities." (Barak & Bloch, 2006, p. 96) Barak and Bloch (2006) have also demonstrated that perceived helpfulness correlated highly with impact from both client and therapist perspectives. Indicating that deep, smooth conversations that yield positive responses and arouse clients' emotions are helpful, this is similar to face-to-face and contrasts the common criticism that online therapeutic conversations might be shallow, superficial or distant. Their findings have recently been confirmed by Reynolds et al. (Reynolds, Stiles, & Grohol, 2006) whom report that session impact and alliance are similar between online and face-to-face treatments.

Liebert, et al. (2006) investigated satisfaction with online counselling establishing a mean satisfaction rating of 67.8 (out of 100). When benchmarked with face-to-face studies of satisfaction the authors deduce that clients are reporting satisfaction but less so than in face-to-face counselling (Liebert, 2006). For example, one face-to-face study generated a client satisfaction score of 88.1 (McMurtry &

Hudson, 2000). The authors found that the more hours' respondents spent online, the more likely they were to make use of online counselling. Noted advantages in using such a service include convenience, anonymity and privacy. It can be speculated that some individuals with particular issues, such as trauma, phobia, social marginalization may "need to communicate without fear of the listener's first reaction" (Liebert et al., 2006, p. 83) A more recent survey (L. Murphy et al., 2009) of client satisfaction supports the finding and the authors point out that 'the scores are well within the range considered acceptable in the industry' (L. Murphy et al., 2009, p. 10) However the client satisfaction instrument employed in this latter study has not been tested for its reliability and validity.

While the data presented from this small number of studies are generally positive, the data is inconclusive and further research is needed. Finally, a recent meta-analysis (Barak, Hen, Boniel-Nissim, & Shapira, 2008) conducted into the effectiveness of internet-based psychotherapeutic interventions comprehensively reviews a total of 92 studies involving 9,764 clients. The authors conclude that in general the work of online counselling can be considered moderately effective with an overall weighted mean pre-post effect size of 0.53. Given that this result is on a par with what is traditionally found in face-to-face treatments it provides compelling evidence for the efficacy of online practice. The evidence further supports the notion that online counselling can be of benefit for some clients. However their finding of a moderate effect size is based on a wide variety of studies with mixed methods, approaches and objectives. More precisely, of the 92 studies reviewed, 27 represent work conducted synchronously or asynchronously and the effect sizes based on modality can be found in Table 2.

Table 2 Effect size of e-therapy by communication modality (27 studies)

Communication Modality	ES	n	N
Audio	0.91	1	54
Chat	0.53	9	231
Webcam	0.31	2	208
E-mail	0.51	7	383
Forum	0.34	8	523

Note. ES = effect size; n = number of effects; N = number of participants

Of the 27 studies, the mean ES of the synchronous communication modality (n=12) was 0.49 and for the asynchronous communication modality (n=15) was 0.44. Barak reports that this difference was not found to be statistically significant. Of the 27 studies, when their effectiveness was investigated independently using type of communication; chat (n=9), forum (n=8), e-mail (n=7), audio (n=2), and webcam (n=1), the differences among the ES values were found to be significant; chat and e-mail demonstrate superior effectiveness above forums and webcam.

Self-administered Treatments

In recent years written self-help materials have been transformed with technology such as graphic and image software, voice and video recordings, and other multimedia. Such technologies enhance provision of self-help available to users and potentially increases access to mental health services (Proudfoot, et al., 2004). Self-help ensures that the pace, control and direction of treatment lies firmly in the hands

of the user and if needed they can refer to other supports thereafter. Kaltenthaler (Kaltenthaler, 2004) describes Computerised Cognitive-Behaviour Therapy (cCBT) as one variety of self-help available that can be of therapeutic benefit to users while reducing therapist involvement. Computerised Cognitive-Behavioural Therapy (cCBT) is CBT delivered by an interactive computer program. The program guides a user through the principles of CBT as would a therapist. An interactive cCBT program can respond to a user's particular circumstances, or problem, and ensure that the training of new ways of thinking and behaving are completed at a comfortable pace. The majority of research to date concerns cCBT developed for specific difficulties, that can be administered locally, the pace of which is controlled by the user and with minimal therapist contact. Initially cCBT was provided on stand-alone computers and one of the earliest study was by Selmi and colleagues (Selmi, Klein, Greist, Sorrell, & Erdman, 1990). In recent years, aided by greater technological developments, particularly increased internet connection speeds, cCBT is delivered online in web-based formats.

Recently, Marks (2007) published a comprehensive review of the worldwide studies in the area of cCBT, including stand-alone and web-based formats. Marks (2007) review concludes that the results of the clinical effectiveness of CP are encouraging. However, many questions still need answering in respect of the implementation of CP in everyday clinical practice. For example, further research is required to determine the best type, frequency, duration of human support for CP users, and the cost implications of various implementation models (Marks, et al., 2007).

Beating the Blues™ and its evidence base

Beating the Blues™ is a CBT intervention for depression and anxiety and is used in the current study. It has been shown to be a cost-effective and a time-efficient way of helping people suffering from these conditions to get better and stay better (McCrone, 2004; Proudfoot, et al., 2004). Initially it was developed on CD-ROM for stand-alone computer use, more recently it has been transferred to the web. The National Institute for Health and Clinical Excellence (NICE, 2006) recommends Beating the Blues™ as a treatment option for people seen with mild or moderate depression. Beating the Blues™ (BTB) integrates best practice in psychological therapies with advanced multimedia and interactivity. NICE (2006) reports that:

> "Computerised cognitive behavioural therapy (cCBT) can have a positive impact on depressive symptoms compared with treatment as usual and there is also evidence from a small study of similar benefits when compared with wait list controls, but no evidence of superiority or inferiority compared with standard CBT in two small studies. The more recent, larger studies, which focus primarily on depression or mixed anxiety and depression, show some encouraging results. CCBT may, therefore, have value with mild and moderate depression as part of a stepped care programme. Its potential as an augmenter of therapist delivered treatment is unknown. Other developments such as internet delivered treatments may further increase the accessibility of such treatments and further reduce the costs." (NICE, 2006, p. 87)

Table 3 presents the research on BTB and it includes RCT's and a number of open trials. Twelve studies that account for 15 papers in total related to Beating the Blues and the procedure used to identify the research is explained on page 171. The BTB Program (Proudfoot & Swain, 2003) is an 8-session, CBT-based self-help treatment. During treatment users identify specific problems and treatment goals.

Over the eight sessions they focus on the identification and challenging automatic thoughts, thinking errors, distractions, core beliefs and attributional styles. The program includes behavioural components in which users work on activity scheduling, problem solving, graded exposure, task breakdown or sleep management according to their specific problems. The final session looks at action planning and relapse prevention. Each weekly session lasts approximately 50 minutes and there are homework tasks between sessions. Beating the Blues™ uses interactive modules, animations and voice-overs to motivate and engage the user. A major feature is a series of filmed case studies of fictional patients who model the symptoms of anxiety and depression and help demonstrate the treatment by cognitive behavioural therapy.

At the beginning of each session the program asks users to rate their mood regarding depression and anxiety on an 8 point scale from poor to very good. Following that the program checks the homework tasks that were assigned in the previous session. In the case of the homework not been done the program responds and encourages the user to try and with trying realise the benefits of participating. Thereafter the objectives for the current session are introduced. Then the program asks the user to rate how the users problems have been this week on a scale of 1-8 [1=not improved; 8=improved a lot]; the program responds by commenting on what the user reports. Each of the session objectives are developed through presenting information and new concepts alongside exercises to teach new skills. The content is presented through animations, text and also explained through a voice-over. Exercises and new skills are also supported through the use of video case histories of five characters who display the new skill, such as thought recording, in the context of their

lives. At the end of the session a summary sheet is produced that can be printed and homework tasks are given.

Each of the studies that contribute to the evidence base was conducted using the stand-alone version of Beating the Blues™, it is only recently that the program has been transferred to online web format. The first RCT's recruited adult anxious and/or depressed patients in primary care (Proudfoot, et al., 2004; Proudfoot & Swain, 2003), who scored greater than or equal to 4 on the General Health Questionnaire-12 (GHQ-12) (Goldberg, 1972), and greater or equal to 12 on the Clinical Interview Schedule-Revised: PROQSY (Lewis, 1994), thereafter participants were randomised to either treatment as usual (TAU) or the BTB + TAU. Contact with participants was with a nurse, if requested, 5 minutes at the beginning of the session and 5 minutes at the end of the session. Standard and robust eligibility and exclusion criteria were applied. During the trial participants could have been prescribed medication and could access regular treatment from the National Health Service. Randomisation was generated previous to the allocation of participants and was blinded to the researchers. The main depression outcome measure used was the BDI-II, administered at post-treatment and 6-month follow-up. On meeting the eligibility criteria established for the trial, phase one and two randomised and included 274 participants [computer therapy, n=146; TAU, n=128].

Proudfoot et al. (2003) present the results of the first phase of the RCT (Proudfoot et al., 2003). An analysis was performed on ITT and is based on 143 participants; data on 24 participants were lost due to human error. The estimated treatment effect demonstrates that a significantly greater reduction, of approximately

5 points post-treatment in the BDI, after BTB compared to TAU. This applies whether there were visits to TAU post-treatment and similarly depression is reduced whether or not patients received concomitant pharmacotherapy. The results are clinically and statistically significant and for users of the program, their results on the BDI fall within the normal range and these were maintained at 6 month follow-up. Furthermore results indicate that BTB was as effective with mild depression as with severe depression. However, patients who had been ill for >6 months were significantly more impaired on all measures post-treatment, the opposite was found for those with a duration of <6 months.

In phase 2 of the RCT analysis of post-randomisation values for the BDI reveals that participants on average demonstrate a reduction of between 2-7 points post-treatment lower than those in the TAU group (Proudfoot, et al., 2004). Many of the findings produced in the first phase trial are replicated here and confirm the benefits of online CBT intervention for treating depression. The results are substantial and statistically significant and include, for example, a significant treatment effect for people taking or not taking drugs, and for people whose previous length of illness was less or more than 6 months. For both completers and non-completers clinical improvement was manifest by the end of treatment and persisted up to 6 months later. In both phases combined dropout was 32%. A later study found no predictors of BDI-II outcomes within the expanded sample (Ryden, 2005). An economic analysis was also carried out and BTB was found to realize significant savings against TAU (McCrone, 2004).

In another RCT of BTB Grime (2004) recruited employees from an NHS occupational health department. Participants were included if they had ten or more day's sickness due to stress, anxiety or depression in the previous 6-months and scored 4 or more on the GHQ-12. Those with psychotic illness were excluded. Participants continued whatever other care they may have been receiving at the time that including, medication, counselling or other care. Participants were either randomised to BTB plus conventional care (N=24) or to conventional care alone (N=24). The Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) and was administered at baseline, end of treatment (week 8) and at 1, 3, and 6 months follow-up (Grime, 2004). 16 completed all eight sessions of the program and 33% dropped out. At end of treatment, mean depression scores were 3.07 lower, and one month post-treatment mean depression scores were 2.72 lower, in the intervention group. While the general direction of results were maintained, the differences were not statistically significant at 3 and 6 months post-treatment (Grime, 2004).

A large number of open trials of the BTB program have been conducted at either GP surgeries (Cavanagh, 2006; Fox, Acton, Wilding, & Corcoran, 2004; Hunt, Howells, & Stapelton, 2006) or mental health services (Learmonth & Sadik, 2007; Learmonth, Trosh, Rai, Sewell, & Cavanagh, 2008; Mitchell, 2009; Mitchell & Dunn, 2007) and these are summarised in Table 3. Support for participants in these studies has been either with a therapist or trainee psychologist or administrative support, meaning with a trained helper or other administrative staff at the centre. In one case support was mixed and could have been either therapist or administrative (Cavanagh, et al., 2006). Some of the open trials applied robust eligibility criteria (Learmonth, et al., 2008) while others had reduced criteria such as a single cut-off score on the

outcome measure employed (Mitchell & Dunn, 2007). Some included only an assessment of the use of BTB while others included TAU, or combined BTB + TAU. Dropout in these trials is in the region of 30-50%, and sample sizes vary. The results from the variety of open trials referenced are largely positive and participants demonstrate significant gains in most cases. In addition many of the trials report that participants viewed using the BTB program as positive and were satisfied with the program. In one study satisfaction with the program was reported especially highly by women (Cavanagh, et al., 2006).

Four of the open trials are given in more detail below for several reasons. In the first instance, Learmonth et al. (2007) introduces a new variable of physical co-morbidity. Secondly, the study is included along with a second by Learmonth et al. (2008) because they include large sample sizes, applied reasonably robust eligibility and exclusion criteria for screening and demonstrate ITT and completer analysis, alongside an assessment of clinically significant change. Lastly, a study by Mitchell and Dunn (2007) is included as it considers the use of BTB within Higher Education.

Learmonth, et al. (2007) conducted a natural research trial using BTB at a specialist CBT treatment centre (Learmonth & Sadik, 2007). 590 participants were included in the study into one off three groups: a control group or waiting list (N=86), a standard intervention group (N=407) and a physical co-morbidity intervention group (N=97). The aim of the study was to establish the effectiveness of BTB for service users suffering from depression with co-morbid physical illnesses or physical symptoms. No exclusion criteria were made explicit and any contact with participants was not described. The results demonstrated statistically significant main effects, an

ES of .06 for completers and .05 for ITT analysis. Participants (n=132/504) in both treatment groups (BTB: 23.8%; Co-morbidity BTB: 26.8%) demonstrated reliable and clinically significant change, a higher number for the physical co-morbidities group (n=28/97). The completion rate for both groups was 70.1% and a total of one quarter of BTB completers in each of the intervention groups were deemed recovered.

A second study by Learmonth, et al. (2008) at a similar specialist CBT unit (Learmonth, et al., 2008) over a 60-month period, offered BTB to 892 referrals, of whom 555 (65%) accepted. The aim was to evaluate the effectiveness of online CBT intervention in an effort to reduce waiting lists and increase service capacity. Participants were excluded on the basis of, for example, suicidal ideation, if alcohol or drug dependent, or if they had an organic mental health condition. Of those assigned to the program 71% completed all eight sessions. A statistically significant difference was found between pre- and post-BDI scores (d=.85) for completers. As can be expected such a difference in BDI scores were less pronounced in the ITT analysis, the effect size being d=0.72. The percentage figures reported for reliable change among completers (51%) and intention-to-treat users (40%) on the BDI-II while lower than those for face-to-face therapeutic interventions they still represent a desirable change in outcomes.

A natural and pragmatic investigation of the use of BTB was implemented at a UK university counselling service (Mitchell & Dunn, 2007). Twelve students were recruited and were eligible if they scored above 14+ on the BDI-II, but were excluded if they were suicidal, demonstrated alcohol or drug dependence, or were currently engaged in active therapeutic treatment. Eight students completed the BTB program

and on average, participants' BDI-II scores were significantly lower after online CBT intervention (Mdn=13.5) than at screening (Mdn=27.5), representing a large effect. The post-online CBT intervention mean BDI-II score of 13.38 fell into the top of the non-clinical depression category. Since only four participants supplied 3-month follow-up data this was not analysed beyond determining the mean BDI-II score (M=9.75). In an analysis of the 10 completers' BDI scores tests determined completers' BTB depression scores were not significantly lower over the second four sessions (Mdn=2.25) than over the first four sessions (Mdn=4.25). The completion rate was high in this study, but the sample is very small.

The preliminary RCT's in primary care highlight that BTB + TAU outperforms TAU alone. Costs for the implementation of BTB are significantly reduced compared to TAU. The trial conducted by Grime (2004) support the outcomes at the end of treatment as found in the earlier RCT's but the gains are not maintained at follow-up. The various open trials in both primary and secondary care services all demonstrate positive outcomes for BTB users. Dropout rates are a continued concern as is the significance of support for the success of online CBT intervention treatments. It seems that for the most part users have a positive experience in using BTB, find it satisfying and easy to use.

Table 3 Research conducted into Beating the Blues™

Study	Beating the Blues & type of support provided	Design	Participants	Outcomes	Comments
Proudfoot, et al. (2003a)	BTB standalone PC in university (AS)	Testing the program for feedback	20		Participants said it was helpful, 11 complete, 9 dropped.
Proudfoot, et al. (2003b), and expanded sample (2004)	BTB standalone PC in GP practice + up to 10 mins nurse support per session if requested, 5 min at beginning and 5 at end of session (AS)	RCT, BTB and BTB + TAU. Participants could access meds, GP, social support or other referral	274 depression and anxiety in primary care	Completers and non-completers improve greater than TAU and maintained into 6-mths follow-up.	32% dropout
McCrone, et al. (2004)	BTB standalone PC in GP practice + up to 10 mins nurse support per session if requested, 5 min at beginning and 5 at end of session.	Economic analysis of BTB: £261			Cost-effective

Ryden (2005)	BTB standalone PC in GP practice + up to 10 mins nurse support per session if requested, 5 min at beginning and 5 at end of session (AS)				Did not find any predictors of BDI-II outcome in expanded sample form Proudfoot, et al. (2004)
Cavanagh, et al. (2006b)	BTB standalone PC in GP practice or psychological service + brief support from staff (receptionist, nurse, psychologist) (AS) and (TS)	Open trial of BTB and TAU (GP)	219 primary and secondary care patients with anxiety and/or depression	Post-BTB improvements on CORE-OM for ITT and completer(ES 1.0) and also improve on WSA (ES 0.5)	38% Dropout Participants note a positive experience
Cavanagh, et al. (2006a)		As in Cavanagh, et al. (2006b)			Participants rated BTB positively, especially women
Grime (2004)	BTB on standalone PC in occupational health department (AS)	RCT: BTB + TAU or TAU with meds, GP, social support or other referral	48 employees with stress related absenteeism	BTB + TAU greater improvements than TAU alone	16 completed, 33% dropout.
Van den Berg, et al. (2004)	BTB standalone PC in community mental health centre + brief	Open trial of BTB + TAU	115 referrals	46 completers improvements in depression and	45% dropout and 15% missing data Satisfied with

	support from receptionist (AS)			anxiety	BTB was easy to use.
Grundy (2004)	BTB standalone PC in mental health service + brief support from trainee psychologist (TS)	Open trial of BTB	15	8/15 completers show significant improvement on depression and anxiety.	Participants said BTB was helpful and easy to use 47% dropout
Fox et al. (2004)	BTB standalone PC in GP practice + support from assistant psychologist in primary care (TS)	Open trial of BTB	56	No outcomes reported.	39 had greater than 1 session and 27 completed. 37% dropout
Hunt, et al. (2006)	BTB standalone PC in GP surgery + assistant psychologist support for 10 minutes (TS)	Open trial of BTB	164 depressed/ anxious of whom 54 completed 8 sessions	Completers improved on BDI, GHQ and WSA	Dropout not known Feedback positive
Learmonth, et al. (2007)	BTB standalone PC in NHS specialist CBT unit (AS)	Open comparative trial with 3 groups: Waiting list control n=86, BTB group n=407, and BTB +	590 depression/ anxiety	Improvements on pre-post BDI-II completers for both BTB groups ES .06 and ITT .05.	

		physical co-morbidity group n=97			
Mitchell, et al. (2007)	BTB standalone PC University counselling service (TS)	Open trial of BTB	12	Post-treatment ES .06	2 dropped out Satisfied, helpful and easy to use
Learmonth, et al. (2008)	BTB standalone PC in NHS specialist CBT unit (AS)	Open trial of BTB	829 referrals and 555 uptake	BDI improvements ES .85 for completers, ITT ES .72	29% dropout and 394 complete all 8 sessions.

Note. BTB = Beating the Blues™; PC = Personal computer; RCT = Randomised Controlled Trial; TAU = Treatment as Usual; GP = General Practitioner; BDI-II = Beck Depression Inventory- II; CORE-OM = Clinical Outcomes in Routine Evaluation – Outcome Measure; ITT = Intention to Treat; WSA = Work and Social Adjustment; F:F = Face-to-Face; CBT = Cognitive Behavioural Therapy; GHQ = General Health Questionnaire; NHS = National Health Service; ES = Effect size; Support categories include (TS) = Therapist supported, (AS) = Administrative support, (NS) = No support provided.

Online Treatments for Depression

Published studies investigating online treatments for depression include randomised controlled trials and open trials, and the populations investigated largely adult. Noted exceptions are studies investigating an online treatment for depression with children or adolescents (O'Kearney & Gibson, 2006; O'Kearney, Kang, Christensen, & Griffiths, 2009). Online treatments have mostly been CBT based programmes, usually comprising 6-8 sessions of specific CBT strategies and homework tasks, although Cognitive-Therapy (CT) and Problem-Solving therapy (PST) also feature. Some studies include therapist support with users throughout the programmes, others include no support and still others include support with some other, though not a trained therapist. The results of these investigations have been largely positive. Meta-reviews of online treatments for depression reveal small to moderate pre-post effect sizes, ranging from .27 (Spek, Cuijpers, et al., 2007) to .59 (Barak, et al., 2008) to .66 (Riper, 2007). However the results can be read with caution in these studies as they reveal significant heterogeneity and according to Andersson (2006) the differences preclude a single pooled effect size (Andersson, 2006).

Review of the Studies

The current review of studies in online treatments for depression has been conducted based on a set of inclusion criteria that are named below and a defined search strategy was employed.

Method

The criteria for inclusion were empirical studies that investigated the effectiveness of a psychological treatment for depression and implemented online using the internet; that an intervention for the treatment of depression is described; that they were published in a refereed journal in English at any time during the last decade; that the study described the population and treatment effectiveness was based on at least pre-post quantitative comparisons using at least one actual valid and reliable outcome measure for depression. While many of the studies might also have been assessing other symptoms, such as anxiety, the data for these were not accounted for in this review. The review does not include stand-alone systems or Interactive Voice Recognition (IVR) systems such as COPE or Balance, nor does it include online treatments for depression for children or adolescents.

Using select key words such as 'online treatments for depression', a search was conducted on PubMed, Psycarticles and other databases and search engines such as Google. Bibliographies in the identified papers were also scanned for further references and a total of 35 published papers were identified and of these 12 studies that account for 15 papers in total related to Beating the Blues™ and these were described earlier and treated separately because the intervention was administered on standalone computer and not online. The remaining 15 studies published in 17 papers consider online treatments for depression and they each met the inclusion criteria. The studies are representative of work carried out in Europe, namely, the Netherlands, the U.K., Germany and Sweden; the U.S. and Australia.

Table 4 Studies included in the review of online treatments for depression

Study	Online intervention & type of support provided	Design	Participants	Outcomes	Comments
Spek, et al. (2007, 2008)	The online CBT based Sadness program with no support provided (NS)	RCT depression in over 50's 3 arms: 1. active online CBT intervention (n=102) 2. active treatment F:F group therapy (n=99) 3. control (n=100)	301 Research response: Active Intervention Pre- = 102 Post- = 67 (66%) Follow-up = 58 (57%)	ITT analysis BDI-II Post-treatment ES: .95, Follow-up ES: 1.2	52% dropout over time 78% completed 5.5 sessions; 48% completed the course
Van Straten, et al. (2008)	Online PST 4 week course + masters students feedback on exercises, not therapeutic (TS)	RCT depression, anxiety, stress 1. active online PST intervention (n=107) 2. waiting list (n=106)	213 Research response: Active Intervention Pre- = 107 (75%) Post- = 81	ITT analysis on CES-D post-treatment ES: .92 MDI post-treatment ES: .34 No follow-up included	45% dropout over time 11% dropped out before beginning treatment 55% completed the course

Warmerdam, et al. (2008)	Comparison of the online CBT based Sadness program and the online PST program + masters students feedback on exercises, not therapeutic (TS)	RCT depression 1.active online CBT intervention (n=88) 2. active online PST intervention (n=88) 3. waiting list control (n=87)	263 Research response: Active online CBT intervention Pre- = 88 Post- = 51 (58%) Follow-up = 46 (52%) Research response: Active online PST intervention Pre- = 88 (38%) Post- = 33 (48%) Follow-up = 42	ITT analysis on CES-D post-treatment online CBT intervention ES: 1.18, follow-up ES: 1.31 ITT analysis on CES-D post-treatment online PST intervention ES: 1.15, follow-up ES: 1.32	62% dropout over time 28% completed the course
Ruwaard, et al. (2009)	Online CBT intervention, 8 sessions, completed in 11 weeks + therapists responded to participants work week to week through asynchronous communication (TS)	RCT depression 1. active online CBT intervention (n=36) 2.waiting list (n=18)	54 chronic, moderate depression Research response: Active Intervention Pre- = 36 Post- = 33 (91%) Follow-up = 27 (75%)	ITT analysis on BDI post-treatment online CBT intervention ES: 1.7, Completer analysis on BDI post-treatment online CBT intervention ES: 1.6, and follow-up ES: 1.0	11% dropout over time 89% complete the course

de Graaf, et al. (2009)	Colour your Life online CBT intervention with 9 sessions completed weekly, No support provided (NS)	RCT depression 1.online CBT intervention (n=100) 2. online CBT intervention + TAU by GP (n=100) 3.TAU (n=103)	303 depression Research response: Online CBT intervention Pre- = 100 Post- = 95 (95%) Follow-up = 91 (91%) Research response: - online CBT intervention + TAU Pre- = 100 Post- = 96 (96%) Follow-up = 92 (92%)	ITT analysis on BDI post-treatment online CBT intervention ES: .84, and at follow-up ES: 1.15; online CBT intervention + TAU at post-treatment ES: .57, follow-up ES: .89	76% dropout over time, 28% did not begin treatment 14% complete course, 36% completed adequate dose of 5 sessions
Andersson, et al. (2005)	5 module online CBT intervention to be completed in 8 weeks + therapist feedback on homework or control + discussion boards moderated by therapist (TS)	RCT depression 1.online CBT intervention (n=57) 2.control (n=60)	117 depression Research response: Online CBT intervention Pre- = 57 Post- = 36 (63%) Follow-up = 36 (63%)	ITT analysis on BDI post-treatment online CBT intervention ES: 1.2, and at follow-up ES: .97	37% dropout over time 63% complete the course

Meyer, et al. (2009)	10 modules online CBT intervention + no support provided (NS)	RCT depression 80:20 randomisation 1.active online CBT intervention (n=320) 2.delayed access + TAU (n=76)	396 depression Research response: Active Intervention - online CBT intervention Pre- = 320 Post- = 159 (50%) Follow-up = 111 (35%)	ITT analysis on BDI post-treatment online CBT intervention ES: .58, Completer analysis post-treatment ES: .65, Follow-up ES: 1.0	75% dropout over time 25% completed 7 sessions
Wright, et al. (2005)	8 weeks of CT face-to-face and online. 20-30 minutes of F:F CT then web-based CT (TS)	RCT depression 1.CT only (n=15) 2.Blended CT (n=15) 3.Waiting list control (n=15)	45 depression Research response: Active Intervention - online CBT intervention Pre- = 15 Post- = 13 (87%) Follow-up = 12 (80%)	Completer analysis BDI post-treatment ES: 1.4, Follow-up ES: 1.5; Completer analysis HDRS post-treatment ES: 1.80, Follow-up ES: 2.0	13% dropout over time 87% completed the course

Clarke, et al. (2002)	8 module self-help skills-based program for cognitive restructuring techniques + no support provided (NS)	RCT depression 1.Mixed group depressed and non-depressed active online CBT intervention treatment 2.no-access control group	299 depressed and non-depressed Research response: Active Intervention - online CBT intervention Pre- = 144 Post- = not detailed	ITT analysis on CES-D post-treatment online CBT intervention ES: .56; at follow-up ES : .72 144 carried forward to post-treatment to calculate ES	Dropout not detailed
Clarke, et al. (2005)	8 module self-help skills-based program for cognitive restructuring techniques + support provided by either postcard reminders or telephone reminders (AS)	RCT depression 1.Mixed group depressed and non-depressed active online CBT intervention treatment + postcard reminders 2.Mixed group depressed and non-depressed active online CBT intervention treatment + telephone reminders 3.no-access control group	255 depressed and non-depressed Research response: Active Intervention - online CBT intervention Pre- = 155 Post- = 93 (60%) Follow-up = 89 (57%)	ITT analysis on CES-D post-treatment online CBT intervention ES: .71; at follow-up ES : .94	Dropout not detailed

Kessler, et al. (2009)	Synchronous counselling sessions, CBT based and provided by trained therapists (TS)	RCT depression 1.CBT synchronous counselling + Usual care (n=149) 2.Usual care while on waiting list for online CBT intervention (n=148)	297 depressed Research response: Active Intervention Pre- = 149 Post- = 113 (76%) Follow-up = 109 (73%)	ITT analysis on BDI post-treatment online CBT intervention ES: 1.92, and follow-up ES: 1.90	48% dropout over time 52% complete course
Christensen, et al. (2002)	MoodGYM, 5 modules online CBT intervention, No support (NS)	Open trial Over a 6-month period 1503 users completed at least 1 instance of GDS Also 71 masters student users	1574 depressed	Only pre (5.02) and post (4.54) GDS averages presented	
Christensen, et al. (2004) and follow-up McKinnon, et al. (2008)	Comparison of MoodGYM and BluePages information website about depression + weekly admin support directing use of the website (AS)	RCT 1.A website offering information about depression (n=166) 2.MoodGym (n=182) 3.Attention placebo (n=178)	525 depressed Research response: Active online CBT Intervention Pre- = 182 Post- = 136 (75%) Follow-up = 94 (52%)	ITT analysis on CES-D post-treatment online CBT intervention ES: 1.20, and follow-up ES: 1.32	34% dropout over time, 66% complete course

Christensen, et al. (2006)	Six versions of MoodGYM each containing different arrangement of modules, No support (NS)	Six version of MoodGYM	2794 depressed Research response: Active Interventions Pre- = 2231 Post- = 183 (8%)	ITT analysis on GSD post-treatment online CBT intervention ES: .17	73% dropout over time
Perini, et al. (2009)	The sadness program, 6 modules of online CBT intervention, therapist support e-mail after each session (TS)	RCT depression 1.sadness program (n=29) 2.waiting list control (n=19)	48 depressed Research response: Active Interventions Pre- = 27 Post- = 18 (67%)	ITT analysis on BDI post-treatment online CBT intervention ES: 1.2	31% dropout over time 69% complete

Note. RCT = Randomised Controlled Trial; TAU = Treatment as Usual; BDI-II = Beck Depression Inventory- II; GDS = Goldberg Depression Scale; CES-D = Center For Epidemiologic Studies Depression Scale; MDI = Major Depression Inventory HDS = Hamilton Depression Scale; ITT = Intention to Treat; F:F = Face-to-Face; CBT = Cognitive Behavioural Therapy; CT = Cognitive Therapy; PST = Problem Solving Therapy; ES = Effect size; Support categories include (TS) = Therapist supported, (AS) = Administrative support, (NS) = No support provided.

A summary of the online studies included in the current review can be found in Table 4. The review seeks to elucidate the different treatment interventions utilised. It seeks to discuss the design of the studies, recruitment and screening procedures employed, what eligibility and exclusion criteria applied, what the sample frame was and whether screening took place online or face-to-face and what outcome measures were used. In addition the review seeks to examine the results from the studies reviewed. Research and treatment response rates are considered. It will also examine the results of outcome from the main depression outcome measures employed, changes in depression, effect sizes and the establishment of clinically significant change. Lastly, satisfaction in the studies and limitations are reported.

Online interventions for depression used in the studies

In the studies reviewed 10 different interventions are employed and they include a mix of online content delivery modes. WebPages augmented with a range of multimedia, interactivity, video and audio files, together with case vignettes predominate. For example in the Sadness program developed by Spek, et al. (2007, 2008) and later used in two other studies (Van Straten, 2008; Warmerdam, van Straten, Twisk, Riper, & Cuijpers, 2008), each lesson is presented in the form of an illustrated story about a woman with depression who, with the help of a clinical psychologist, learns how to gain mastery over her symptoms. Another good example is the program used in Meyer, et al. (2009) where modules are organized as simulated dialogues in which the program explains and illustrates concepts and techniques,

engages the user in exercises, and continuously asks users to respond by selecting from response options. The program is delivered using a variety of illustrations, drawings, photographs, and flash animations. In addition the content from session to session is tailored to the users' responses (Meyer et al., 2009). The different programs include MoodGYM, Sadness program, Colour you Life, netCBT, PST and some indigenous CBT programs used in specific studies. Generally they contain between 5-8 sessions each needing between 30-50 minutes to complete and users were asked to complete sessions weekly, a noted exception is the protocol used by Ruwaard, et al. (2009) that contains 8 modules and participants are given 11 weeks to complete treatment.

Synchronous and asynchronous communications also feature on their own and in combination with delivery of content through WebPages. One study employs only synchronous communication in the delivery of counselling sessions to clients (D. Kessler et al., 2009). Participants were allocated to the therapist, and they made their appointments online. Asynchronous communication is far more common in the studies and many of them use it to offer support or feedback to participants who are using the self-administered program. For example, in Warmerdam, et al. (2008), after completing each lesson the participants were emailed by the therapist. The themes of the therapist's emails varied from reinforcement for continued participation and effort, encouragement to practice the relevant treatment skills, encouragement to complete lessons and homework assignments, enquiries about progress, and responses to questions. Another interesting example is in Andersson, et al. (2005) where each module ended with a quiz, with questions on the content of the module. Responses

were automatically sent to the therapist, who in turn gave e-mail feedback on the answers.

Support in the studies is offered by therapists, trainee therapists and in some cases other non-clinical staff. The different types of support can be defined as either no support (NS), therapist support (TS) or administrative support (AS). The latter seeks to support users of the program, but does not claim to be therapeutic, but rather seeks to guide users and in some cases they also provide some feedback on homework. The latter effort is questionable, in two studies (Van Straten, 2008; Warmerdam, et al., 2008) feedback was provided by master's level psychology students, and the authors claim it not to be therapeutic, or for the benefit of building a relationship or alliance online, although such is a likely outcome. Consequently in Table 4, and for the purpose of this review, these two studies are categorised as providing TS. Clarke, et al. (2005) uses either postcards or telephone calls as reminders to participants to keep with the program. One study includes face-to-face support alongside computer-assisted CT delivered through a website (Wright, et al., 2005). Therapeutic support is offered asynchronously through text, for example, the therapists in Ruwaard, et al. (2009) were trained in how to personalize and enhance the feedback in electronic, text-based communication. In addition they also considered treatment integrity by including a computerized manual that specified each step of treatment. The other study that includes an adherence measure was Kessler, et al. (2009) where the integrity of the psychological therapy was assessed with the cognitive therapy rating scale.

The content of the programs are very similar and include well-established cognitive strategies and behavioural activation strategies. For example, most of the systems include modules like negative thinking, behavioural change, pleasurable activities, assertiveness, relaxation and problem-solving (Christensen, Griffiths, & Korten, 2002). Psycho-education, writing assignments, monitoring, challenging automatic thoughts and relapse prevention also feature (Ruwaard et al., 2009). Other modules found include sleep and physical health, and relapse prevention (Andersson et al., 2005). One study includes modules on a range of topics that deviate from the standard CBT available and includes mindfulness and acceptance, interpersonal skills, physical exercise and lifestyle modification, childhood experiences and early schemas, and dream-work (Meyer, et al., 2009). Apart from CBT one study features CT alone and includes content such as, automatic thoughts and thought recording, challenging automatic thoughts, and modifying core beliefs and rehearsal (J. H. Wright et al., 2005). In two studies a PST protocol features and includes a six-step procedure: describing the problem, brain-storming, choosing the best solution, making a plan for carrying out the solution, actually carrying out the solution, and evaluation. The course took five weeks and consisted of one session per week (Van Straten, 2008; Warmerdam, et al., 2008).

Design of the studies

Table 4 contains a summary of the design of the studies. The design considers the type of study and apart from one, all are RCT's. The objectives of the studies are considered in this review as are the sample populations included and the interventions

whether they are single or multiple. Recruitment, screening, eligibility and exclusion criteria established for the studies is reviewed.

For all of the studies included in the review their objective is principally to establish the efficacy of the online CBT intervention. For example one study reports that the objective was to establish the efficacy of internet-based clinician-assisted online CBT intervention for depression (Andersson, et al., 2005; Christensen, Griffiths, & Jorm, 2004; Perini, Titov, & Andrews, 2009), another defines their objective as to establish whether web-based self-help is effective in reducing symptoms of depression (Ruwaard, et al., 2009; Van Straten, 2008; J. H. Wright, et al., 2005), or indeed others examine the efficacy of unsupported online CBT interventions (Clarke, 2002; de Graaf et al., 2009; Meyer, et al., 2009; Spek, Cuijpers, et al., 2007). Some of the studies also include more than one active treatment intervention and can therefore compare the efficacy of these (Christensen, et al., 2004; Warmerdam, et al., 2008). For example, Warmerdam, et al. (2008) compared two active online delivered interventions for the treatment of depression alongside a waiting list control. The active conditions were online CBT intervention and cPST, both were supported using e-mail from trained Masters level students in clinical psychology.

For the most part community samples are recruited through a variety of means. The largest sample frame is that used in the Australian studies that recruited from spontaneous visitors from across the world to partake in their research (Christensen, Griffiths, Mackinnon, & Brittliffe, 2006). Sample populations are recruited through community and/ or national advertisements, including advertisements and information

on the web (Andersson, et al., 2005; Meyer, et al., 2009; Ruwaard, et al., 2009; Van Straten, 2008; Warmerdam, et al., 2008). In three studies the postal system is used to send prospective participants a letter of invite (Christensen, et al., 2004; de Graaf, et al., 2009). Lastly, participants have been recruited from primary or secondary care services, and by referral (Clarke, 2002, 2005; J. H. Wright, et al., 2005). Only one study prescribes for a particular sample frame for participants over 50 (Spek, Nyklicek, et al., 2007; Spek et al., 2008).

Once participants were recruited they were then screened and a wide range of eligibility and exclusion criteria applied. For some studies the eligibility can be considered low, for example one study has as a criteria for inclusion the completion of one instance of the Goldberg Depression Scale (GDS) measure, or having elevated scores on the baseline GDS screening measure employed (Christensen, et al., 2002; Christensen, et al., 2006). Van Straten, et al. (2008) screened participants at baseline on depression, anxiety, work stress, and quality of life, but argue that because they were recruiting from the general population no inclusion or exclusion criteria were used. Some studies go further and incorporate what might be considered medium efforts to establish eligibility and exclusion criteria. For example in Meyer, et al. (2009) those who provided consent, were above 18 years of age, and completed at least half the baseline questionnaires were included; no other eligibility criteria applied. Similarly, in Clarke, et al. (2002, 2005) the eligibility criteria was the identification of depressed patients from their private health record, so they were diagnosed by their GP, and thereafter completion of the baseline CES-D measure.

Most of the studies do establish what can be considered robust eligibility criteria as would be found in face-to-face depression research. For example, Perini, et al. (2009), participants initially completed questionnaires online to determine eligibility, principally for depression a score >5 on the Patient Health Questionnaire-Nine Item (PHQ-9) (Kroenke, Spitzer, & Williams, 2001). Exclusion criteria included persons less than 18 years of age, not resident in Australia, suicidal ideation or plans, organic mental health disorder, drug or alcohol dependence, or severe symptoms of depression. On meeting the inclusion criteria demographic details were collected from participants followed by a telephone assessment using the depression section of the Mini International Neuropsychiatric Interview Version 5.0.0 (Lecrubier, Sheehan, Hergueta, & Weiller, 1998) to determine whether they met the DSM-IV criteria for depression. Other studies follow similar robust criteria (de Graaf, et al., 2009; Ruwaard, et al., 2009; Spek, Cuijpers, et al., 2007; J. H. Wright, et al., 2005).

Like Perini, et al (2009), and in addition to primary screening, other studies have included either telephone or face-to-face diagnostic screening. To determine DSM–III–R (American Psychiatric Association, 2000a) Axis I diagnoses, de Gaff, et al. (2009) used the computerised Composite International Diagnostic Interview (CIDI–auto) (Robins et al., 1988) for screening. The primary screening instrument in Spek, et al. (2007) was the Edinburgh Depression Scale (EDS) (Cox, Chapman, Murray, & Jones, 1996; Matthey, Barnett, Kavanagh, & Howie, 2001) that was administered online. Thereafter participants were invited to attend an in-person structured clinical interview to determine eligibility. Kessler, et al. (2009) included participants diagnosed within the 4 weeks preceding referral and having a score of 14 or more on the BDI-II and a diagnosis of depression assessed using the revised

clinical interview schedule (Lewis, 1994). Patients were invited to give consent to be contacted by telephone and screened to confirm the referral eligibility criteria.

Numbers in the studies vary. In one study there are just 29 in the active condition (Perini, et al., 2009). Similarly with Wright, et al (2005) while numbers are small the design is robust and therefore has relevance. Ruwaard, et al. (2009), again another robust design has only 36 in the active condition. Studies that have endeavoured to advertise and recruit from local and national populations achieve greater success in the numbers included in the study. The study by Spek, et al. (2007) included three arms, two active treatments, one being online delivered CBT treatment [n=102], the other a face-to-face group therapy CBT treatment [n=99], and the third, a waiting list control [n=100]. Likewise Van Straten, et al. (2008) recruit 213 participants thereafter randomised to either the active online treatment [n=107] or to a waiting list control [n=106]. de Graaf, et al. (2009) like Spek, et al. (2007) also employed letter of invite and achieve considerable numbers in active treatments.

Meyer, et al. (2009) employed 80:20 randomisation procedure and consequently is able to begin with 320 participants in the active online CBT intervention and 76 in their TAU control. Clarke, et al. (2002, 2005) had unique access to the records of private health care patients and he achieves significant numbers in the treatment as the pool of people to draw from was large. The largest sample sizes are those of the Australian studies of MoodGYM, inviting spontaneous users of the site to participate gave them access to a worldwide spread of potential participants. This is reflected in the high numbers they were able to include in their research.

Outcome measures used in the Studies

A variety of instruments were employed in the different studies to measure depressive symptoms. Much of the screening and data collection for pre- and post- and follow-up were collected online which adds a further dimension. The Goldberg Depression Scale (GDS) was used in the Australian studies. The GDS items closely align with the symptom content outlined in the DSM-IV and the ICD (Christensen, et al., 2006). The other Australian studies employed the Center for Epidemiologic Studies Depression Scale (CES-D) (Christensen, et al., 2004; Mackinnon, Griffiths, & Christensen, 2008). This scale was also utilised by the Swedish and some the U.S. studies (Clarke, 2002, 2005; Van Straten, 2008; Warmerdam et al., 2008). The CES-D is twenty item self-report measuring depressive symptoms. The score range on this scale is 0-60 and scores above 16 reflect clinical depression.

In addition to the CES-D Van Straten (2008) also used the Major Depression Inventory (MDI). The MDI contains 12 items that positively correlate with the symptoms of depression as outlined by the ICD-10 (International Statistical Classification of Diseases and Related Health Problems, 10th Revision). Based on the symptom scores, it is also possible to determine the presence or absence of major depression according to the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th Edition) criteria (Van Straten, 2008).

Many of the U.K. studies (Grime et al., 2004) engaged the Beck Depression Inventory (BDI-II) as their principle outcome instrument (Hunt, et al., 2006; Learmonth & Sadik, 2007; Learmonth, et al., 2008; Mitchell & Dunn, 2007;

Proudfoot, et al., 2004). The BDI-II is a well established instrument that measures depression severity. The BDI-II is also used in studies from the Netherlands (de Graaf, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2009; Spek, et al., 2008), Sweden (Andersson, et al., 2005), Germany (Meyer, et al., 2009), and the U.S. (J. H. Wright, et al., 2005). Alongside the BDI (Beck et al. 1979) Ruwaard and colleagues (2009) used the Depression subscale of the Symptom Checklist-90- Revised (Derogates, 1977). This scale comprises 16 items, which are scored on a 5-point likert scale (0–4), indicating the rate of occurrence of depressive symptoms over the past week. Grime's U.K. study (2004) employed the Hospital Anxiety and Depression Scale (HADS) as the primary measure for depressive symptoms. The HADS is a self-report questionnaire, which measures depression and generalised anxiety. The study by Wright and colleagues (2005) from the U.S. also used the Hamilton Depression Scale (HDS). The scale correlates highly with other clinician-rated and self-report measures of depression (Hedlund & Viewig, 1979).

Results from the Studies

The review of the results from the studies will begin by looking at the research response rates and treatment response rates. Table 4 presents these results alongside results from the primary outcome measure for assessing depression in the various studies. Some studies named more than one outcome measure and these are recorded. Further, some performed not only intention to treat (ITT) analysis but completer analysis (CA) and this is recorded. Results are recorded as pre-treatment and post- or

end of treatment and then follow-up result is taken from the last follow-up recorded. Final follow-up varies greatly between studies from weeks to months. The results also present effect sizes and in many studies reliable and clinically significant change has been calculated, although the criteria for these markers are somewhat differently defined across the studies.

Table 4 details the research response rate for each of the studies, where it is reported, and the percentage from baseline numbers in terms of response at post-treatment and follow-up. Research response rates throughout the studies vary from 40-95% response in terms of completing post-screening questionnaires, the average across the studies is 60%. The trend for research response continues into follow-up and the average research response rate is 64%. Much of the data collection in the studies was online, a point of significance and that will be returned to in the discussion chapter.

A continuing concern for online treatments is dropout from treatment. One study reports an unusually low treatment response rate of only 8%. Average treatment response rate was calculated to be 46.41% among the studies reporting dropout rates over time, and this ranges from 11% to 76% depending on the study. Another phenomenon is pre-treatment dropout rates, where participants are perhaps randomized to a given treatment but decline to begin treatment. For example, Van Straten, et al. (2009), report that 9% of participants dropped out from the intervention group before beginning treatment. A related concern is reported by Meyer, et al. (2009), where 17% of participants in the active intervention never completed a single session of more than 10 minutes and can therefore be considered early dropouts.

Similarly de Graaf and colleagues (2009) highlight that only a small number of participants in their study received what they would consider to be an adequate dose of treatment. Most studies don't collect data from dropouts but when they do reasons cited include receiving alternative treatment, feeling better, lack of time, and problems understanding the computer program (Warmerdam, et al., 2008). Andersson, et al. (2005) report that the main reason for withdrawal was that the treatment was perceived as too demanding (Andersson, et al., 2005).

The outcomes from the collection of studies reviewed builds a compelling picture as to the efficacy and effectiveness of delivering online treatments for depression. Outcomes for the majority of the studies are positive and demonstrate a significant movement for change in the treatment groups, where at post-treatment and follow-up participants show significantly lower depression scores. It seems that effects are obtained at the end of any treatment and also continued into follow-up. Christensen, et al. (2002) report that greater change in symptoms of depression is associated with longer exposure to the site content. This is generally held as a maxim that the more a user can avail of the treatment the more they will benefit. However, some studies note the identification of treatment effects early in treatment (Mitchell & Dunn, 2007; Warmerdam, et al., 2008). A key observation by Meyer, et al. (2009) is how participants show lasting positive effects even after receiving only a small dose of treatment, 4 sessions or less. Warmerdam, et al. (2008) highlight the point that many participants showed rapid improvement within the first 5 weeks of treatment, however, completer analysis showed significantly lower depression scores at baseline than did non-completers and in addition their quality of life scores were higher.

In another comparison study of information on depression provided through WebPages and the MoodGYM program the authors found that depression literacy was as effective as cognitive behaviour therapy in reducing symptoms of depression (Christensen, et al., 2004). Perhaps these studies suggest the necessity not only for an active treatment but also for an active participant. In addition, research from the same authors provides evidence for the necessity of certain ingredients for treatment to be successful. In an RCT of different versions of online CBT intervention they illustrate that a single module is not sufficient by itself to reduce depression. With the exception of the full program, versions with an extended CBT component were associated with greater improvement (Christensen, et al., 2006).

A number of studies using an active and control conditions, mainly waiting lists, or TAU such as GP visits, are interesting and report that while the control group showed improvements they were of little importance compared to the significant movement for change witnessed in the treatment group (Ruwaard, Lange, Bouwman, Broeksteeg, & Schrieken, 2007). Perini, et al. (2009), using an active online intervention and a waiting list control, found a large pre-post within-group effect size for the treatment group on BDI-II (1.15) and a large to moderate between-group effect size was found for the BDI-II (0.63). The improvements noted are similar to what is observed in face-to-face treatments for depression. The results are similar to other online CBT intervention programs in treating depression that include therapist support (Andersson, et al., 2005) but significantly larger effects than programs delivered online that do not include therapist support (Clarke, 2005; Christensen, et al., 2004; Mackinnon, et al., 2008).

Unlike other studies in the area that compare different treatments de Graaf, et al. (2009) comparing two active treatments and TAU, they report that no meaningful differences were found between the three groups right up to 6 month follow-up on depressive symptoms. They found medium effects for the three different treatment modes employed. The authors speculate that the lack of clinical support may be attributable to the low adherence and consequently the low treatment response rate. Secondly they note the study sample was more severely depressed than in previous studies and chronicity may have negatively impacted outcome. Clinical improvement was approximately 30% in all groups and this compares favourably with the response rate in pill-placebo in depression treatment (de Graaf, et al., 2009). A similar study Spek, et al. (2007, 2008) that providing no support determines that the results show that there was a significant difference between the internet-based treatment and the waiting list control and secondly the analysis determined that there was no significant difference between the two active treatment conditions. The group face-to-face CBT condition demonstrated significant outcome but even larger significant outcomes were reported for the online CBT intervention group. Both Wright, et al., (2005) and Warmerdam, et al. (2008) compare treatments and produce positive effects over time for treatment groups.

Two studies that deviate from provision of online CBT intervention and instead employ PST and the second delivers treatment asynchronously both report positive outcomes. It seems that different online modes of delivery can be equally effective in delivering standard treatments and different standard treatments can attain similar outcomes. In fact, Van Straten, et al. (2008), based on the success of their short 4 week cPST program tentatively suggests that the intervention may have

potential as a cost effective treatment for those with co-morbid depression and anxiety.

Table 4 provides the outcomes in terms of effect sizes for the active treatment interventions from pre- to post-treatment and follow-up if that was included and also for ITT and completer analysis where these are provided. Notably, effects achieved are different depending on the presence of therapist support, administrative support or no support. Therapist support (TS) is understood as the presence of a trained professional or professional in training who has accompanied the client in their use of the online intervention, providing feedback on homework and guiding them. Administrative support (AS) is offered by receptionist or other clinically trained staff such as nurses, but not trained counsellors and is usually brief, for example, 5 minutes at the beginning and 5 minutes at the end of the session, it is largely used for troubleshooting and arranging future appointments. Lastly, no support (NS) considers an online intervention where it is completely administered by the user.

Based on the authors calculation of the studies included in this review, based on their use of the BDI outcome measure, the average pre-post effect size (and number of effects) for therapist supported studies is 1.46 (n=5) at post-treatment and 1.34 (n=4) at follow-up (Andersson, et al., 2005; D. Kessler, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2009; J. H. Wright, et al., 2005). For studies that include no support the post-treatment average effect size is .83 (n=3) and at follow-up 1.18 (n=2) (de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007; Spek, et al., 2008). No studies in the review providing AS used the BDI as an outcome measure (Clarke, 2002; Christensen, et al., 2004; Mackinnon, et al., 2008).

Reliable and clinically significant change has been calculated, although the criteria for these markers are somewhat differently defined across the studies, it seems reasonable to conclude that the demonstrated effectiveness of the interventions to achieve change is largely established. Meyer, et al. (2009) using robust criteria report that clinical gains were maintained over a follow-up period of 6 months and that positive changes were also demonstrated in terms of social functioning. About one-quarter of the participants experienced clinically significant rates of depression improvement, such that they no longer reported being depressed after the treatment. The findings from the study suggest that online programs for depression can work even in the absence of therapist support, like other studies such as MoodGYM (Christensen, et al., 2004) and ODIN program (Clarke, 2005). Although for such unsupported programs the effect sizes achieved are generally relatively low. Warmerdam, et al. (2008) report that 34 participants of online CBT intervention (38.6%) and 30 of cPST (34.1%) were improved or recovered to a clinically significant degree at follow-up. In all it seems that between 30-60% demonstrate clinically significant improvement because of treatment and this is maintained into follow-up.

Satisfaction with treatment in the Studies

Despite perhaps the importance of participants being satisfied with treatment as an indication of how well they progressed and had successful outcomes only two studies measured satisfaction with the treatment. Proudfoot et al. (2004) included a

single item satisfaction with treatment measure, which was rated on a 9-point likert scale from not at all satisfied to totally satisfied. The instrument was administered at post-treatment and satisfaction in the online CBT intervention group was higher than in the TAU group. Meyer (2009) included a series of questions to measure program acceptability and subjective benefit. They asked users whether they liked the program, whether they felt the program benefited them, whether the program met their expectations, whether they were happy with the quality of the content, how well it compared to a 'real' psychotherapist, and whether they would recommend the program to others. They report that 80% of users were generally satisfied with the program. Similarly 82% report that they felt the program benefitted them, and that the program met or exceeded their expectations (78%). The majority (74%) felt the program equalled or was better than a 'real' therapist. Lastly, the majority (95%) would recommend the program to others with mild depression; the figures for moderately severe depression was 79% and 42% would recommend the program for those with severe depression. No one reported any adverse affects from using the program. Wright (2005) had measurement satisfaction with the program at the initial implementation of the computer-assisted software. Satisfaction and acceptance were deemed to be high among users with no adverse affects observed (J. H. Wright, et al., 2005).

Limitations in the Studies

As with any research study there are notable limitations and in the case of the studies reviewed here there are a number of salient limitations. Firstly, it has been noted earlier that the majority of the studies were fortunate to be able to report on

significance because their sample size were sufficient. However, for a small number of studies included in this review the sample sizes are too small to complete robust analysis. Largely, these refer to natural and pragmatic studies such as that conducted by Mitchel et al. (2008). However two RCT also highlight sample size as a limitation (Grime, 2004; Perini, et al., 2009). A further limitation noted regarding samples in the studies is the sample frame utilised and the consequent sample population included. Often it is the case that the studies are analysing data from heterogeneous samples and consequently this limits any generalisation of the findings. Future research with other groups and with larger numbers would be useful. In addition, the Australian studies note a particular limitation in that their sampling frame, because it is self-defined, therefore lacks clarity as to who exactly the sample were (Christensen, et al., 2002; Christensen, et al., 2006).

Perhaps the most common limitation noted throughout the series of studies is that regarding attrition. It is well documented, and the phenomena of high attrition is considered the norm in conducting open internet trials without therapist support (Eysenbach, 2005). However, while research of this nature certainly displays high attrition so too do other supported trials. It's a constant and continuing dilemma for researchers, but it seems that supported interventions do better and this is the current established wisdom. As has been noted in this review support can come in a variety of forms from reminders by telephone right through to therapist contact online. A later section of this chapter returns to take a closer look at this. One study (Proudfoot, et al., 2003) reports on some of the reasons why individuals dropped-out. Reasons to do with difficulty using the computer, negative features of the program and poor clinical progress, or other extraneous reasons independent of the intervention and research

program are sited. Andersson et al. (2005) reports the main reason cited for withdrawal from the study was that treatment was perceived as too demanding. A related concern regarding attrition is the perennial problem of missing data. Researchers are often left using ITT analysis and using LOCF whereby dropouts are presumed unchanged from their last observation and this may underestimate the true extent of change for the group. In addition follow-up data is collected, analysed and reported and often follow-up is uncontrolled for. Therefore participants may be accessing other treatments during this time and consequently can impact on the results.

A key limitation that is mentioned in a majority of trials is that of the recruitment procedure used and the potential for selection bias. Recruiting online, for example, potentially biases the respondents who are comfortable with and presumably computer literate, thereby reducing the potential generalisability of any findings. In addition de Gaff et al. (2009) raise the issue of online data collection and whether it adversely affects the validity as compared with the traditional paper and pencil administrations.

Another and related limitation is that of relying on self-report data to the exclusion of an official diagnosis. Wright et al. (2005) among others, for example, wonder about the relevance of a single self-report measure for depression. It is the case that independent ratings by clinicians would certainly strengthen the self-report and minimise any potential errors in appropriately excluding or including participants (Andersson et al., 2005). Establishing a formal diagnosis for depression requires a structured diagnostic interview which can be laborious and costly and as Clarke et al.

(2002, 2005) points out, may through any quasi-therapeutic benefits imparted in the interview cause a deleterious effect and swamp the small therapeutic benefit expected from the internet-intervention.

Eligibility criteria can often cause heterogeneity and also difficulties with extending the results from a study to other groups. For example, any inclusion and exclusion criteria can have the effect of limiting the applicability of findings to for example, highly educated groups (Spek, Cuijpers, et al., 2007; Spek, Nyklicek, et al., 2007), or only for those with mild to moderate depressive symptoms (Ruwaard, et al., 2009). Such limitations are duly noted by authors accompanied by a call for further research with different groups or in community and natural settings.

Lastly, the interventions themselves may be problematic, not necessarily the content as it is generally well-established CBT strategies that are used, but more so its delivery. Perhaps there is a lack of functionality, multimedia, interactivity, that might engage any user and support adherence. Meyer et al. (2009) note that with their program it would be interesting to investigate what added components might enhance the program and increase engagement and adherence. Proudfoot et al. (2005) reported negative features of the program as a cause of dropout. Of course increasing some elements like video and audio necessitates better technology and higher internet speeds.

Support in Online Treatments for Depression

The chapter has reviewed the research evidence for the Beating the Blues™ program and also has reviewed the evidence for the collection of studies investigating an online treatment for depression. A question that has been raised by research in the area of online treatments is the amount of therapist or human support required for success. Therapist support appears to be a significant variable in determining efficacy of internet -delivered treatments. A recent review (Palmqvist, Carlbring, & Andersson, 2007) of internet -delivered treatments, with or without therapist input, and its relation to efficacy reports a strong correlation (p=.75) between the amount of therapist support and treatment efficacy. In Spek's (2007) meta-analysis the mean effect size is far larger for programs delivered with therapist contact than for those without. However, the conclusions drawn are tentative as the review only included 12 trials and only one that targeted depression. The review of studies in the current chapter, based on their use of the BDI outcome measure, found larger effects for treatments for depression online that included either therapist support (d=1.46) compared to no support (d=.83) or administrative support (d=.73). Marks et al., (2007) in a comprehensive review of the worldwide studies in internet-delivered interventions argues that further research is required to determine the best type, frequency, and duration of human support required for users (Marks, et al., 2007).

Success in treatment can be understood as adherence to treatment, completing a sufficient dose of treatment and producing successful outcomes. The current wisdom accepts that a blended approach to new technologies and their use in delivering treatment options for depression and other symptoms is required. The more

successful programs usually incorporate some therapist/ human support, whether that is online, or by phone, or in person. The current research examines the impact of the therapeutic alliance in treatment, understood as a portion of the added value of therapist responsiveness to online CBT treatment.

The importance of the therapeutic alliance is essential as it has been continually demonstrated to be one of the most consistent variables predicting successful outcome in counselling and therapy. Some work has been carried out researching the alliance online. For example, Cook and Doyle (2002) researched a comparison of face-to-face and online counselling using both e-mail and chat and found that working alliance levels demonstrate that participants felt a collaborative, bonding relationship with therapists. Their analysis reveals that both the total score on the Working Alliance Inventory (WAI) and individual sub-scale scores were as strong for online as for face-to-face clients. Qualitatively, participants overwhelmingly indicated that online counselling was a positive experience with advantages over face-to-face. Reynolds et al. (Reynolds, et al., 2006) report that alliance are similar in online and face-to-face treatments, a finding that supports the earlier Cook and Doyle (2002) study and suggest that a therapeutic alliance can be constructed online and equal to that in face-to-face counselling.

Liebert et al (2006) study supports the establishment of alliance online, although they also report finding higher alliance ratings, globally and for each of the three alliance sub-scales for face-to-face clients. Liebert et al (2006) also report that working alliance scores were significantly associated with respondent satisfaction with online counselling. This finding supports the significance of alliance to outcome

in therapy. Knaevelsrud (2006) in another study of alliance quality and whether it can predict outcome found that although alliance in online treatment was one standard deviation higher than in face-to-face they, however, only found a low to modest association between alliance and outcome (Knaevelsrud, 2006). A variable that may have some impact on the results of this study was the population group being investigated. In the limited number of studies to date on working alliance in online counselling the data is positive but inconclusive. The studies outlined provide some evidence supporting the idea that alliances can be developed online. Such findings challenge theoretical assumptions that alliances of a sufficient quality to effect therapeutic change cannot be developed online.

The review of online treatments for depression (see Table 4) alongside the review of the Beating the Blues™ research (see Table 3) can be considered further in terms of the influence of different types of support on dropout. Support has been categorised as either therapeutic, administrative support or no support. Twenty-two studies representing 26 published papers can be included in the analysis as data are available for these. It does not include the beta-test of Beating the Blues™ (Proudfoot & Swain, 2003) nor does it include the economic analysis (McCrone, 2004) or the predictors of outcome study (Ryden, 2005). Clarke, et al. (2002, 2005) and Hunt, et al. (2006) are not included as they do not detail dropout and the methodology for the Christensen, et al. (2002) study precludes it as it analysis retrospectively users of their open system.

Based on the authors calculations dropout can first be considered throughout the studies (n=22). Then an analysis can be made of the retention in the studies

regarding the form of support that was provided to participants. Therefore the analysis will consider any difference between support versus no support, administrative support versus no support, therapeutic support versus no support and lastly, administrative support versus therapeutic support.

In the first analysis the number of participants included in these studies [n= 7200] and the number of dropouts [n= 4165] can be considered. Dropouts account for 58% of the participants. To have large dropouts is not unusual and generally in face-to-face treatments for depression dropout can be anywhere between 30-60% (Anthony, 2005; Anthony & Goss, 2003). From this cursory analysis the dropout rate in online treatments is at the higher end, and potentially a cause for concern. However, the data presented can be mined further to reveal differences in dropout between treatments that supply support for participants and those that do not, and in addition differences between the types of support provided.

When a comparison is made of dropout between studies that included support of some form with participants, administrative or therapeutic, and those that did not, we find that the dropout rate is very high (72%, n=4) for those without support (Christensen, et al., 2006; de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007). When one considers the type of support provided it becomes clear that the dropout rates for either administrative support (42%, n=7) (Cavanagh, 2006; Christensen, et al., 2004; Grime, 2004; Learmonth & Sadik, 2007; Learmonth, et al., 2008; Mackinnon, et al., 2008; Proudfoot, et al., 2004; Van Den Berg, Shapiro, Bickerstaffe, & Cavanagh, 2004) or therapeutic support (42%, n=10) (Andersson, et al., 2005; Cavanagh, 2006; Fox, et al., 2004; D. Kessler, et al., 2009; Perini, et al.,

2009; Ruwaard, et al., 2009; Van Straten, 2008; Warmerdam, et al., 2008; J. H. Wright, et al., 2005) with participants are similar and yield far smaller dropout rates than do studies that provide no support with participants. Therefore the presence of human support, administrative or therapeutic, can have the impact of reducing dropout rates by up to 30%. It can be concluded that support is important in online administrations of treatments for depression; this supports the established wisdom that a blended approach is preferable (Christensen, et al., 2006).

Earlier an analysis of the studies included in the review of online treatments was made of the effect sizes generated from the BDI outcome measure based on the different types of support provided. However it only included therapist support (TS) or no support (NS) as any of the studies included in the review that included administrative support did not use the BDI as the outcome measure. We can now extend this to include three studies (Learmonth & Sadik, 2007; Learmonth, et al., 2008; Proudfoot, et al., 2004) from the Beating the Blues™ evidence base that contribute to an effect size for administrative supported studies. Based on ITT analysis, studies that offer therapist support return a pre-post effect size average of 1.46 (n=5) (Andersson, et al., 2005; D. Kessler, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2009; J. H. Wright, et al., 2005) and those that offer no support the post-treatment average effect size is .83 (n=3) (de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007; Spek, et al., 2008). For studies that include administrative support the post-treatment average effect size is .72 (n=3) (Learmonth & Sadik, 2007; Learmonth, et al., 2008; Proudfoot, et al., 2004). Completer analysis can also be performed for administrative support and the pre-post effect size average returned is .74 (n=2) (Learmonth & Sadik, 2007; Learmonth, et al., 2008). It seems

that little differences exist between studies providing administrative and no support, but it is obvious that therapist supported studies yield far larger effects.

A further analysis investigates any differences based on changes in BDI outcomes pre to post-treatment, including both ITT outcomes and completer outcomes. The analysis considers studies with no support (NS) and their BDI outcomes, studies with administrative support (AS) and their BDI outcomes and lastly, studies that included therapeutic support (TS) and their BDI outcomes. The present analysis uses data from the Beating the Blues™ evidence base (see Table 3) and also the review of online interventions (see Table 4).

A number of studies were not included for a variety of reasons. For example, there are studies from the Beating the Blues™ evidence base that consider only cost-effectives (McCrone, 2004) or predictors of response (Ryden, 2005). There are some studies too that do not provide sufficient data (Mitchell & Dunn, 2007), do not use the BDI (Cavanagh, 2006) or the results are not reported or unavailable (Fox, et al., 2004; Hunt, et al., 2006; Van Den Berg, et al., 2004). Furthermore a number of studies were excluded from the review of online treatments for depression, the reason being that they did not use the BDI measure (Clarke, 2002, 2005; Christensen, et al., 2004; Christensen, et al., 2002; Christensen, et al., 2006; Grime, 2004; Mackinnon, et al., 2008; Van Straten, 2008; Warmerdam, et al., 2008). The analysis therefore included 11 studies that provide sufficient data for the analysis and use BDI as an outcome measure.

To begin with, and based on ITT analysis, the average pre-treatment BDI score form the studies that included no support (NS) with participants was 24.69 (n=3) and at post-treatment the score was 17.95 (n=3), a reduction of 6.74 points (de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007). For those studies that included administrative support (AS) with participants the average pre-treatment BDI score was 23.23 (n=3) and post-treatment score was 14.96 (n=3), a reduction of 8.27 points (Learmonth & Sadik, 2007; Learmonth, et al., 2008; Proudfoot, et al., 2004). For those studies that included therapist support (TS) with participants the average pre-treatment BDI score was 25.07 (n=4) and post-treatment score was 13.45 (n=4), a reduction of 11.62 points (Andersson, et al., 2005; D. Kessler, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2009). It seems that studies with therapist support led to greater improvement than studies without support and administrative support is superior to no support.

Some of the studies report the BDI outcomes for the completer sample and these can be considered regarding type of support in the same way as the ITT group above (Learmonth & Sadik, 2007; Learmonth, et al., 2008; Meyer, et al., 2009; Ruwaard, et al., 2009; J. H. Wright, et al., 2005). For those studies that included no support (NS) with participants the average pre-treatment BDI score was 26.72 (n=1) and at post-treatment score was 19.87 (n=1), a reduction of 6.85 points (Meyer, et al., 2009). For those studies that included administrative support (AS) with participants the average pre-treatment BDI score was 24.27 (n=2) and post-treatment score was 15.95 (n=2), a reduction of 8.32 points (Learmonth & Sadik, 2007; Learmonth, et al., 2008). For those studies that included therapist support (TS) with participants the average pre-treatment BDI score was 24.95 (n=2) and post-treatment score was 13.8

(n=2), a reduction of 11.15 points (Ruwaard, et al., 2009; J. H. Wright, et al., 2005). A similar trend exists for both ITT and completers with studies having therapeutic support with participants demonstrating better outcomes than without support, but administrative support also produce better outcomes than no support.

Conclusion

Online counselling research has positively evaluated working alliance, helpfulness and impact and report client improvement and satisfaction. The majority of research to date concerns online CBT interventions, including standalone and online web versions, and developed for specific difficulties. Beating the Blues™ is used in the current study and has demonstrated a robust evidence base. RCT's in primary care highlight that BTB + TAU outperforms TAU alone and is more cost-effective (McCrone, 2004; Proudfoot, et al., 2004). Also the various open trials in both primary and secondary care services all demonstrate positive outcomes for BTB users.

The review of online treatments considered the depression intervention employed, their design and outcomes, satisfaction and limitations. The majority of the interventions are based on a CBT protocol with the exception of the PST program used in two studies. The majority of studies have included waiting list controls or some use comparators such as TAU or conventional care or in one case face-to-face group therapy, or an attention placebo. All of the studies have advertised in one way or other to recruit participants and for the most part community samples are defined. A notable exception is the defined community used by Spek (2007). At the same time

all studies include baseline screening and principally employ one or other of the standard and valid instruments for assessing depressive symptoms. Surprisingly some of the trials incorporate no stringent eligibility or exclusion criteria. Most of the RCT do however employ similar and robust criteria for eligibility and exclusion. Such criteria would be considered standard in research trials for face-to-face interventions for depression. In the trials randomisation was executed in a variety of ways but all perfectly acceptable. In addition, many of the studies define both lower and upper cut-off scores for inclusion, although for some studies this is not the case. Many studies in an effort to be robust also include other forms of screening and these include for example the use of structured diagnostic interviews either administered over the telephone or in person.

Dropout rates are a continued concern as is the significance of support for the success. However supported treatments can have the impact of reducing dropout by up to 30%. Similarly, supported treatments have demonstrated that they can achieve greater reductions in depressive symptoms compared to treatments delivered with no support. Effect sizes can be up to half a standard deviation higher with therapist supported treatments (d=1.46) than with administrative support (d=.74) or no support offered (d=.83).

The outcomes from this collection of studies build a compelling picture as to the efficacy and effectiveness of delivering online treatments for depression. It seems that human factors have a bearing on outcomes in the studies, reducing dropout, enhancing retention and treatment response rates, and producing greater amounts of

desired outcomes. The evidence supports the additive benefits of therapist support to treatment success.

The Current Study

Research demonstrates that CBT is an effective treatment for depression. Delivering CBT in online formats seems also potentially effective. The mode of delivery seems crucial and the current study addresses this through the comparison of two modes of delivering established CBT principles. On the one hand there is the self-administered Beating the Blues™ CBT protocol that is delivered without any support, secondly there is the delivery of the same protocol through e-mail by a therapist.

The e-mail delivered condition is further enhanced by offering an opportunity for clients to describe their problems in an open format (aside from adhering to the CBT format that emphasises instances of thoughts or behaviours) and allowing the therapist to respond to the clients problems using generic relational and technical skills that may be present in a CBT treatment but are not unique to it. The therapists could thus draw on a broader range of skills and knowledge and could use these in a tailored way when responding to the clients. Specifically they tried to shape their response so it matched the clients' concerns and showed appropriate empathy, provision of tailored information, a focus on building therapeutic alliance through forging good collaboration, encouragement of appropriate use of social support and validating the client's achievements.

Alongside effectiveness the study examines the working alliance in online delivered treatments. The working alliance is understood to capture a portion of the relational skills that compose what is proposed as therapist responsiveness in the study. Outcomes from the working alliance and its subscale scores can be compared

between the groups for any differences and also the outcomes from the working alliance can be correlated with outcomes from the BDI-II to establish any positive links between the perception of a quality alliance and its potential to predict outcomes.

The study affords a unique opportunity to investigate what clients find potentially helpful and hindering in their experience of online counselling. To date the author is not aware of any other study that has investigated this and it can shed light on what is considered important for change to occur and also inform the design and delivery of online treatments from a client's perspective.

Lastly, the study assesses participant's satisfaction with the treatments mode of delivery. It is important to assess whether participants were satisfied with the online delivery of treatments and what they perceive to be satisfying about that and perhaps what is considered least liked also. Again this data can potentially inform future design, development and delivery of online treatments.

Chapter 5: Method

Introduction

The project was a Randomised Control Trial (RCT) examining the efficacy of self-directed computerised cognitive behaviour therapy (cCBT) and asynchronous e-mail cognitive behaviour therapy (eCBT) for depression. The former was client-administered, specifically the Beating the Blues™ cCBT program and the latter was therapist-delivered, specifically the content from the Beating the Blues™ cCBT program delivered through e-mail. The research sought to investigate a new method for the delivery of effective CBT principles, namely in and through online formats. Alongside efficacy, the study was interested to investigate the added benefit of a potentially stronger alliance in the eCBT condition. It was suggested that the presence of therapist responsiveness to treatment adds value to the treatment delivered and consequently would have the potential to influence a successful outcome.

The chapter considers the method for the study; participant demographics, sampling procedures, including procedures for selecting participants, data collection and ethical standards. The sample size and power calculations are also considered. Each of the instruments employed in the study are described, their psychometric properties detailed, and alpha's established for their use in the study sample. All instruments were administered online apart from the therapist adherence scale and this is described along with training for raters and reliability estimates reported. The research design is fully described including the study hypothesis, its objectives and research questions addressed. The design further describes the procedure for participants, including the screening, randomisation and outcome management for participants. The interventions used in the study are detailed along with the therapists

involved in their delivery. Lastly, the data analysis that was performed is outlined as a prelude to the results chapter.

Participant Characteristics

Any registered student of the University (c.15, 000) was eligible to participate in this research, once they were 18 years of age or older. Two-hundred and forty eight (248) self-referred and applied to be screened. Principally, applicants with Beck Depression Inventory (BDI-II) scores ≤14 were excluded from the study, so too were applicants who score >29. A number of other eligibility criteria applied and these are summarized in Table 5.

Table 5 Eligibility criteria employed in the study

Inclusion & exclusion Criteria:
Age 18 years and over
Depressed as assessed by a score of 14+ on the BDI
Registered student at the University
Able to commit to eight weekly sessions
Serious suicidal intent
Currently on anti-depressant medication for greater or equal to six months
Psychotic illness
Alcohol or drug abuse
Previous diagnosis of a mental disorder
Depression preceding or coinciding a diagnosed medical condition
Unable to commit to 8 weekly sessions

Two-hundred and forty-eight individuals were offered a screening appointment (see Figure 1). Of these, 53 were not screened because they did not attend their appointment (n=18) or cancelled and did not reschedule (n=29) their screening appointment, or in the case of 6 people who presented for screening they were directed to other appropriate supports as it was judged that the current treatment and study was unsuitable. The remaining 195 were screened and 101 deemed eligible and included.

Table 6 displays the demographic data for the 94 who were screened and excluded and also details the demographic details that were collected at baseline for the 101 randomised and the 80 who began treatment. Finally the table breaks the 80 down into their respective treatment groups. Participants were mainly female and the mean age was 26.45. Forty-two percent (42%) had some previous counselling or psychotherapy, whereas only a small number (n=25) had previous medication use for depression. Sixteen (16%) were currently on medication for less than 6 months.

Sampling procedure

Participants self-selected to take part in the treatment and study and after being screened and meeting the necessary eligibility criteria were included. All data were collected automatically through online formats; this included automated e-mail reminders to participants to complete outcome and process instruments. Figure 1 shows the flow of participants through the trial and the figure details the research response rates for each time point throughout the trial.

Table 6 Participants demographic details

	Excluded n=94	Randomised n=101	Began treatment n=80	eCBT group n=37	cCBT group n=43
BDI-II (mean)	31.34	21.89	22.03	22.70	21.72
CORE-OM (mean)	22.61	19.07	19.19	19.46	18.95
Age (mean)	24.34	26.45	26.13	25.65	26.53
Sex					
Female	57 (61%)	63 (62%)	51 (64%)	26 (70%)	25 (58%)
Male	37 (39%)	36 (38%)	29 (36%)	11 (30%)	18 (42%)
College Standing					
1st year	37 (39%)	16 (16%)	10 (13%)	7 (19%)	3 (7%)
2nd year	19 (20%)	19 (19%)	17 (21%)	7 (19%)	10 (23%)
3rd year	16 (17%)	19 (19%)	14 (18%)	6 (16%)	8 (19%)
4th year	8 (9%)	10 (10%)	8 (10%)	5 (14%)	3 (7%)
PG	14 (15%)	37 (37%)	31 (39%)	12 (32%)	19 (44%)
Previous counselling					
Yes	49 (52%)	42 (42%)	35 (44%)	16 (43%)	19 (44%)
No	45 (48%)	59 (58%)	45 (56%)	21 (57%)	24 (56%)
Previous medication					
Yes	39 (42%)	25 (25%)	20 (25%)	10 (27%)	10 (23%)
No	55 (58%)	76 (75%)	60 (75%)	27 (73%)	33 (77%)
Present medication					
Yes	23 (24%)	16 (16%)	10 (13%)	5 (14%)	5 (12%)
No	71 (76%)	85 (84%)	70 (87%)	32 (86%)	38 (88%)

Note. BDI = Beck Depression Inventory; CORE-OM = Clinical Outcomes in Routine Evaluation – Outcome Measure; PG = Postgraduate

Sample size

Previous experience in offering online counselling and online peer support to students at the University proved popular. Therefore, we anticipated that with effective marketing the samples could be 60 per condition. Samples upwards of 60 per group are required to detect an effect equal to the median effect size of .47 of a standard deviation obtained in comparisons between alternative treatments, if the conventional levels of significance (.05) and power (.80) are adopted (D. A. Shapiro, 1995). In the effort to reach our target numbers, between March 2008 and June 2009, the author planned and executed four separate marketing and recruitment phases, and these are the pilot phase and three further phases named 1, 2 and 3. Two-hundred and forty-eight individuals applied to participate and were offered a screening appointment. After screening 101 were randomised and of these 80 began treatment. High numbers of participants met on one count or more the exclusion criteria.

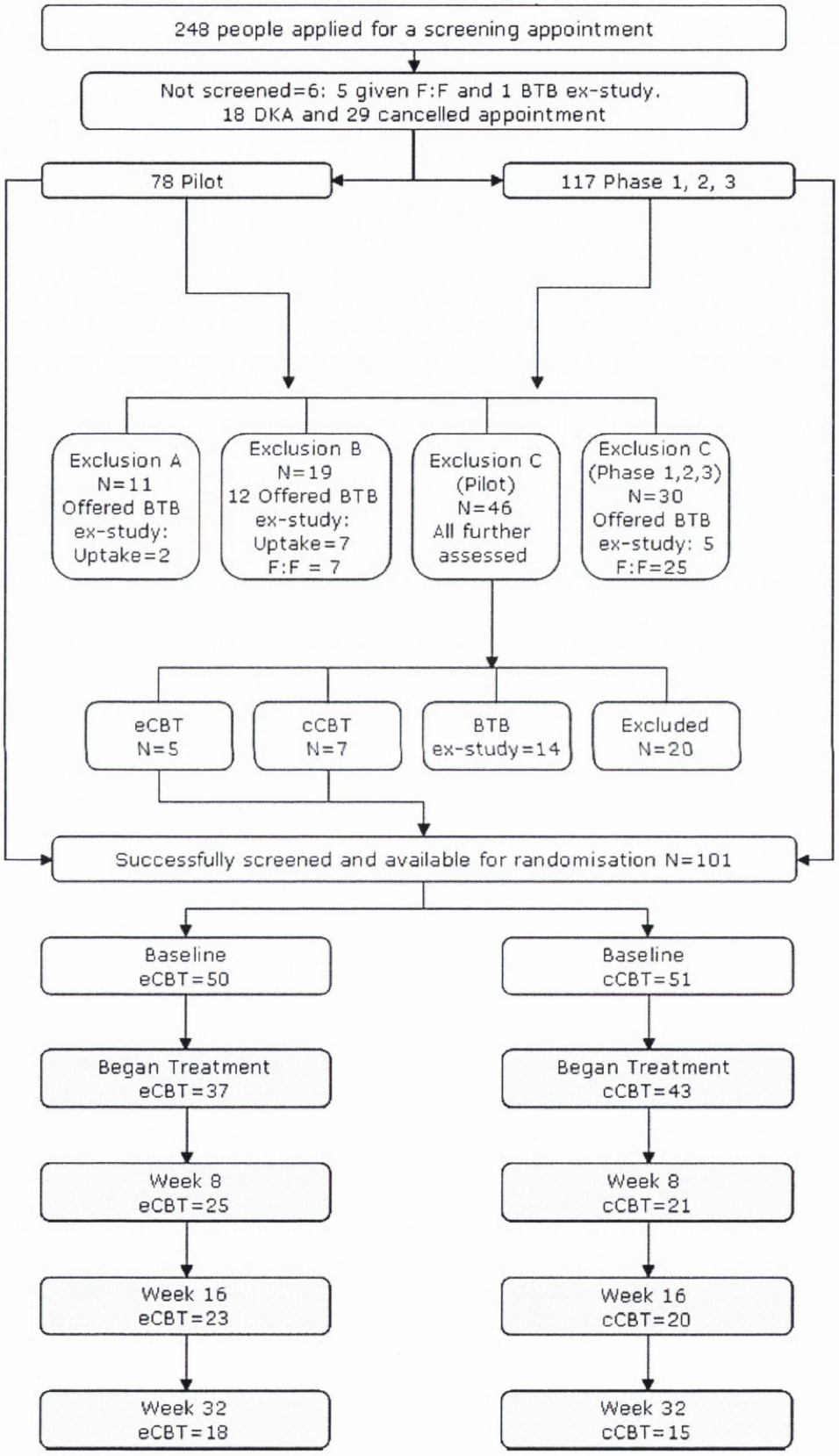

Figure 1 Flow of participants through the trial

Ethics

The study design went through a number of iterations based on feedback from different groups including students, staff at student counselling and staff and other doctoral students at the department of psychology. Ethical approval was sought and received for the study from the School of Psychology Ethics Committee (Appendix A).

Every effort was made to construct a robust design and meet the highest ethical standards. The development of the WebPages and related resources went through several iterations. This was necessary so that feedback from different stakeholders named above could be included. Stakeholders were presented with the design of the study, the WebPages and information for potential participants, the procedures prospective participants had to go through in order to part-take in the treatment and study and the treatment protocol. Out of these meetings feedback was gathered that informed the design and revisions were made. For example, as a result of the consultations a referral letter was included as part of the exclusion C (participants excluded based on suicidal risk assessment) outcome that could be downloaded by a participant and brought to the counselling service for appropriate referral. The entire administration of the e-counselling condition was discussed and planned for, including where the e-mails would go, who had access to the data, and the creation of hard-copy client files for each participant. If any further contact was made by a participant during the course of treatment, such as by phone, or face-to-face, a procedure and plan was in place for this. It was also decided to add further

information for participants who met exclusion C criteria – potential suicidal risk – regarding the nature of confidentiality, where it was made clear to participants that there are occasions where this can be broken.

The benefits of participating in the treatment were developed as additional information for the WebPages. Information was also provided on each of the screening instruments, and the exclusion criteria detailed. A PDF file of the information on the WebPages was also made available for download. A second consent was included on the HISTORY instrument regarding the collection of medical information from participants.

Lastly a group of students (n=4) were recruited and asked to give feedback on the study, its design, procedure for participants, the information provided, layout and usability of the WebPages. They went through the procedure as would a potential participant, including signing up and completing screening online. Their feedback was gathered through the use of a questionnaire made of six parts that gathered general data that included the student's gender, age, their faculty and course of study. The other parts related to the information about the study, the screening and the general protocol for treatment. The questionnaire contained quantitative items each of which also allows further comments. Students were instructed to use the comment area to fill in any thoughts or comments and also were encouraged to document what they understood was being presented or asked of them at the different points. The questionnaire and the feedback report can be found in the appendices (Appendix B), again suggestions were made and feedback initiated revisions for improvements.

Instruments

Brief Symptom Inventory (BSI)

The Brief Symptom Inventory (BSI) consists of 53 items covering nine symptom dimensions: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism. The BSI is the short version of the SCL-R-90 (Derogates, 1977), which measures the same dimensions. Items for each dimension of the BSI were selected based on a factor analysis of the SCL-R-90, with the highest loading items on each dimension selected for the BSI. The authors report good internal consistency reliability for the nine dimensions, ranging from .71 on Psychoticism to .85 on Depression. Good internal consistency reliability is supported by several other independent studies. Test-retest reliability for the nine symptom dimensions ranges from .68 (Somatization) to .91 (Phobic Anxiety). The BSI was employed to aid with screening participants and establishing eligibility. Item 3 regarding psychotocism, item 9 regarding depression and item 24 regarding paranoid ideation were included in the screening as part of the exclusion criteria.

For the current sample high reliabilities are demonstrated for the Brief Symptom Inventory (BSI) scale (Cronbach's α=.95).

Beck Depression Inventory (BDI-II)

The intensity of the depression is assessed through the Beck Depression Inventory (Beck, Steer, & Brown, 1996). The BDI is a common and frequently used questionnaire. Applicants with BDI scores ≤14 were excluded from the treatment, so too were applicants who scored >29. The latter group were referred to face-to-face treatment for severe depression. The BDI-II is the most widely used, reliable, and valid self-report measure of depression (Nezu, et al., 2002). The content of the BDI-II reflects the diagnostic criteria outlined in the DSM-IV for major depressive disorders (Steer, et al., 1999). The instrument contains 21 items that are rated on a scale of 0-3, consequently a total score range exists from 0-64. The instrument allows the determination of minimal, mild, moderate and severe depressive symptomatology (Nezu, et al., 2002). The instrument is easy to complete and takes about 10 minutes. The instrument has demonstrated strong reliability and validity (Beck, et al., 1996).

For the current study high reliabilities are demonstrated for the Beck Depression Inventory (BDI-II) scale (Cronbach's α=.88).

Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM)

CORE-OM-10 was administered to establish baseline general mental health functioning. The psychometric validity and reliability of CORE Outcome Measure have been established in extensive field research (C. Evans, Mellor-Clark, J., Margison, F., Barkham, M., McGrath, G., Connell, J. & Audin, K., 2000). Internal

reliability for all domains returns alphas between 0.75 and 0.95, therefore deeming it appropriate. Test-retest reliability is strong for all items and range from 0.85 to 0.95. Convergent validity with seven other instruments was good, and the scale also demonstrates good sensitivity to change. CORE-OM assesses users on four dimensions that are subjective well-being, problems/symptoms, life functioning and risk/harm. The current study employs the CORE-OM-10 item measure comprised of the following: two items on symptoms of depression and two on anxiety, three items on functioning including general functioning, social relationships and close relationships, one item on trauma, one on physical symptoms and one item on risk. A score of 10 or below denotes a score within the non-clinical range. A score of 11 to 15 is within the mild clinical range; from 15-20 the moderate clinical range, 20-25 moderate to severe clinical range and 25 or more the severe range.

For the current study sample high reliabilities are demonstrated for the Clinical Outcomes in Routine Evaluation (CORE-OM) item scale (Cronbach's α=.77).

History

The History instrument is a locally derived instrument that collects information on participant's experience of depression, counselling/therapy and medication for depression. In addition it contains items related to assessing alcohol and drug use, co-morbidity of depression with physical illness, presence of psychosis, and participant's ability to commit to the eight weekly sessions required of the treatment program (Appendix C).

Helpful Aspects of Therapy (HAT)

The HAT (Elliott, Slatick, & Urman, 2001; Llewelyn, 1988) is a seven question instrument assessing the most helpful events in the therapy, evaluated on a 9-point scale. It also evaluates the presence of hindering events. The instrument is used in significant events research (Timulak, 2003). For the current study 5 items from the HAT instrument were employed (Appendix E). Firstly participants were asked of the events that occurred in the session, which one did they feel was the most helpful or important. An event can be anything that either you or your counsellor said or did. They were then asked to describe what made this event helpful/important and rate the event on a 9-point likert scale that encompasses extremely hindering to extremely helpful. They are then asked to describe if anything else helpful occurred in the session and lastly, participants were asked to describe any event that was hindering for them in the session.

The Working Alliance Inventory – Short Revised (WAI-SR)

The WAI-SR (Hatcher & Gillaspy, 2006) was administered on three occasions (week 2, 4, and 6) during the intervention (Appendix F). The WAI comprises 12-items in three subscales; Goals, Tasks and Bond, rated on a 5-point Likert-type scale. The subscales are based on Bordin's (Bordin, 1979) working alliance theory and are (a) Goals: agreement about the goals of therapy (b) Tasks: agreement about the tasks of the therapy and (c) Bonds: the bond between the client and therapist. Score reliabilities (coefficient alpha) established by Hatcher et al. (2006) were .95 for the

WAI total, and for each of the subscales, .89 for Bond, .90 for Tasks, and .89 for Goals.

For the current study sample high reliabilities are demonstrated for week 2 (Cronbach's α=.86), week 4 (Cronbach's α=.87), and week 6 (Cronbach's α=.84).

Satisfaction with Treatment Measure

At week 8 post-treatment participants were asked to complete a satisfaction with treatment measure (Appendix D). A satisfaction measure was developed with the primary aim of determining participant's attitude towards online delivered treatment. The first part contained two questions asking participants to answer yes or no to whether or not they had in the last eight weeks been prescribed medication or attended face-to-face counselling. Part B contained four questions that assessed how strongly or not participants agreed to use of the computer to access treatment, how easy they found the online treatment to use, whether they felt that the treatment they received would have a lasting effect for them, and whether they would specifically recommend online treatment to others. Lastly, Part C asked participants to rate how helpful or not they found the online treatment program. It also contains two qualitative questions asking to describe what they liked most and least about the online treatment.

Treatment Adherence Measure

A treatment adherence measure was developed inspired by measures that have been developed and used in other studies (e.g. Young & Beck, 1980). The adherence measure was developed based on previous work in asynchronous online counselling and used to measure therapist responsiveness (TR) in the asynchronous e-mail delivered (eCBT) condition, where, through free text responses to clients a range of relational and technical skills help cultivate a responsive therapeutic relationship. Items were assessed using a nominal scale, present or not, and included empathy and acknowledgement of emotions, provision of guidance and information, validation of successes, promotion of self-care and social support, and building alliance (Appendix G).

The aim of the measure was to ensure that the therapists in the eCBT condition were adhering to the responsive application of relational and technical skills in replying through free text to clients in the program. The adherence measure was theoretically grounded in the therapeutic relationship literature and the key concepts of responsiveness and alliance as detailed in chapter 3. In the eCBT condition this is considered as the added element and is conceived as TR. The measure was developed, revised and refined over three generations of the instrument. Two raters were employed to carry out the work, both counselling psychologists. On each occasion the independent raters blindly applied the instrument to a selection of scripts from the eCBT condition. They were instructed to read the clients submission and thereafter the counsellor's reply scoring the adherence measure based on the match between clients words and counsellors response. Therefore the raters were checking for

appropriate therapist responsiveness between what the client was reporting and what the counsellor was replying to. Based on the outcomes of trialling the measure revisions were made until an acceptable set of five categories were determined and suitably defined.

In total, participants in the eCBT condition accumulated 147 sessions and the final version of the adherence measure was applied to 48 (33%) randomly chosen scripts from the two different counsellors working as part of the trial. The measure employed five items and for each script a total score of 5 was therefore the maximum. The global mean returned for all analysis combining each raters effort was 4.78 and for each of the raters 1: 4.79 and rater 2: 4.77. For each of the 5 items composing the adherence measure the means are displayed alongside the reliability values (κ) in Table 7.

Table 7 Adherence measure items, means and Kappa values

Adherence Measure Items	Means	Kappa Value
Empathy and Acknowledgement of Emotion	4.6	κ=.484
Provision of Guidance and Information	4.5	κ=.647
Validation of Successes	4.6	κ=.478
Self-care and Social Support	4.6	κ=.478
Building Alliance	4.6	κ=.657

Cohen's Kappa coefficient (Cohen, 1960) is a statistical procedure used to measure inter-rater agreement on nominal data. Table 8 displays the categories for interpreting κ values (Landis & Koch, 1977).

Table 8 Interpretation of Kappa values

κ – Kappa values	Interpretation
<0	No agreement
0.0 — 0.20	Slight agreement
0.21 — 0.40	Fair agreement
0.41 — 0.60	Moderate agreement
0.61 — 0.80	Substantial agreement
0.81 — 1.00	Almost perfect agreement

The kappa values (Table 7) determine it to be reliable on each of the items. Three of the items display moderate agreement and the remaining two yield substantial agreement among the raters. It seems therefore that counsellors did adhere to the responsive application of relational and technical skills in their work with clients and the appropriate and responsive delivery of the treatment. Therapist responsiveness in their free text responses was identified and therefore it can be determined that the added element is present. It is therefore the case that the core relationship concepts of responsiveness and alliance detailed in chapter 3 were present in the therapist-delivered condition. The application of responsive relational and technical skills included the development of empathy and acknowledgement of

emotions, the provision of guidance and information, validation of client's successes, encouraging self-care and social support and building alliance.

Research Attrition

Figure 1 details the research attrition. Of the 101 participants randomised, 80 (79%) began treatment and by the end of treatment at week 8 there was a 68% (n=25) research response rate from the asynchronous e-mail therapist-delivered (eCBT) group and 49% (n=21) for the Beating the Blues™ self-administered (cCBT) on the main outcome measures, BDI-II and CORE-OM. At week 16 the research response rate was 62% (n=23) from the eCBT group and 47% (n=20) for the cCBT group. At week 32 the research response rate was 49% (n=18) from the eCBT group and 35% (n=15) for the cCBT group.

During treatment participants were asked to complete the WAI-SR at week 2, 4 and 6. The response rate for week 2 was 49% (eCBT=20, cCBT=19), the research response rate for the eCBT group was 54% and 44% for the cCBT group. At week 4 the overall research response rate was 39% (eCBT=14, cCBT =17), the rate for the eCBT group was 38% and 40% for the cCBT group. At week 6 was the research response rate was 26% (eCBT=9, cCBT =12), the rate for the eCBT group was 24% and 27% for the cCBT group.

During treatment from week 2 to 8 participants were asked to complete the Helpful Aspects of Therapy form. The response rate at week 2 was 53% (n=42), at week 3, 41% (n=33), at week 4, 38% (n=30), at week 5, 23% (n=18), at each week 6

and 7 the response rate was 19% (n=15), and at week 8 the response rate was 35% (n=28). At the end of treatment participants were also asked to complete a satisfaction measure and the research response rate for this measure was 27% (n=10) for the eCBT group and 35% (n=15) for the cCBT group.

The research attrition rate excludes missing data regardless of whether participants stayed in treatment. Chi-square tests reveal no association between research response rate and treatment groups for the main outcome measures, $\chi^2(1; N =46) = 2.85, p > .05$, the WAI-SR, $\chi^2(1; N =39) = .775, p > .05$, or the satisfaction with treatment measure, $\chi^2(1; N =25) = .571, p > .05$.

Research Design

Using a pre-test / post-test two-group randomised controlled design with follow-up post-treatment 16 weeks and 32 weeks, the study was designed to establish the efficacy of delivering an established CBT treatment for depression through two innovative mediums, namely, online asynchronous counselling that is therapist-delivered and, the second, a client-administered CBT software program, without therapist support.

Objectives

The objective of the study was to investigate the innovative delivery of a standard intervention for treating depression. Specifically, the study sought to assess the effectiveness of an online self-directed CBT program compared to a therapist-

delivered online counselling intervention for depression. Contributing to this main objective was an assessment of outcomes based on depressive symptoms (BDI-II) and general mental health functioning (CORE-OM) within groups and between groups at pre- post-treatment and follow-up. Further analysis made an assessment of working alliance and its correlation to outcomes in online counselling (eCBT) and self-directed therapy (cCBT). Participants' experiences of helpful and hindering events in online counselling and self-directed therapy were assessed. Lastly, an assessment was made of participant's satisfaction with online delivered treatment.

Research questions

Extrapolated from the named objectives are a number of research questions.

- Firstly, is there a difference in effectiveness between online treatments where one is therapist-delivered and the other is self-administered?
- Secondly, are there any differences between the working alliance rates and its subscale rates for each group and how do these correlate with outcomes on BDI-II?
- Thirdly, what do participants find helpful and hindering in their online treatment?
- Fourthly, were participants satisfied with the treatment and especially its mode of delivery online?

Hypothesis

The study hypothesised that using established CBT principles, both treatments would therefore demonstrate effectiveness, but that the therapist-delivered

intervention (eCBT) would most likely demonstrate greater improvement given the added value of therapist responsiveness.

Procedure

The online interventions were offered to students through a secure website. The student body was e-mailed (Appendix J) advertising the treatment and study and invited to visit a website for more information (Appendix K). The information pages included general information on the study, what was involved and required in choosing to participate, information on the treatments available, the researchers and how to make contact with the researchers.

Once students had read the information pages they were ready to decide whether they wished to participate in the study. At that point they could register and registration collected data including student username and identification number. Each student received a password generated by the web system, and along with their username logged onto the website where they were initially directed to the informed consent webpage (Appendix L). Once informed consent was established students completed the pre-treatment screening instruments (BSI, BDI-II, CORE-OM, and History) and were randomly assigned to one or other of the online conditions or if deemed ineligible were excluded and offered appropriate support.

All instruments were administered online and participants completed them based on the instructions given as would be the case in paper and pencil administrations. In seeking the permission for use of the BDI-II and CORE-OM

instruments online rigorous conditions applied, for example, the replication had to be exact as it would be in a paper-and-pencil version, it could not be copied or downloaded from the webpage, all right-click mouse functions were disabled, and it was also password protected for use with study participants only. The BDI-II and CORE-OM (Appendices H and I) operated as the main outcome measures and were administered at baseline, end of treatment – week 8, and at follow-up; 16 weeks and 32 weeks post-treatment.

The WAI-SR was administered to each treatment group at week 2, week 4 and week 6. Like any standard scale it had instructions and these were tailored for each of the groups. Firstly for the eCBT group the instruction read, "Please take a few minutes to complete the following evaluation. The following form is asking you to rate your experience with your online counsellor. You are using online counselling, please consider the counsellor who is corresponding with you by e-mail in answering the following inventory," and for the cCBT group, "Please take a few minutes to complete the following evaluation. The following form is asking you to rate your experience with your online counsellor. You are using Beating the Blues™, in answering the following inventory please consider the programs voiceover as your counsellor."

The HAT instrument was administered online at sessions 2 until session 8 and participants completed it based on the instructions given as would be the case in paper and pencil administrations. Lastly, the satisfaction with treatment measure was administered at week 8, end of treatment.

Screening and outcome management

The screening was designed so that it could be completed entirely online and without the need to attend a clinic. The pilot cohort completed screening in this way. After responding to the advertisement e-mail they were given access to a website, and after giving consent continued to complete the screening instruments online. The exclusion criteria established for the various screening instruments can be found in Table 9.

Once the screening instruments were completed, eligible participants were randomly assigned to one of the two available conditions. Participants excluded were assigned to one of three possible exclusions and these are described below. Randomisation took place at the individual level after baseline measurement. Screening instruments were completed online and computer algorithms determined scores on the questionnaires and assigned people to one or other of the active conditions or excluded them. The computerised randomisation sequence was generated by a computer programmer, independent of the researchers.

The experience of recruiting and screening for the pilot has been detailed elsewhere (Richards & Timulak, 2009). Essentially, the pilot recruited 78 students who chose to participate and initially 20 met the eligibility criteria and were assigned to one or other of the two active treatment conditions. The remainder (n=58) were excluded because they were deemed ineligible.

Table 9 Exclusion criteria for each of the instruments – Pilot

Instrument	Item No.	Indicator	Scale	Criteria
BDI-II	9	Suicidal thoughts or wishes	0-3	1 or above
BDI-II	2	Pessimism	0-3	2 or above
CORE-OM	6	Suicidal plans	0-3	1 or above
BSI	3	Psychoticism	0-4	2 or above
BSI	9	Suicidal ideation	0-4	1 or above
BSI	24	Paranoid ideation	0-4	2 or above
HISTORY	3	Q: Are you currently in face-to-face counselling/therapy	Yes/No	Yes
HISTORY	7	Currently on medication	More / less than 6 months	More than 6 months
HISTORY	8	Alcohol and drug misuse	Yes/no	Yes
HISTORY	9	Recent medical diagnosis	Yes/no	Yes
HISTORY	11	Organic mental health disorder diagnosis	Yes/no	Yes

Note. BDI-II=Beck Depression Inventory; CORE-OM=Clinical Outcomes in Routine Evaluation – Outcome Measure; BSI=Brief Symptom Inventory.

The excluded cohort were further assessed through a variety of means (face-to-face (F:F) assessment, assessment by phone call, or communication through e-mail) and 12 were deemed eligible and randomly assigned to either cCBT (n=7) or eCBT (n=5). The remaining participants were referred to other appropriate supports.

In addition it was felt that some of the criteria applied for eligibility were set too high and consequently biased towards excluding participants. Therefore a few small changes were made and these can be found in Table 10.

Table 10 Exclusion criteria for each of the instruments - Phase 1, 2, and 3

Instrument	Item No.	Indicator	Scale	Criteria
BDI-II	9	Suicidal thoughts or wishes	0-3	3 or above
BDI-II	2	Pessimism	0-3	3 or above
CORE-OM	6	Suicidal plans	0-3	1 or above
BSI	3	Psychoticism	0-4	3 or above
BSI	9	Suicidal ideation	0-4	2 or above
BSI	24	Paranoid ideation	0-4	3 or above
HISTORY	3	Q: Are you currently in face-to-face counselling/therapy	Yes/No	Yes
HISTORY	7	Currently on medication	More / less than 6 months	More than 6 months
HISTORY	8	Alcohol and drug misuse	Yes/no	Yes
HISTORY	9	Recent medical diagnosis	Yes/no	Yes
HISTORY	11	Organic mental health disorder diagnosis	Yes/no	Yes

Note. BDI-II=Beck Depression Inventory; CORE-OM=Clinical Outcomes in Routine Evaluation – Outcome Measure; BSI=Brief Symptom Inventory.

In the case of Phase 1, 2 and 3, 170 applied for a screening appointment and the screening took place on a stand-alone computer after an initial visit to the clinic

and a short meeting with one of the clinicians. The reason for the change in design was because the experience with screening online created a crisis that required participants to be followed-up based on high numbers self-reporting risk. In total 117 individuals were screened and of these 69 were included and randomised to one or other of the active treatments. The remainder (n=48) were excluded based on the criteria outlined as they met, on one count or more; the established exclusion criteria. Those excluded were offered further appropriate support.

Participants who met the inclusion criteria were randomly assigned to one or other of the active treatment conditions. Those ineligible were directed to one or other of the three possible exclusion assignments. Therefore, the total of possible outcome assignments was 5 and these are described below with the numbers from the total group being assigned to each.

1. *Assigned to online counselling [e-mail] for the treatment of depression (N=50)*

Once the student was assigned to the online counselling condition they were directed to an information page (Appendix M). The page described the online counselling condition and how it operated. The information was also e-mailed to the participants e-mail account. After reading the information sheet they had an opportunity to fill out and send their first free-text message to the online counsellor. Thereafter they received an automatic response, called the 'housekeeping message', letting them know that their message had been received and when they could expect a reply from the counsellor. Lastly, participants were recommended that they send one

e-mail per week to the counsellor. The information page re-informed the participant about the research aspect and reminded them that they will be asked to complete questionnaires during the treatment, at the end and follow-up. During the eight weeks of the treatment the participant received automated e-mails concerning the evaluation. The e-mail was general and short and invited the participant to complete the evaluations. Lastly, the participant was advised that they could contact the researchers or their clinician if they experienced any difficulties.

2. Assigned to Beating the Blues™ for the treatment of depression (N=51)

Once the student was assigned to the Beating the Blues™ condition they were directed to an information page (Appendix N). The page described the Beating the Blues™ program and how it operated. The information was also e-mailed to the participants e-mail account. The information page detailed how the participant could access and use the Beating the Blues™ program. They were recommended to access the program once a week for eight weeks. In addition, participants were advised that they may need headphones to listen to the program in private and that they would need access to a printer. The information page re-informed the participant about the research aspect and reminded them that they would be asked to complete questionnaires during the treatment, at the end and follow-up. At the end of each session they received an automated generic e-mail contact (Appendix O). The weekly e-mail encouraged them in their commitment to the program. The automated e-mail was general and short and invited the participant to complete the evaluation. Lastly, the participant was advised that they could contact the researchers if they experienced any difficulties.

3. *Assigned to Exclusion A: Where scores on the BDI indicate that they are below the range of clinical depression (N=11)*

Once a participant was assigned to the Exclusion A condition they were directed to an information page. The page described the Exclusion A condition. The information was also e-mailed to the participants e-mail account. It first of all presented that their score on the BDI-II was below 14 and therefore it stands outside the criteria for eligibility, consequently they have been unsuccessful in applying to participate in the study. The participant was informed that online counselling was still available to them through the online mental health portal. The student was directed to this website.

4. *Assigned to Exclusion B: Where the scores on the BDI are outside the range [<29] accepted for participation in the study (N=19)*

Once the participant was assigned to the Exclusion B condition they were directed to an information page (Appendix P). The page described the Exclusion B condition. The information was also e-mailed to the participants e-mail account. Because their BDI-II score was greater than 29 and therefore stands outside the eligibility criteria established, they were recommend not to participate, as the treatment may not be suitable. The information pages then highlighted that their BDI score is concerning and they were advised to seek further help. A number of possible options were then presented to the student and these included the college counselling

service, the health service and also some out of office hour's services; the Samaritans and Aware.

5. *Assigned to Exclusion C: Where the scores on the items indicate suicidal risk.(N=64)*

Once the participant was assigned to the Exclusion C condition they were directed to an information page describing Exclusion C condition (Appendix Q). The information was also e-mailed to the participants e-mail account. It first of all presents that their score from the BDI indicates that that may be in urgent need of face-to-face help. As a result, it was recommended that they do not participate in the study. They were recommended to contact the student counselling service within 24 hours. Details of the counselling service and the college heath service were given and so too were out of hours services contact details listed. A referral letter was also available for participants to download and bring with them to the counselling service. In this way front office staff would know they have been referred from the website and could act on this information.

In Phase1, 2, and 3 the same five assignments were utilised but because participants completed the screening onsite, a clinician could direct the participant to the necessary support after their outcome from the screening was established.

Descriptions of the interventions and how they operated

Cognitive Behaviour Therapy (CBT) is a form of psychotherapy that aims to help people change negative thinking and unhelpful behaviour (Nathan, 2007). Research has shown that CBT is an established treatment for depression (Gotlib et al, 2002). The usefulness of computerised CBT protocols has been established under a number of studies (Marks et al, 2007).

Condition 1: Self-directed cCBT: Beating the Blues™

The protocol for the self-directed cCBT Beating the Blues™ is outlined in Figure 2 below and expanded upon in Chapter 4. Beating the Blues™ is an 8-session, self-help treatment. During treatment users identified specific problems and realistic treatment goals. They worked through cognitive modules which focus on the identification and challenging of automatic thoughts, thinking errors, distractions, core beliefs and attributional styles. The program included problem-directed behavioural components in which patients could work on any two of activity scheduling, problem solving, graded exposure, task breakdown or sleep management according to their specific problems. The final module looked at action planning and relapse prevention. Beating the Blues™ uses interactive modules, animations and voice-overs to motivate and engage the user. A major feature is a series of filmed case studies of fictional patients who model the symptoms of depression and help demonstrate the treatment by cognitive behavioural therapy.

Condition 2: Asynchronous online e-mail therapist-delivered CBT counselling

The protocol used was identical to the treatment protocol for the cCBT intervention, using the Beating the Blues™ protocol and delivering it through e-mail. Case histories and any other multimedia content were in text format. The content included the cognitive components alongside the behavioural activation strategies and a full description can be found in Chapter 4. The therapist-delivered e-mail (eCBT) condition also had the added element of a therapist responding to the free-text from session-to-session. Chapter 1 has outlined the theoretical rationale supporting the thesis and further the nature of the added element has been detailed in chapter 3. This added element realised itself through the exchange of free text from session-to-session, where a client could write free text about any concerns, difficulties, questions etc and thereafter the therapist would respond to this free text in addition to providing the specific CBT content for a given session. The action of the therapist engaging with and responding to the client's free text can be understood as the added element and is understood as therapist responsiveness as it allows space for the clinician to apply a broad range of relational and technical skills, even beyond what could be considered within a purely CBT framework.

A trained therapist potentially brings to bear a range of different therapeutic skills in this intervention. Chapter 3 has argued that the range of skills brought to bear by the therapist can be understood as being aspects of the provision of therapist responsiveness as it involves the therapist responsive engagement with the client. What therefore exists as the added element is the responsive delivery of a range of

relational and technical skills. Although they overlap, relational skills largely concern the development of a therapeutic alliance and technical skills concern the responsive and tailored engagement with what clients present in the free text. It is reasonable to postulate that such a provision is unique to the eCBT condition and does not exist in the cCBT condition. These relational and technical skills are present in the cCBT too, however, not the extent and in the responsive form as in eCBT. Further, the range of clinical skills that can be employed by the therapist can be considered to exist beyond a standard CBT framework.

The program therefore was based on a standard manual of CBT and identical to what the self-administered group received, however, in the eCBT condition the counsellors could respond to a client in free text, the purpose of which was the cultivation of non-specific factors and the development of therapist responsiveness online. An example of a session can be found in Appendix R. While the specific content does not change the mode of delivery does and potentially the exchange of content through text-based e-mail is less attractive and less interactive than is the self-administered program.

Therapists

Two therapists worked on the program delivering the asynchronous counselling condition (eCBT). One was in her 60's and the other in her 20's. The former was family therapy trained and had many years of experience working as a therapist. The latter was a recent graduate of counselling psychology who also worked in face-to-face counselling service with students. Both were qualified counsellors with

specialist training in online counselling. The specialist training was administered by an external training provider in online counselling; a leading expert in the delivery of online counselling, also a co-author of the standards for online counselling provided by BACP (Anthony & Jamieson, 2005), who has published extensively on the topic in last 10 years (Anthony, 2000, 2001; Anthony & Goss, 2003) and has provided this type of training over a number of years. In addition both counsellors had an opportunity to familiarise themselves with the course content before engaging in the delivery of the treatment.

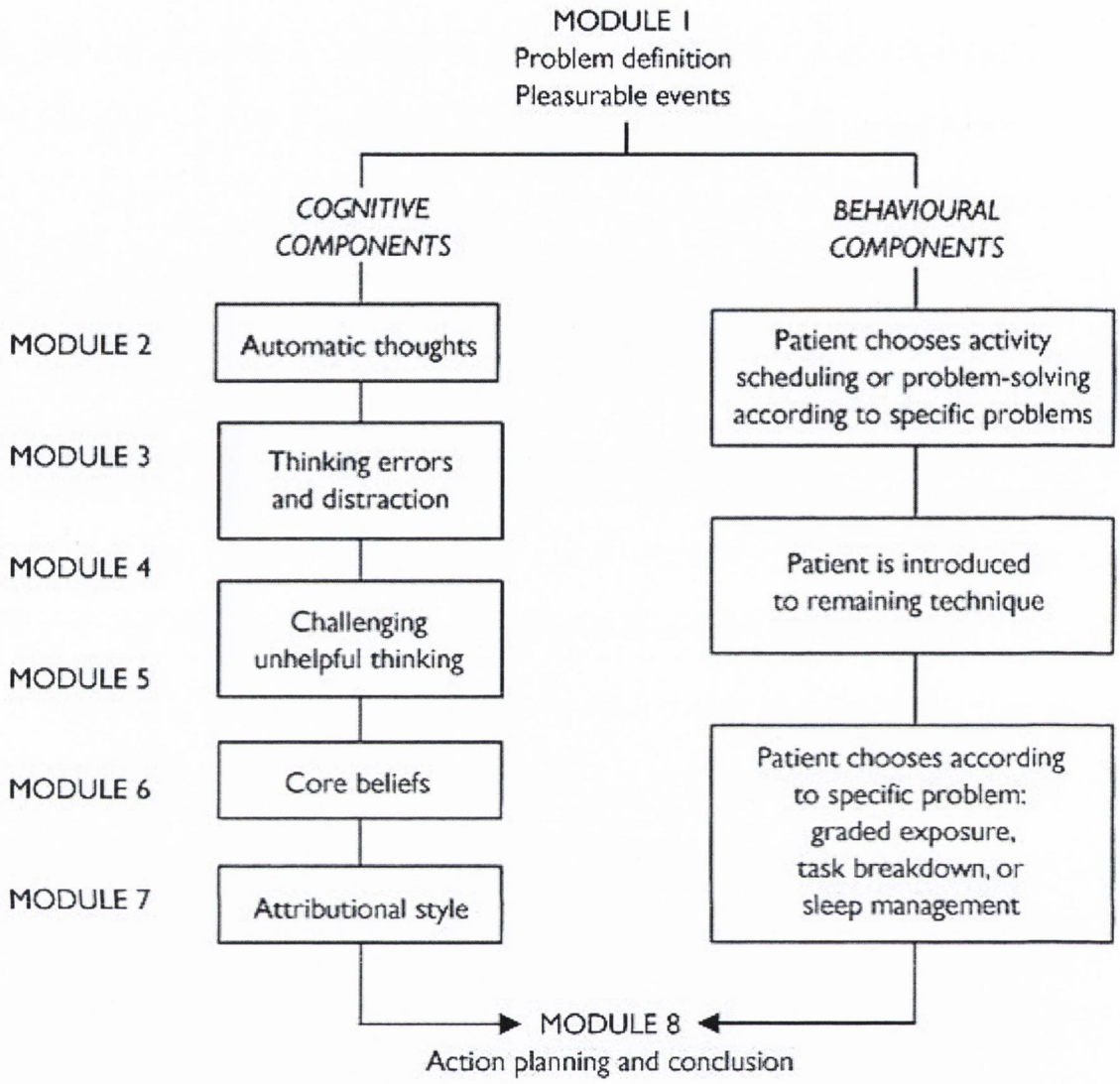

Figure 2 Structure of the CBT Protocol used in the study (condition 1 and 2).

Data analysis

The analyses were based on the intention-to-treat principle, including those who began treatment and provided follow-up data irrespective of treatment compliance. Effects were tested at the 0.05 level (two-tailed). All analyses were

carried out using SPSS (version 16.0 for Windows). Baseline differences in demographic and clinical characteristics were investigated using t-tests.

To test the main hypotheses, mixed ANOVAs, using baseline scores as a covariate, were performed for both BDI-II and CORE-OM. In case of significant time x group interactions, contrasts were conducted comparing changes from baseline to each subsequent time point for each group separately. Further analysis was made using variables (sex, age, standing, previous counselling, or previous medication) collected at baseline to detect any differences in effect between groups.

The magnitude of the within-group effects of each of the interventions (Cohen's d) was calculated by subtracting the pre-test mean score of the intervention from the post-test mean score of the intervention and dividing the result by the pooled standard deviation, alongside their associated confidence intervals. Similarly the magnitude of between-group effects was established. For Cohen's *d* an effect size of 0.2 to 0.3 can be considered a small effect, around 0.5 a medium effect and 0.8 upwards, a large effect (Cohen, 1998). Confidence intervals were established using the following formula: (M1-M2)-(za/2*SD.1/SQRT (N1)) for the *d* lower bound limit, and for the d upper bound limit the same formula is used except the minus symbol (-) is changed to a plus symbol (+) (Cohen, 1998; Wolf, 1986).

Analysis was made to determine the proportion of participants who made clinically meaningful change, those who recovered and improved and those who made no change or deteriorated at end of treatment and at week 16 and week 32 follow-up. The analysis for recovery was conducted using the criteria defined as a post-treatment

score less than 10 on the BDI-II (Beck, et al., 1996) and a corresponding decrease of greater than 9 points on the BDI-II (Seggar, Lambert, & Hansen, 2002). Improved was defined as a movement of 9 points on the BDI-II and a score greater than 10. No change (NC) was defined as where the magnitude of change on the BDI-II was less than 9 change points. Deterioration was defined as an upward change in score on the BDI-II greater than 9 points. Chi-squared tests were used to test the frequency differences in reliable and clinically significant change.

Mean scores on the WAI-SR were calculated for each of the groups and the data correlated with outcomes on the BDI-II. T-tests examined any significant differences in the correlations between the two groups. In addition, scores for the three WAI-SR subscales were calculated for each data collection time and compared for each group.

A qualitative analysis (Timulak, 2003) was conducted on the data collected using the HAT instrument to determine what were considered helpful and hindering aspects to treatment for both conditions and these were compared. The data was review by the author and a preliminary helpful and hindering events list was compiled and associated impacts list, helpful and hindering too. Thereafter this was reviewed by the author's supervisor, and this cycle occurred twice until a set of helpful and hindering events and associated impacts were conceived, named and defined. Thereafter the data along with the categories and their definitions were given to a postgraduate doctoral student who applied the categories blind to the data. The results from the primary analysis carried out by the author and supervisor were then

compared with a portion of the results from the blind rating and an 80% agreement was achieved.

Lastly, a quantitative and qualitative analysis was made of the satisfaction with treatment measure to determine whether participants were satisfied with online delivered treatment.

Conclusion

The methods have detailed the comprehensive design and detailed execution of the study. A great deal of thought and feedback was gathered in the construction of a robust study. Every effort has been made to adhere to robust ethical standards and the School of Psychology granted ethics approval on this basis. Estimates for the various screening, outcome and process measures have demonstrated adequate reliability for the study sample. The development of the study method considered the fact that the screening was to take place online and a comprehensive screening outcome management flow was designed and executed. Randomisation took place at the individual level and was blind to the researchers involved.

Chapter 6: Results

Introduction

Using a pre-test / post-test two-group randomised controlled design with follow-up post-treatment, at week 16 and week 32, the study was designed to establish the efficacy of delivering an established CBT treatment for depression through two innovative mediums. The study hypothesised that in using established CBT principles, both treatments would therefore demonstrate effectiveness, but that the therapist-delivered e-mail intervention (eCBT) would most likely demonstrate greater improvement given the added value of therapist responsiveness, cultivated through the exchange of free text from session-to-session. Other questions that the research explores and which may add value to the results obtained are firstly, what participants found helpful and hindering in their therapy from session to session and secondly, were participants satisfied with the treatment and especially its mode of delivery online?

The following analyses were therefore performed to test the main hypothesis and answer the exploratory questions posed. Firstly, baseline characteristics of the sample were explored and *t*-tests used to establish any differences between the two groups on baseline variables. Chi-square tests were run to assess any association between treatment response rate and group. To test the main hypothesis mixed ANOVAs, using baseline scores as a covariate, were performed on the main outcome measures. Within-group and between-group effect sizes (Cohen's *d*) were established alongside their associated confidence intervals. Reliable and clinically significant

change was calculated for both groups. Correlations were calculated for the results of WAI-SR at each data collection time and the outcomes on the BDI-II at end of treatment. T-tests were run to test any significant differences between the groups. Analysis, using *t*-tests, were performed on the subscales of the WAI-SR to test for any significant differences in the groups.

Effects of the Interventions

The analyses are based on the intention-to-treat (ITT) principle, including those who began treatment (n=80), and provided follow-up data irrespective of treatment response rate.

Baseline characteristics

Independent samples *t*-tests reveal no significant differences between the 101 randomised and the 80 who began treatment on all baseline variables; their BSI score, $t(99)=.96$, $p>.05$, BDI-II score, $t(99)=.62$, $p>.05$, CORE-OM score, $t(99)=.452$, $p>.05$, age, $t(99)=-.84$, $p>.05$, sex, $t(99)=-.16$, $p>.05$, standing in college, $t(99)=1.11$, $p>.05$, or whether they had previous counselling, $t(99)=-.86$, $p>.05$, or previous medication for depression, $t(99)=-.11$, $p>.05$.

Means, standard deviations and numbers for both groups for the main outcome measures can be found in Table 12. The mean score of the entire group who received treatment (n=80) on the BDI-II at baseline was 22.18 (*SD*=5.0) and on the CORE-OM at baseline was 19.19 (*SD*=4.9). Independent Samples *t*-tests reveal that there were no

significant differences found between the groups at baseline on the BDI-II, $t(78)=0.87$, $p > .05$ or CORE-OM, $t(78)=0.45$, $p > .05$. The results reveal significant homogeneity of variances on the BDI-II and CORE-OM at baseline supporting the effectiveness of the randomisation procedure. T-tests reveal no significant differences with age between the two groups, $t(78)= -.587$, $p > .05$, sex in each group, $t(78)=-1.12$, $p > .05$, standing in college $t(78)= -1.09$, $p > .05$, previous use of medication, $t(78)= -.384$, $p > .05$, or experience of previous counselling for depression, $t(78)= 0.084$, $p > .05$.

Treatment Response Rate

During the course of treatment, participants were lost and Table 11 details the compliance and attrition rate from session to session. The treatment program comprised of 8 sessions and the mean number of sessions completed for both groups (n=80) was 4.01 ($SD = 2.6$) and for each condition was eCBT: 3.97 ($SD = 2.2$) and cCBT: 4.05 ($SD = 2.9$).

In terms of dropout over time, chi-square tests revealed an association between the groups and treatment response rate for session 2, $\chi^2(1; N =64) = 9.16$, $p < .05$. At session 2, 95% of the participants in the eCBT group completed the session whereas 67% of the cCBT group completed. Cramer's V statistic was .34 ($p < .05$) which represents a medium association between the group and whether session 2 was completed.

Table 11 Compliance (Dropout) rates in the study

	Both [n=80]		eCBT [n=37]		cCBT [n=43]	
	N	%	N	%	N	%
Session 1	80	100%	37	100%	43	100%
Session 2	64	80%	35	95%	29	67%
Session 3	48	60%	24	65%	24	56%
Session 4	40	50%	20	54%	20	47%
Session 5	30	37%	11	30%	19	44%
Session 6	24	30%	9	24%	15	35%
Session 7	19	24%	6	16%	13	30%
Session 8	16	20%	5	14%	11	26%

Outcomes on BDI and CORE-OM

The results from the mixed ANOVAs (using baseline scores as a covariate) for the BDI-II showed that Mauchly's test indicated that the assumption of sphericity was violated and therefore degrees-of-freedom were corrected using Greenhouse-Geisser estimates of sphericity (ε=.75 for the main effect of BDI-II). There was a significant overall improvement over time for each of the groups on the BDI-II, $F(2.25,67.59)=6.872$, $p<.001$. Contrasts reveal that significant improvement was achieved from baseline to week 8, $F(1,30)=15.015$, $p<.001$, and this was maintained at follow-up.

Figure 3 displays the outcomes on BDI-II for both groups from T1 to T2. Independent samples *t*-tests reveal no significant difference between the groups at T2, $t(44)=-.73$, $p > .05$.

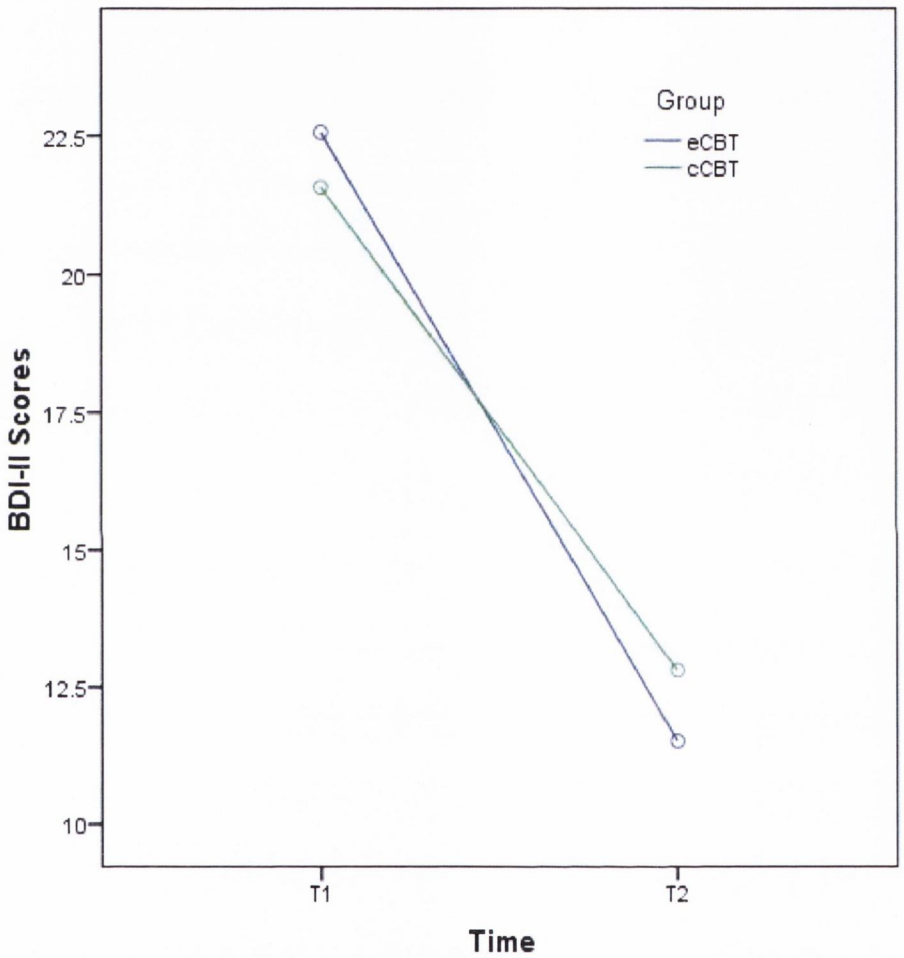

Figure 3 Outcomes on BDI-II T1-T2, post-treatment

Figure 4 displays the outcomes on BDI-II for both groups from T1 to T3. Independent samples *t*-tests reveal no significant difference between the groups at T3, $t(41)=-.09$, $p > .05$.

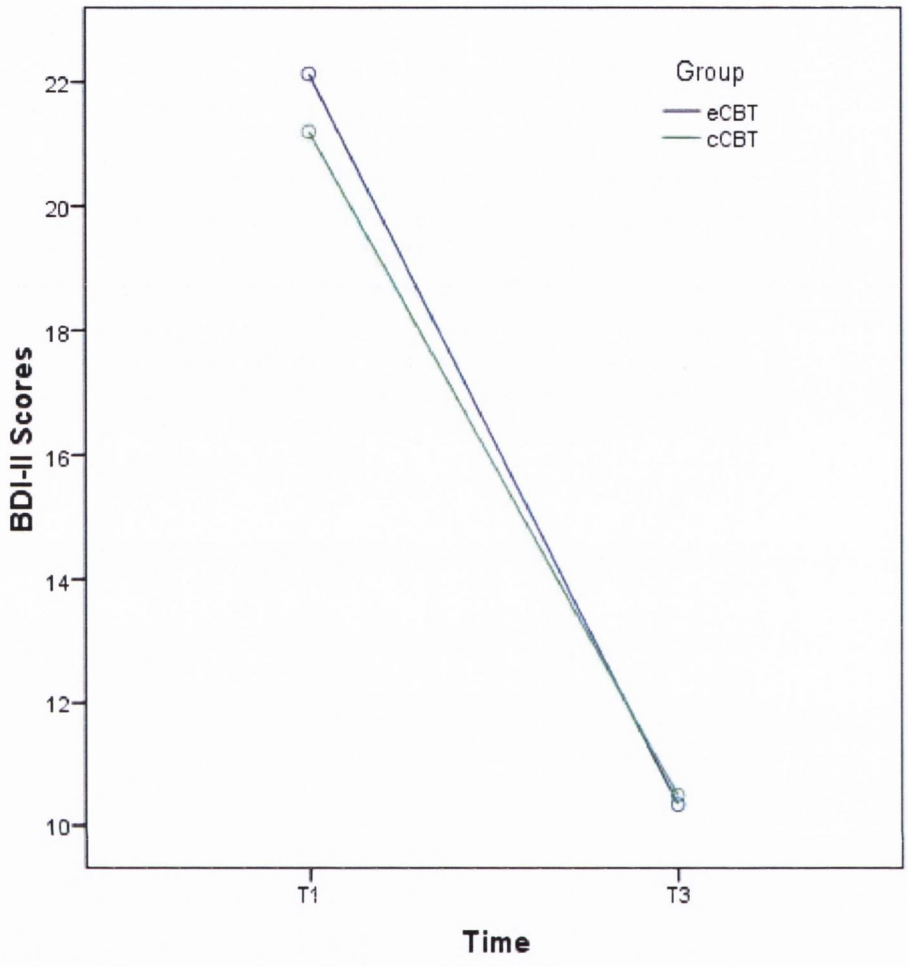

Figure 4 Outcomes on BDI-II T1-T3, week 16 follow-up

Figure 5 displays the outcomes on BDI-II for both groups from T1 to T4. Independent samples *t*-tests reveal no significant difference between the groups at T4. $t(31)=-.07$, $p > .05$.

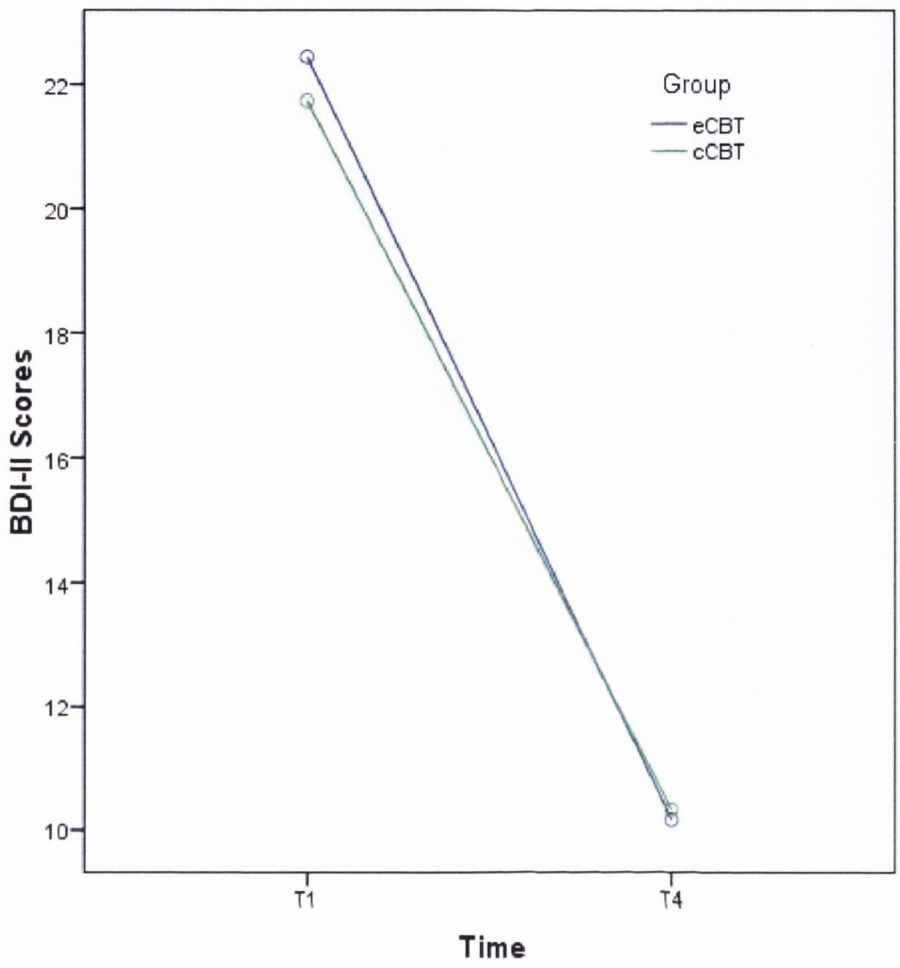

Figure 5 Outcomes on BDI-II T1-T4, week 32 follow-up

The results from the mixed ANOVAs (using baseline scores as a covariate) for the CORE-OM showed a significant overall improvement over time for each of the groups, $F(3,90)=5.056$, $p <.001$. Contrasts reveal that significant improvement was achieved from baseline to week 8, $F(1,30)=4.910$, $p <.001$, and this was maintained at follow-up.

Figure 6 displays the outcomes on CORE-OM for both groups from T1 to T2. Independent samples *t*-tests reveal no significant difference between the groups at T2, $t(44)=-1.0$, $p > .05$.

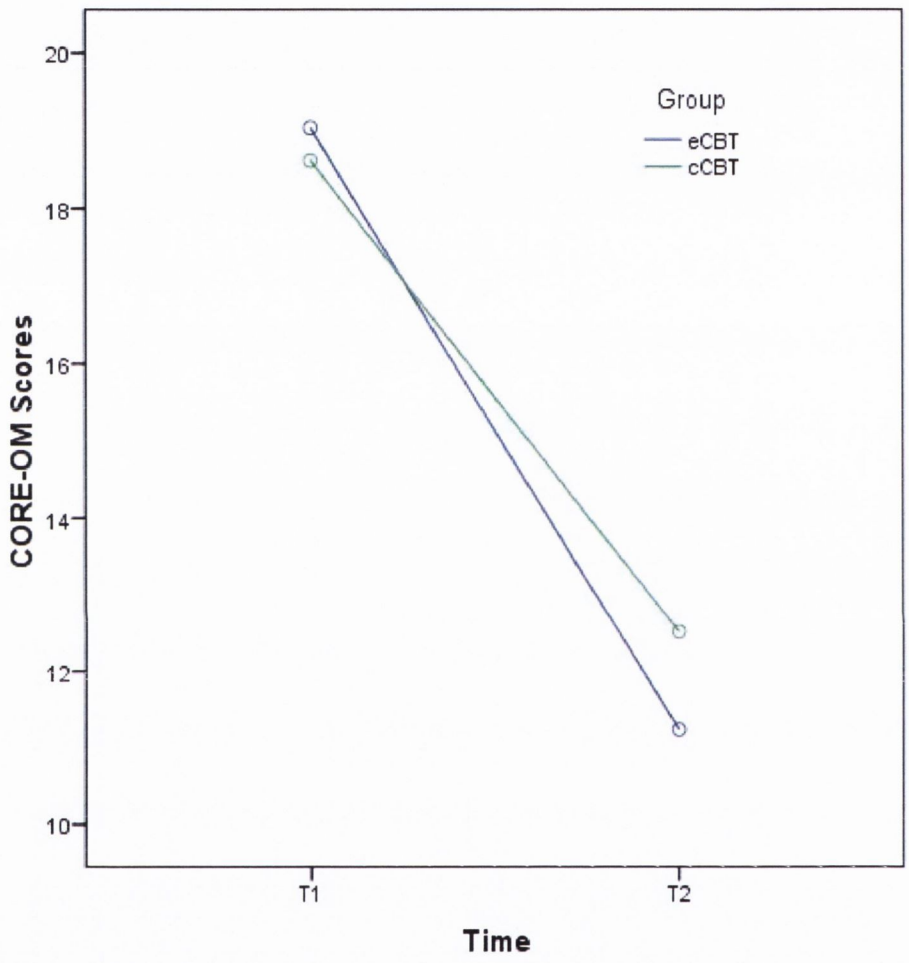

Figure 6 Outcomes on CORE-OM T1-T2, post-treatment

Figure 7 displays the outcomes on CORE-OM for both groups from T1 to T3. Independent samples *t*-tests reveal no significant difference between the groups at T3, $t(41)=-.40$, $p > .05$.

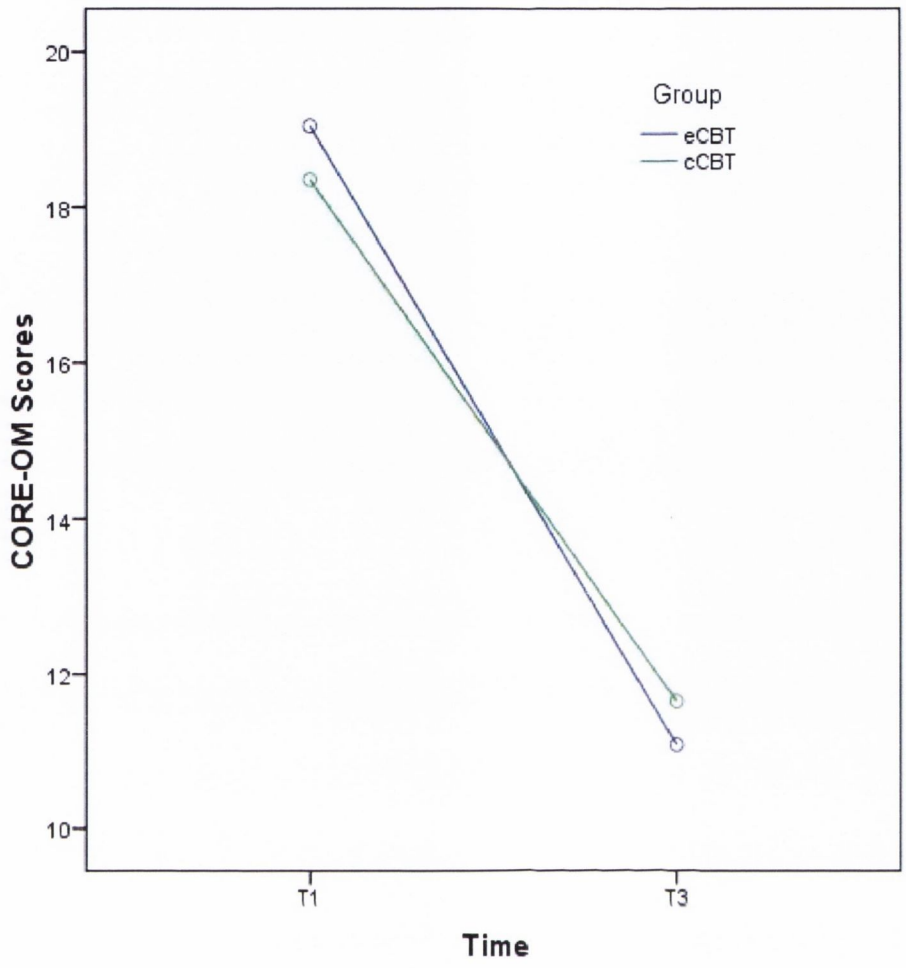

Figure 7 Outcomes on CORE-OM T1-T3, week 16 follow-up

Figure 8 displays the outcomes on CORE-OM for both groups from T1 to T4. Independent samples *t*-tests reveal no significant difference between the groups at T4, $t(31)=-.24$, $p>.05$.

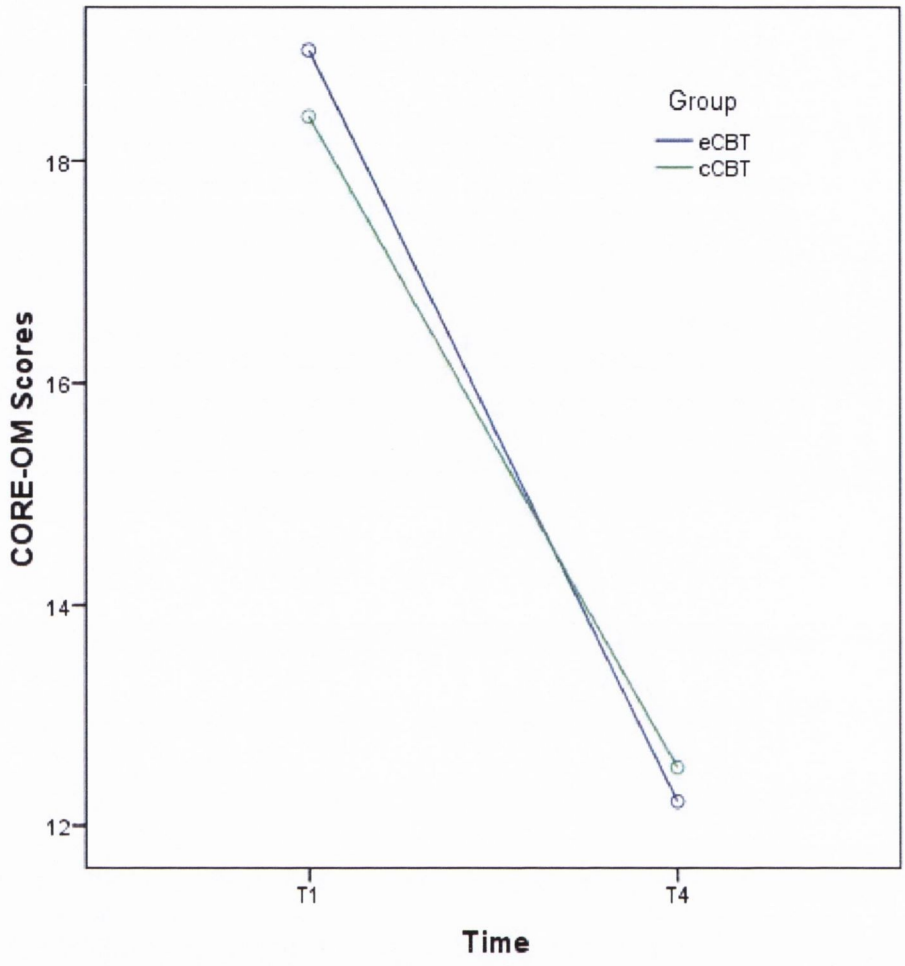

Figure 8 Outcomes on CORE-OM T1-T3, week 32 follow-up

Independent samples *t*-tests demonstrate that there was no significant difference in the mean dosage between the two groups, $t(78)=-0.126$, $p > .05$. Irrespective of the number of sessions completed no differences were found in outcomes on the BDI-II or CORE-OM. In addition, baseline variables (sex, age, standing, previous counselling, or previous medication) account for no differences in the reported results.

Effect sizes

The magnitude of the within-group effects of each of the interventions (Cohen's *d*) was calculated by subtracting the pre-test mean score of the intervention from the post-test mean score of the intervention and dividing the result by the pooled standard deviation. For Cohen's *d* an effect size of 0.2 to 0.3 can be considered a small effect, around 0.5 a medium effect and 0.8 upwards, a large effect (Cohen, 1998).

Table 12 displays effect sizes for the main outcome measures alongside their associated confidence intervals. Within-group effect sizes (ES) were calculated for each of the groups from baseline to post-treatment on the BDI-II and from baseline to week 16 and week 32 follow-up. Large effect sizes are noted for both conditions and maintained up to 6 months follow-up. Within-group effect sizes (ES) were calculated for each of the groups from baseline to post-treatment on the CORE-OM and from baseline to week 16 and week 32 follow-up. Large effect sizes are noted for both conditions and maintained up to 6 months follow-up.

Based on BDI-II outcomes at week 8 between-group effect sizes were calculated by subtracting the effect size of the eCBT condition from that of the cCBT condition. The end of treatment between-group effect size was calculated to be *d*=.86. At week 16 the size of between group effect was *d*=.36, and at week 32 the effect was *d*=.67. Based on CORE-OM outcomes at week 8 between group effect sizes were calculated, the end of treatment between group effect size was calculated to be *d*=.52. At week 16 the size of between group effect was *d*=.49, and at week 32 the effect was *d*=.52.

Reliable and clinically significant change

Group effect sizes say little about meaningful individual change. Therefore, analysis was made to determine the proportion of participants who made clinically meaningful changes, those who recovered and improved and those who made no change or deteriorated at end of treatment and at week 16 and week 32 follow-up. The analysis for recovery is conducted using the criteria defined as a post-treatment score less than 10 on the BDI-II (Beck, et al., 1996) and a corresponding decrease of greater than 9 points on the BDI-II (Seggar, et al., 2002). Improved was defined as a movement of 9 points on the BDI-II and a score greater than 10. No change (NC) was defined as where the magnitude of change on the BDI-II was less than 9 change points. Reliable deterioration was defined as an upward change in score on the BDI-II greater than 9 points. Table 13 documents the rates of recovery, improvement and no change in the groups over time.

Table 12 Summary measure analysis for BDI-II and CORE-OM, means, standard deviations, effect sizes and confidence intervals, end of treatment and follow-up

				Follow-up assessments			
Outcome measure	Pre-treatment Score: *M* (*SD*), n	Post-treatment Score: *M* (*SD*), n	Effect Size (*d*) [95% CI]	Week 16 Score: *M* (*SD*), n	Effect Size (*d*) [95% CI]	Week 32 Score: *M* (*SD*), n	Effect Size (*d*) [95% CI]
BDI-II							
eCBT	22.70 (4.7)	11.52 (4.9)	2.30	10.35 (4.9)	2.48	10.17 (5.4)	2.48
	n=37	n=25	[0.46-4.22]	n=23	[0.60-4.48]	n=18	[0.40-4.97]
cCBT	21.72 (5.3)	12.81 (6.9)	1.44	10.50 (5.2)	2.12	10.33 (7.5)	1.81
	n=43	n=21	[-0.72-4.41]	n=20	[-0.03 -4.40]	n=15	[-0.77-5.60]
CORE-OM							
eCBT	19.46 (4.5)	11.24 (4.4)	1.77	11.09 (4.5)	1.77	12.22 (3.4)	1.72
	n=37	n=25	[0.05-3.50]	n=23	[-0.07-3.61]	n=18	[-0.36 -3.29]
cCBT	18.95 (5.3)	12.52 (4.3)	1.20	11.65 (4.6)	1.28	12.53 (4.0)	1.20
	n=43	n=21	[-1.33 -3.04]	n=20	[-1.31 -3.29]	n=15	[-1.74 -3.22]

Note. BDI-II = Beck Depression inventory; CORE-OM = Clinical Outcomes in Routine Evaluation; eCBT = Online CBT asynchronous counselling treatment; cCBT = Self-administered CBT treatment; CI: Confidence Interval; Effect Sizes were calculated for the number of participants remaining who provided data at each time point e.g. week 8 eCBT=25, week 32 cCBT=15.

Table 13 Reliable and clinically significant change

	Week 8 N=46		Week 16 N=41		Week 32 N=33	
	eCBT n=25	cCBT n=21	eCBT n=23	cCBT n=20	eCBT n=18	cCBT n=15
	N %	N %	N %	N %	N %	N %
Recovered	9 36%	6 29%	9 39%	7 35%	8 44%	6 40%
Improvement	5 20%	6 29%	7 30%	7 35%	5 28%	4 27%
No Change	11 44%	9 42%	7 30%	6 30%	5 28%	5 33%
Deterioration						

At week 8, 57% of participants who received treatment demonstrate reliable improvement or recovery. At follow-up at week 16, 73% and at week 32, 70% demonstrate reliable improvement or recovery. At each time point the data reveals a bias in favour of the eCBT condition in terms of having greater numbers demonstrate reliable improvement and recovery. However, chi-square calculations demonstrate that there was no significant difference in the numbers recovered, improved or assessed as no change between the groups for change at each time point week 8, $\chi^2(2; N=46) = .139, p > .05$, week 16, $\chi^2(2; N=41) = .001, p > .05$ and week 32, $\chi^2 (2; N=33) = .206, p > .05$.

Outcome and Therapeutic Alliance Correlations

The study was interested to investigate the added value of therapist responsiveness to treatment. The author hypothesised that while both treatments would demonstrate effectiveness, given the centrality of the therapeutic alliance to success in treatments, that the therapist-delivered condition may demonstrate more robust outcomes. An analysis was performed to correlate outcomes on the WAI-SR with BDI-II outcomes for the groups at week 8. For both groups combined there was a positive correlation between the post-treatment BDI-II and WAI-SR data collected at week 2 (r =-.191), week 4 (r =-.191), and week 6 (r =-.456*); week 6 proved significant. For each of the groups the correlations can be seen in Table 14.

Table 14 Correlations for WAI-SR and BDI-II outcomes at week 8 for each group

	eCBT Week 8	cCBT Week 8
WAI-SR Week 2	r =-.269, n=20	r =-.119, n=19
WAI-SR Week 4	r =-.518, n=14	r =-.050, n=17
WAI-SR Week 6	r =-.585, n=9	r =-.373, n=12

Note. WAI-SR = Working Alliance Inventory-Short Revised

The fact that eCBT used more direct contact and thus had a better chance that therapist responsiveness would play a role in the overall outcome is supported by this

data. Certainly for the eCBT group it seems that perception of working alliance throughout treatment was positively correlated with outcome on the BDI-II at end of treatment. In contrast, in the cCBT group perception of working alliance and its correlation to outcome was less, although it was most notable at week 6, for those who completed the entire treatment. There were no significant differences between the correlation values reported for either group, although perception of working alliance was close to significant in favour of the eCBT group at week 4 ($p < .07$).

Table 15 Mean scores on each of the WAI-SR subscales: Goals, Tasks, and Bonds

		Goal	Task	Bond	Average
		M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
eCBT (n=37)	Week 2 (n=20)	3.5 (1.29)	3.4 (1.27)	3.8 (1.16)*	3.6 (.78)
	Week 4 (n=14)	3.9 (.99)	3.7 (1.12)	3.9 (1.12)*	3.8 (.77)
	Week 6 (n=9)	3.8 (.96)	3.7 (1.54)	3.9 (.97)*	3.8 (.77)
	Average	3.7 (1.08)	3.6 (1.31)	3.9 (1.08)*	
cCBT (n=43)	Week 2 (n=19)	3.5 (1.34)	3.7 (1.32)	3.2 (1.24)	3.5 (.79)
	Week 4 (n=17)	3.7 (1.36)	4.0 (1.48)	2.9 (1.27)	3.5 (.84)
	Week 6 (n=12)	3.6 (1.15)	3.8 (1.24)	3.0 (1.31)	3.5 (.72)
	Average	3.6 (1.28)	3.8 (1.34)	3.0 (1.27)	

*Statistically significant compared to cCBT group

Table 15 displays the mean scores for each group on each of the subscales, Goal, Tasks and Bonds, for each of the three time points when data was collected.

Goal and Task elements were present in both groups to a satisfactory degree, but Bond, while present in both groups, was noticeably stronger in the eCBT group. Independent samples t-tests reveal that Bond was significantly stronger for the eCBT group at week 2, $t(37)=2.104$, $p<.05$, week 4, $t(29)=2.402$, $p<.05$, and week 6, $t(19)=1.593$, $p<.05$.

Helpful Aspects of Therapy

Table 16 presents the categories for helpful events and impacts and their definitions. Table 17 presents the categories for hindering events and impacts and their definitions. In total 149 HAT forms were completed during the treatment and study. Sixty-five completed by 18 in the eCBT condition and 84 completed by 18 participants in the cCBT condition. The results displayed in Table 18 and Table 19 show a single count for each qualitative item, helpful events and their associated impacts, for each of the individuals in both groups respectively. Table 20 and Table 21 show a single count for each qualitative item concerning hindering events and their impacts for each of the individuals in both groups respectively.

Table 16 Helpful events and impacts and their definitions

Helpful events	Definition	Helpful Impacts	Definition
Provision of information	The delivery of new information to the user about some aspect of the treatment, e.g. presentation of the ABC model, descriptions of the various thinking errors	Learning coping skills/ behavioural change	The impact has been to equip the client with new skills and strategies that can aid with coping and self-management. Their use leads to behavioural change for the client. It considers a concrete new approach being employed by the person to advance the management of feelings of depression and/ or anxiety
Monitoring/ recording	Engaging in a task to monitor and/or record aspects of cognition or behaviour, e.g. thought recording, activity recording		
Scheduling/ Planning	Planning and/ or scheduling various activities, e.g. pleasurable activities, setting goals	Awareness and insight	The bringing into focus something previously unknown to the person and the recognition of that on the part of the client. Or an event causing a reframing, a deeper recognition and awareness of something previously unknown to the person. Insight is characterised, particularly, by a personal resonance that distinguishes it from awareness only
Restructuring	A reframing of a previous held cognitive belief or behaviour pattern, e.g. challenging negative thoughts or tracing inner beliefs		
Summarising	Summarising aspects of the treatment	Achievement/ Self-	A sense of progress or

	already covered, e.g. summaries at the end and beginning of each session	efficacy/ Empowerment	accomplishment that leads to some change in behaviour or thought, a new beginning, a fresh start. It includes a sense of being successful. It involves a sense of 'I can do'. Feeling a renewed sense of self-belief that one can be the agent of one's own change. Self-efficacy is the belief that one is capable of performing in certain ways to attain their desired goals. Thereafter promote hope, encouragement or empowerment
Sharing	Other peoples' story or experience being shared and the client can identify with what's been shared; it therefore holds meaning for the client's experience		
Disclosing	Personal self-disclosure where the client freely talks about how they are or what's going on for them, what's on their mind, etc	Self-esteem	A cause to feel good about oneself. To cause a reaction to oneself; one's thoughts and feelings, that is positive, perhaps less critical
Distraction techniques	Standard CBT based technique that the client names	Support/ Validation	It includes outcomes of clients being listened to, emphatically understood, acknowledged and or validated. It seems that it has to be bidirectional that it involves interaction and is responsive.
Problem solving techniques	Standard CBT based technique that the client names		
Graded exposure	Standard CBT based technique that the client names	Connection	Connection arises out of sharing. It can include benefitting from

			sharing of experiences during treatment and/ or learning from others
Relaxation techniques	Standard CBT based technique that the client names	Relief	A cause to feel relieved that can thereafter promote hope and encouragement
Encouragement	an event of encouragement being delivered through feedback, or how one responds to what is presented, it could be encouraging client to continue engagement with tasks of therapy		
Advice/ guidance	delivered advice or guidance to the client		
Acknowledging/ listening	where the therapist or program provides acknowledgement or listens to the client		
Provision of compassion	provision of a compassionate response to client		

Table 17 Hindering events and impacts and their definitions

Hindering events	Definition	Hindering impacts	Definition
Burden of work	Recognition of the amount of in session and out of session tasks to be performed and how the attempt to complete them has become a cause of concern for the client	Self-critical/ blaming	Arising out of accounts where the person is unhappy with what they have or may not have done and consequently become critical of themselves. It includes perceptions of their own failures or inabilities or guilty feelings.
Time/pace	This has to do with the amount of time demanded of the program, the client's availability of time and also relates to the pace of the treatment, where it can be perceived to be too much	Frustrating	This arises out of instances where the treatment program or some aspect of it has caused difficulties for the person and consequently leaves them with a sense of frustration.
Technical	Anything related to computer functionality or printing problems	Irritating	Refers to being frustrated with elements of the program such as the voiceover or video reconstructions
Content of treatment	Relates to any comment made about any aspect of the programs content	Confusion	This arises out of instances where the treatment program or some aspect of it has caused confusion for the person. It can relate to

			being left without clear understanding of treatment elements.
Form of treatment	Relates to any comment made about any aspect of the program and the form of its delivery, including the mode of delivery or delivery of content by video and voiceover	Painful insight	Because of engagement with the treatment elements it has caused insight or awareness of something that has brought with it a painful realisation
		Anxious	The impact leaves the client feeling anxious
		Disappointing	A sense where the person is left feeling upset or disappointed

Table 18 Instances of helpful events and helpful impacts in the eCBT group, N=18

Helpful events	No.	Helpful impacts	No.
Provision of new information	3/18	Learning coping skills/ Behavioural change	8/18
Monitoring/ recording	4/18	Awareness and Insight	12/18
Scheduling/ planning	9/18	Achievement/ self-efficacy/ empowerment	13/18
Restructuring	9/18	Self-esteem	6/18
Summarising	1/18	Support/ validation	12/18
Sharing	0/18	Connection	4/18
Distraction techniques	2/18	Relief	2/18
Problem solving techniques	4/18		
Relaxation techniques	0/18		
Graded exposure	0/18		
Encouragement	3/18		
Advice/ guidance	3/18		
Disclosing	4/18		
Acknowledge/ listening	8/18		
Provision of compassion	2/18		

Note. No. Refers to the number of individual counts of the item / of the total number of participants

Table 19 Instances of helpful events and helpful impacts in the cCBT group, N=18

Helpful events	No.	Helpful impacts	No.
Provision of new information	11/18	Learning coping skills/ Behavioural change	7/18
Monitoring/ recording	9/18	Awareness and Insight	18/18
Scheduling/ planning	9/18	Achievement/ self-efficacy/ empowerment	18/18
Restructuring	15/18	Self-esteem	3/18
Summarising	6/18	Support/ validation	1/18
Sharing	4/18	Connection	5/18
Distraction techniques	5/18	Relief	1/18
Problem solving techniques	6/18		
Relaxation techniques	3/18		
Graded exposure	2/18		
Encouragement	1/18		
Advice/ guidance	0/18		
Disclosing	1/18		
Acknowledge/ listening	0/18		
Provision of compassion	0/18		

Note. No. Refers to the number of individual counts of the item / of the total number of participants

Both treatment groups share in attaining significant impacts such as developing awareness and insight, realising achievements, attaining self-efficacy and

feeling empowered and learning new coping skills, all of which contribute to in-session outcomes (Timulak, 2010). For both groups these impacts have the highest number of participants subscribing. The achievement/ self-efficacy and empowerment category is the highest rated impact in the eCBT group and joint highest alongside awareness and insight for the cCBT group. In addition both groups have a large number, upwards of 50% of participants, identifying that they learned new coping skills that caused behavioural change.

Significantly the eCBT group have a very high rating for the impact support and validation and stands in contrast to the single rating by the cCBT group. This corresponds favourably to the event of being acknowledged and listened to, a category rated by 50% of the eCBT group and not present at all in the cCBT group. Connection is an impact noted by both groups, and relates to sharing personal experience or benefitting from other peoples shared experience.

The HAT data also accounts for what participants found hindering in their experience of online treatment; see Table 20 and Table 21. Hindering events can cause significant negative impact that have the potential to cause dissatisfaction, ruptures in the therapy and eventual withdrawal (Safran, et al., 2002). Five events are named as hindering and four of them surface for both groups. Notably technical issues did not surface for the eCBT group. The most notable impact for both groups is that of frustration, followed by confusion and disappointment. Thereafter the cCBT group has a greater number of hindering impacts recorded and higher numbers subscribed than has the eCBT group.

Table 20 Instances of hindering events and hindering impacts in the eCBT group, N=18

Hindering events	No.	Hindering impacts	No.
Burden of work	2 /18	Self-critical/ blaming	1/18
Time/pace	3/18	Frustrating	6/18
Technical	0 /18	Irritating	0 /18
Treatment content	6/18	Confusing	1/18
Form of treatment	2/18	Anxious	0 /18
		Disappointing	1 /18
		Painful insight	0 /18

Note. No. Refers to the number of individual counts of the item / of the total number of participants

Table 21 Instances of hindering events and hindering impacts in the cCBT group

Hindering events	No.	Hindering impacts	No.
Burden of work	2/18	Self-critical/ blaming	0/18
Time/pace	4/18	Frustrating	6/18
Technical	3/18	Irritating	3/18
Treatment content	5/18	Confusing	3/18
Form of treatment	3/18	Anxious	2/18
		Disappointing	2/18
		Painful insight	2/18

Note. No. Refers to the number of individual counts of the item / of the total number of participants

Satisfaction with Treatment

At the end of treatment participants were asked to complete a satisfaction measure. Twenty-five (eCBT:10; cCBT:15) completed the instrument. Part A of the measure asked participants if during the previous 8 weeks they had accessed either medication or counselling. One participant in the eCBT reports being prescribed medication and one participant in the cCBT group reports attended face-to-face counselling in that same period. The individual who was prescribed medication during the named period was a participant who was on ongoing medication for depression, and when screened and included was on medication for < or equal to 6 months. The individual who attended face-to-face counselling had been in the eCBT condition, completed 4 sessions, and because of a crisis that arose the counsellor invited her to attend face-to-face, at which point she ended her online treatment.

Table 22 displays the results from the satisfaction measure and independent samples t-tests reveal no differences between the two groups in their ratings except for the question whether they found the treatment easy to use. T-tests reveal a significant difference in favour of the cCBT condition, $t(23)=2.443$, $p < .05$.

Table 22 Results from the satisfaction measure

	eCBT, n=10			cCBT, n=15		
	Agree	Disagree	Neither	Agree	Disagree	Neither
Using the computer to access treatment	60%		40%	73%		27%
Did you find the online treatment easy to use	50%	20%	30%	87%		13%
Consider the treatment to have a lasting effect	40%	10%	50%	47%	10%	43%
Recommend treatments to others	60%		40%	60%	7%	33%

Note. Neither = neither agree nor disagree

The satisfaction measure also asked how helpful the participants found the online treatment and the results are displayed in Table 23.

Table 23 How helpful was the online treatment program

	eCBT, n=10		cCBT, n=15	
	Helpful	Not helpful	Helpful	Not helpful
How helpful did you find the online treatment program	90%	10%	87%	13%

The final two questions in the satisfaction measure were qualitative and asked participants what they most liked about the online treatment and what they least liked

about the online treatment. Twenty-two responses were collected for each of these questions, nine from the eCBT condition and thirteen from the cCBT condition. A qualitative analysis of the content was conducted. Table 24 details the results of the analysis, per group, for what participants most liked about the online treatment.

Table 24 What participants most liked about the online treatment

	eCBT, n=9	cCBT, n=13
Self-control over the administration of the program	3	4
Anonymity	3	1
That the treatment was focused	1	1
Treatment provided feedback	1	0
Treatment provided engagement	1	2
Support	1	0
Treatment was user friendly	0	4
CBT techniques	0	5

In terms of what participants in the eCBT group identify as being what they most liked about the program, anonymity appears as the highest category, noted was the fact that it did not involve face-to-face talking, "It is great for people who do not want to get face-to-face treatment," or even more pointed, "was not required to talk face-to-face." The benefit of this form of treatment in some way provides a level of anonymity that seems to be cherished by some users.

Self-control over the administration of the program relates to the client being in control of the direction of treatment. One user writes that there is "No stress. You could open your post when you liked and had time. You could read and reread the sessions." This certainly identifies a sense of the client being in control managing their time and the pace of the treatment for themselves. Another participants notes "It gave me time to think about what I was saying. I'd fill each session in over days so I'd always be thinking about them and what to write." Again highlighting the benefits of the client knowing they dictate the pace. One participant simply answers the question with one word, "timing," obviously an important feature of what they most liked about the program.

Participants in the eCBT group identify that the treatment was focused. For example one participant notes how well-organised the treatment was in its delivery, that they "felt that each session had a purpose and an end product, be it a completed worksheet or an exercise." Another element was that the treatment provided engagement for example one user notes how the use of writing as the main means of communicating made things "more real than talking about them." It gave the participant, "time to think about what I was saying. I'd fill each session in over days, so I'd always be thinking about them and what to write."

Treatment also provided feedback to participants in the eCBT condition and this is noted. Support is also identified by the participants in the eCBT group as an aspect that they liked most about the treatment. Support is understood as receiving an empathic response, being listened to, heard and understood. The references to support refer to feedback received from the counsellor, "receiving an empathetic response to

my emails and knowing someone understood." Support seems important and most likely would increase adherence if participants feel heard and understood.

In terms of what participants in the cCBT group identify as being what they most liked about the program, CBT techniques emerge as the highest category. Each instance relates to aspects of the presentation of different CBT techniques and how useful they were perceived. One participant writes, "offered useful techniques on how to approach problems; the cognitive aspect is helpful." Other users refer to CBT in general, but others again reference specific techniques that form part of the program's content, for example, one participant notes the benefit of "looking at challenging automatic thoughts and inner beliefs, looking at the importance of pleasurable activities and rewards." It is interesting that the specifics of the CBT content did not appear in the comments from the eCBT group.

Self-control over the administration of the program appears as the second highest category. One user writes that "I could go at my own pace and that suited me," another agrees and says "I could fit it around my schedule," or "I could access it when it suited me." It is clear that this is seen as an advantage and something liked by users.

Like the eCBT group one user reports that the program, "gave a sense of purpose and learning." Indeed, "It introduced CBT gradually, and encourages the user to do the homework." It potentially promotes engagement. Engagement is also noted in how the program is private and clear and users could "go over things or recap" as they wished.

The program seems to have been user-friendly and therefore liked, one user notes how it was "easy to follow". The earlier quantitative question supports the cCBT group in finding the program easy to use. Also the "visual aids and video case histories of other users" contributed to its user-friendliness. Participants also addressed the delivery of content through visual aids and video documentaries of other people's stories and this is seen as positive, "Visual aids and studies of other people," and how these mini-documentaries were of people "in similar situations and how they dealt with it. How there were examples I could relate to and understand certain situations."

Table 25 details the results of the analysis, per group, for what they least liked about the online treatment.

Table 25 What participants least liked about the online treatment

	eCBT, n=9	cCBT, n=13
Complicated	3	2
Deadlines missing	1	0
Impersonal	3	3
Burden of work	1	1
Not matching needs	0	4
Irritating format	0	1
Technical difficulties	1	3

In terms of what participants in the eCBT group identify as being what they least liked about the online treatment, the themes that emerges to the forefront were that it could be complicated and impersonal. There are occasions where participants meet some difficulties in understanding the content or what was being asked of them in certain tasks, "did not understand some of the tasks," or another writes, "Sometimes it took me a while to get my head around what the homework was." Although in the latter case the user was able to additionally write, "it was always clarified when I asked for help." Of course the user had the possibility of asking for help in the therapist-delivered condition.

The feedback is associated with a feeling that the online treatment is impersonal and that as a result is perhaps restrictive, "It is very impersonal. I don't feel as if I opened up as much as I would to a face-to-face counsellor." A related element that came to the fore was, "That my counsellor had no name!!!" This seems an important consideration for delivering treatments online.

Deadlines missing, burden of work and technical issues arose. While useful the program can also be perceived as negative, in for example, "there wasn't a deadline," or "the tasks are time consuming with a lot of information to assimilate. In my case due to lack of time it was difficult to cope with this." As a result the same individual suggests that although the online treatment is helpful, "it's not a substitute for face to face." Perhaps in face-to-face treatment there is more room to negotiate tasks to fit people's schedules. Lastly, a theme that was referenced is the demands made of the online treatment in terms of the associated workload of in-session tasks and out-of-session homework. One user writes, "Though obviously essential to the

therapy the tasks were numerous and time consuming" and "trying to remember how/what to fill in homework tasks," can be experienced as somewhat overwhelming. Online delivered treatments will at times experience technical difficulties for users. One user notes that they experienced, "problems with accessing the treatments."

In terms of what participants in the cCBT group identify as being what they least liked about the online treatment, top of the list is that the program at times did not supply what the user needed. In terms of content some users were critical of the program in for example, that it "could offer a more in depth explanation of depression and anxiety to the layperson." Also during the program users are asked to make choices about the content and one writes, "Having to choose between sleep management, graded exposure and task management in session 6. Not having the print out of the session summary at the beginning," was clearly problematic and perhaps there is a sense of making an uninformed choice. A related concern is what can be described as content mismatching, one user captures this when they write, "Sometimes the program took me down a route that is not particularly relevant to me, for example, I was given an exercise on activity scheduling, which is not a problem for me. Sitting through this is frustrating, especially as there is no way to skip ahead."

A number of items are identified relating to the form of the program and these include that the program can be experienced as impersonal. A related concern is the sense of a missing element of support through the program. One user writes, "I think that online treatment can only be so helpful. There are no negative consequences for not completing the tasks (save ongoing depression and anxiety of course). I feel that maybe many people who suffer from depression feel isolated from other people and

an electronic counsellor cannot help this, it may even aggravate it. Also there is no way to direct interaction." This is supported by another when they write, "I would have found it useful to have some human contact when deciding on the projects I was to work on. Just to make sure I was picking up the instructions correctly. The instructions were very clear and helpful but even an email address that I could use if I was confused or needed clarity would have been useful." Even support at a very practical level may be required.

Technical issues also arise for the cCBT group when trying to access the program or printouts. "Technical issues when using the website. Connection failures (or similar) made me have to go through the already completed parts of one session another time, a very tiring experience."

The program could be experienced as complicated, the work burdensome and aspects of the form irritating. There were occasions when participants were unsure whether they were "picking up the instructions correctly," or finding it complex in terms of planning because while engaged in the session they could not determine how much time was needed to complete. The amount of work demanded from the program is less a concern with the cCBT group, although mentioned, "lots of homework." Participants in this condition "found it hard to get time to do all the practical work." Another writes, "at times I felt like I could not give any input to the therapy. I found it hard to get time to do all the practical work outside but wasn't able to talk about this." The form of the program also relates to how it was delivered and the voice over and music was irritating and something they were not liked by some users.

Conclusion

Regarding depression and general mental health functioning Table 12 displays the scores the participants obtained on the BDI-II and CORE-OM for pre-, post-treatment and follow-up. Both treatments report significant reductions in depressive symptoms bringing participants outside of the clinical range (<14). Similarly both groups also demonstrate improvements in general mental health functioning as measured by the CORE-OM. These effects are maintained at follow-up up to 32 weeks. Positive interactions between outcomes and perception of working alliance were found for the eCBT group, less so for the cCBT group. Also the data from HAT and the satisfaction measure highlight key issues that contribute to the results of the study. It is the case that pre-treatment attrition was high and something we were not expecting. Also dropout throughout treatment was very high and a cause of concern.

Chapter 7: Discussion

Introduction

The present study sought to examine the efficacy of a self-administered program on an adult student population presenting with mild to moderate symptoms of depression. The author was also interested to examine the contribution of therapist responsiveness (TR) to treatment outcome in online treatments for depression. The current randomised controlled trial compared two active treatments. Firstly there was a self-administered condition (cCBT) with no therapist support. Secondly there was a therapist-delivered online e-mail counselling (eCBT) condition. The study hypothesised that using established CBT principles, both treatments would therefore demonstrate effectiveness, but that the therapist-delivered intervention (eCBT) would most likely demonstrate greater improvement given the added value of TR to treatment.

Principal Results

Efficacy of online CBT delivered treatment

In the first instance, the author hypothesised that the delivery of established CBT principles online would be effective in reducing depressive symptoms and show improvements in general mental health functioning. The study found that participants in both treatment groups displayed significant statistical and clinical improvement in depressive symptoms and a corresponding improvement in general mental health functioning. Irrespective of the number of sessions completed by participants in either condition, significant improvements were witnessed on the BDI-II from baseline to

end of treatment. Prior to treatment participants were in the mild to moderate range in symptom severity. At post-treatment participants fell outside the clinical cut-off point used in the study (<14) and can therefore be seen to occupy the minimal symptom and functioning range. At the end of treatment both groups display large effect sizes (eCBT: d=2.30; cCBT: d=1.44) and a large between groups effect-size (d=.86) in favour of the eCBT condition is also noted.

For the CORE-OM, prior to treatment, participants were in the moderate clinical range in symptom severity. At post-treatment participants fell outside of this category into the mild clinical range. The results are less dramatic than those of the BDI-II. At the end of treatment both groups display large effect sizes (eCBT: d=1.77; cCBT: d=1.20) and a medium between groups effect-size (d=.57) in favour of the eCBT condition is also noted. The results support the hypothesis regarding the effectiveness of the online treatments and the effect sizes achieved are large at post-treatment. Even greater effects are noted for the therapist-delivered eCBT condition alongside a moderate to large between-groups effect that favours this group. There is the possibility that given greater statistical power any between-group difference may become significant. Significantly, the post-treatment effects are maintained by both groups up to 6-months follow-up.

Chapter 4 has detailed the variety of interventions to date that have been utilised in online treatments for depression, with or without therapist or other form of support. In the review conducted in chapter 4 it was found that effects achieved are different depending on the presence of therapist support, administrative support or no support. The average pre-post effect size for therapist supported studies is d=1.46

(n=5) (Andersson, et al., 2005; D. Kessler, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2009; J. H. Wright, et al., 2005). For administrative support the pre-post effect size is d=.72 (n=3) (Learmonth & Sadik, 2007; Learmonth, et al., 2008; Proudfoot, et al., 2004). For studies that include no support the pre-post effect size is d=.83 (n=3) (de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007). The review concludes that having therapeutic support with participants demonstrates better outcomes. Similarly, the current study produces a far larger post-treatment effect (d=2.30) on the BDI-II for the eCBT group than for the cCBT (d=1.44). Also the effects reported are significantly larger than those illustrated in other online studies to date, including those attained in the study condition that had no support are far larger than those reported in other online studies with no support. This may be due to a number of factors including participants self-referral, their age range, access to ICT, or comfort with its use. The data supports the trend for the attainment of large effects with online treatments, with or without support. Further, there is at least half of a standard deviation of difference between the effects for therapist support and no support in the current study (d=.53). The review of online studies supports this difference (d=.73).

The current study demonstrates that at post-treatment participants in the therapist supported condition (eCBT) moved 11.18 points reduction on the BDI-II whereas in the self-administered condition (cCBT) the reduction was 8.22. This is in line with other studies in online treatments for depression where at post-treatment, studies that provide no support witness a reduction of 6.74 (n=3) points on the BDI (de Graaf, et al., 2009; Meyer, et al., 2009; Spek, Nyklicek, et al., 2007). Those with administrative support reduce by 8.27 (n=3) points (Learmonth & Sadik, 2007;

Learmonth, et al., 2008; Proudfoot, et al., 2004) and those with therapist support see a post-treatment reduction on the BDI of 11.62 (n=4) points (Andersson, et al., 2005; D. Kessler, et al., 2009; Perini, et al., 2009; Ruwaard, et al., 2007). Studies with therapist support seem to lead to greater improvements than those with administrative or no support, although administrative support may be superior to no support. It is also worth noting that, like the current study, all but one (D. Kessler, et al., 2009) of the studies considered for therapist support offer that support asynchronously.

The results from this sudy report on rates of recovery, improvement and no change or deterioration in participants in both groups at the end of treatment and at follow-up based on their BDI-II scores. At the end of treatment 58% of participants who provided data and were included in the analysis are deemed to be improved or recovered and this increases to 70% and more into follow-up. No change is marked equally in both groups at week 8. Chi-square tests demonstrate that there are no differences in the spread of scores for recovered, improved, no change in either group at the end of treatment and at follow-up. On average, at each time point, participants in the eCBT had to move 11 points on the BDI-II to achieve significant change whereas those in the cCBT group had to move 9. Although the post-treatment BDI-II effect sizes achieved are larger for the eCBT group, they may not have any practical impact as they are not clinically relevant in the current sample. This may seem paradoxical given the established effects reported. However there is only a subtle difference (1.29) in the post-treatment means: for the eCBT group the mean is 11.52 and for the cCBT group it is 12.81 on the BDI-II.

The absence of a control condition casts some doubt and perhaps the results have been achieved because of the passage of time alone. However, rates of recovery and improvement are similar to recent research in online treatments for depression that included a control condition. For example, Van Straten, et al. (2008) report a total of 73% improved or recovered at the end of treatment compared to 54% in the waiting list control. Ruwaard, et al. (2009) report a 49% reliable improvement or recovery at post-treatment compared to a 6% for the waiting list control condition. Both of these studies provided asynchronous therapist support to participants. Meyer, et al. (2009) who provided no support to participants reports that 42% show reliable improvement or recovery at the end of the online depression treatment compared to 9% in the TAU control condition. Although the rates reported by these studies are similar to the present study it must be noted that they used somewhat different criteria for clinical change. The review of online interventions in Chapter 4 shows that between 30%-60% demonstrate clinically meaningful change at post-treatment. It is the case therefore that the current study is at the higher end of this in demonstrating 58% reliable change at post-treatment. This result however has to be considered in light of the high research attrition in the present study. Outcomes from the present online study are also similar to face-to-face psychological treatments for depression, where it is generally the case that between 50% - 70% demonstrate significant improvement post-treatment (Roth & Fonagy, 2005). The NIMH study, for example, found that 55% of individuals displayed significant improvement post-treatment (Ogles, et al., 1995).

Other studies that have employed CBT as an active treatment condition report similar results and maintenance of gains at follow-up (DeRubeis, Hollon, et al., 2005;

Hollon & DeRubeis, 2006; Hollon, et al., 2005). The current study reports a maintenance of post-treatment gains 6-months after treatment ended. At week 16 follow-up, 73% (n=30) continue to demonstrate reliable improvement or recovery and at week 32 this figure is 70% (n=23). Similarly, Andersson in a 6-month follow-up of participants in an online treatment for depression found that improvements were maintained (Andersson, et al., 2005). Ruwaard, et al (2009) reports that post-treatment effects were found to be stable in the long-term, 18 months after treatment began and this is similar to the follow-up trends observed in other online trials (Spek, Nyklicek, et al., 2007).

The results support the efficacy of online CBT delivered treatments, both as a self-administered and also as a therapist-delivered intervention. Furthermore, results indicate that treatment gains were maintained up to 6-months after treatment completion. The findings illustrate that carefully conducted manual-based cognitive behaviour therapy interventions can substantially decrease symptoms of both depression and related psychopathology in a relatively brief period over the internet. Secondly, the findings clearly confirm previous results concerning the efficacy of the Beating the Blues™ CBT protocol for treating depression (Cavanagh, 2006; Grime, 2004; Learmonth & Sadik, 2007; Learmonth, et al., 2008; Proudfoot, et al., 2004). The effects achieved on the BDI-II and the CORE-OM are larger for the eCBT group post-treatment and at follow-up. Additionally there exists a moderate to large between-groups effect for the main outcome measures. Although the between-group effects are not significant they are still of note and hold potential for greater amelioration of symptoms where the treatment includes TR. Generally therapist-supported treatments yield greater effects (Palmqvist, et al., 2007). The results are

superior to a waiting-list (Andersson, et al., 2005; Ruwaard, et al., 2009; J. H. Wright, et al., 2005), TAU (de Graaf, et al., 2009; Meyer, et al., 2009), and are comparable to traditional face-to-face therapy (Marks, et al., 2007; Roth & Fonagy, 2005).

A number of reasons might account for the efficacy of the treatments. The treatments are based on well-established CBT techniques. As indicated in chapter 2, CBT has proven to be an effective treatment approach for depression (Craighead, et al., 2007). In addition, CBT seems to provide a resistance to relapse and future recurrence whether it is provided as the primary treatment or as a complement following another intervention (Hollon & DeRubeis, 2006). It seems plausible that the effective principles of CBT can also be transmitted online. Certainly chapter 4 has reviewed a large variety of online delivered CBT driven protocols that have demonstrated adequate efficacy in treating depression and related psychopathology, with and without support (Andersson, et al., 2005; Perini, et al., 2009; Van Straten, 2008; Warmerdam, et al., 2008; J. H. Wright, et al., 2005).

The results from the current study make a positive contribution to the bulk of research completed to date in online treatments. Similar studies complement the results found in demonstrating large within-group effects (Ruwaard, et al., 2009; Spek, Nyklicek, et al., 2007; Warmerdam, et al., 2008). A large between-group effect (d=.86) is reported for the BDI-II and a moderate between-group effect for the CORE-OM (d=.57) and this is what was expected of the therapist-delivered condition. Generally treatments that are compared yield small to medium between-group effects (Gaffan, et al., 1995; Gloaguen, 1998; Warmerdam, et al., 2008). This however is the first study to compare a specific CBT protocol delivered through two different online

mediums. Potentially therefore, the moderate to large between-group effects in the current study may be an indicator of greater effect where the treatment includes TR, although identified in the current sample, it did not reach significance.

There is quite a significant difference in the delivery costs of the treatments for the current study. The cost of the self-administered treatment was €94.96 per participant, whereas the cost of the therapist-delivered condition was €449.28 per participant. Cost has been calculated as simple cost of delivery and does not assume to relate to cost-effectiveness. Necessarily this would involve a more complex and detailed procedure. Therapists engaged in the delivery of the service report that each session took 50 minutes to respond in free text and feedback on homework. When outcomes are considered the question of the treatments cost-effectiveness arises, and even more so when one considers that large effects can be achieved with support from clinical nurses, administrative staff and/ or trainee psychology students (Proudfoot, et al., 2004; Van Straten, 2008; Warmerdam, et al., 2008), or indeed with no support as the current study shows. Further research would be welcome to analyse cost-effectiveness and its relation to outcome in the two treatments. Van Straten (2008) and Warmerdam (2008) report that participants achieved large effects post-treatment based on the CES-D depression scale and both studies used trainee psychology students to feedback on participant's exercises. Similarly Christensen, et al (2004), using weekly administrative support to direct participants in the use of the web intervention, report that participants achieved large post-treatment effects based on the CES-D depression scale (Christensen, et al., 2004; Mackinnon, et al., 2008).

Many studies in online treatments for depression that are unsupported document small effects (Clarke, et al., 2002; Christensen, et al., 2002). Clarke, et al. (2005) suggests that interventions with small average effect may have a substantial public health impact when applied to a large number of people. Although not generally the case (Clarke, 2005; Christensen, et al., 2002; de Graaf, et al., 2009), the current study demonstrates online treatments can achieve significant gains in the absence of support and may be more cost-effective. Indeed the current study shows that the unsupported cCBT condition can achieve large post-treatment and follow-up effects. Although it remains that the therapist-delivered eCBT treatment achieves still larger post-treatment and follow-up effects. At the same time minimally supported as opposed to fully therapist-delivered treatments work equally well and this is certainly the case for studies that include some therapist or other type of human support in online treatments (Christensen, et al., 2004; Mackinnon, et al., 2008; Palmqvist, et al., 2007; Van Straten, 2008; Warmerdam, et al., 2008; J. H. Wright, et al., 2005). It would seem that the verdict on the best type, duration, frequency and nature of support for optimal outcomes is currently out and more research is required to test various implementations employing various levels of support.

Perhaps the necessity is to get the right balance between the self-administered aspects of treatment and therapeutic input. An attraction noted by participants was the fact that they had control of the timing, pace and direction of their treatment and perhaps this is a central point for those who elect to use online treatments. The usefulness of TR appears important and participants in the current study certainly noted its absence from the cCBT group as well as recognising its value in the eCBT condition. Perhaps what is being witnessed are the two different routes to treatment

success, on the one hand through techniques, the other, at least partially, therapist responsiveness as the active ingredient. Based on the current results it seems reasonable to understand that both routes to treatment, that is, self-administered techniques and strategies alone and CBT with therapist responsiveness are legitimate. Both treatment conditions have proved successful. Additionally the results show a trend for greater potential for change where the treatment includes therapist responsiveness. This point is further supported with the results from the WAI-SR, HAT and satisfaction measures to be discussed later. While responsiveness as judged by larger ES for the condition containing it (eCBT) seemed to contribute to the effect, some results support a trend for the cCBT conditions success: the greater numbers of helpful events being recorded; the presence of items that might be expected to benefit from live therapist response such as summarising (see tables 18 and 19), and the slightly higher satisfaction rating for the cCBT condition.

A crucial concern with self-administered and online delivered programs is the amount of treatment participants receive. The level of completers (20%) in the current study is low even by standards generally reported in online treatments. An improved figure can be reported for those who completed 4 or more sessions (50%). Generally programs that provide no support have the highest dropout, for example Meyer, et al. (2009) report a dropout of 75%, Christensen, et al. (2006) report a dropout of 73%, and de Graaf, et al. (2009) report a dropout of 80%. Like the dropout rate for the current study, dropout in these studies considers those who began treatment and dropped out over time. It is therefore the case that a dropout rate of 80% is in line with treatments that offer no support. The earlier review (Chapter 4) reports a dropout rate of 72% (n=4) for studies that offer no support (Christensen, et al., 2006; de Graaf, et

al., 2009; Meyer, et al., 2009; Spek, Cuijpers, et al., 2007), which contrasts greatly dropout rates for administrative or therapist supported treatments (42%, n=18). Certainly one arm of the treatment corresponds to this, but the second arm does not. Dropout between the conditions was only significantly different at week 2, in favour of retention in the therapist-delivered condition. We can only speculate as to the reasons for dropout, but the data from the HAT and satisfaction measure to be discussed later provide some insight.

The picture is further complicated with the finding that irrespective of the dose received participants improved. This is a phenomena reported in other online studies also (Meyer, et al., 2009; Warmerdam, et al., 2008). The importance of completing the entire treatment is unclear. It is the case that participants in the current trial were all self referred and a recent study (Mataix-Cols, Cameron, Gega, Kenwright, & Marks, 2006) showed that self-referred patients are more likely to benefit from computerised cognitive behavioural therapy than patients referred by mental health professionals. Perhaps participants completing less than the complete dose received a sufficient amount of therapy and decided to withdraw (Howard, et al., 1986).

Alliance in online delivered treatments & its relation to outcome

The literature as reviewed in chapter 3 is clear as to the centrality of therapist factors and the therapeutic alliance to successful outcomes in psychotherapy (Lambert & Barley, 2002; Norcross, 2002). Research from face-to-face clinical settings suggests that the therapist alliance has an impact on outcome, independent of

technical interventions (Castonguay, et al., 1996; Crits-Christoph, 2006; Horvath & Bedi, 2002; Martin, 2000). This study explores therapist responsiveness (TR) through an exploration of the therapeutic alliance, which captures significant relational components of responsiveness. The impact was primarily explored though gathering data on participant's perception of working alliance in online treatments and correlated with outcomes on the BDI-II. Therapist responsiveness is conceptualised as the responsive delivery of a broad range of relational and technical skills and the working alliance covers important aspects of their delivery.

Based on the data collected using the WAI-SR the results support the presence of moderate to high correlations between working alliance and outcome on the BDI-II for the eCBT group. The data supports the establishment of a stable alliance online and that the eCBT group did indeed show a greater perception of a working alliance and that this was associated positively with outcome. The alliance plays a larger role in the eCBT condition and supports what has been advanced earlier regarding the different routes to success for both groups.

The results reported on the subscales of the WAI-SR are also interesting and are supportive of a greater presence of alliance in the eCBT condition. It seems that both groups achieved the establishment of meaningful goals, associated therapeutic tasks, and a work supporting bond. Scores on the bond subscale for the eCBT group were significantly higher than those achieved for the cCBT group. It would therefore seem that a stable and positive therapeutic bond could be established online and one that is significantly stronger in the therapist-delivered condition. Given the evidence produced, namely the larger post-treatment and follow-up effects achieved for the

eCBT group, the moderate to large between-groups effect noted for the main outcome measures, the results from the WAI-SR correlations and its subscales, it seems reasonable to conclude that the relational aspects of the added element may have been a potential factor in the eCBT treatments success. Based on clinical significance there was not a big difference between the groups because they achieve similar outcomes. In one relational features correlate with outcome whereas in the other they did not. This may suggest two routes to successful outcome namely through CBT technique and strategies on the one hand and responsiveness on the other.

The study found support for the establishment of an alliance in online treatments and a positive correlation to outcome for the eCBT condition. In addition to the large body of research that documents the importance of the therapeutic alliance to treatment outcome in face-to-face therapy (Horvath & Bedi, 2002; Horvath & Symonds, 1991; Martin, 2000); online alliance research has produced a small number of studies that also demonstrate positive results. These studies all provide evidence supporting the idea that good quality alliances can be developed online and are predictive of outcome (Cook & Doyle, 2002; Knaevelsrud, 2006; Reynolds, et al., 2006). Such findings provide supportive evidence for the development of alliance online and in addition challenge theoretical assumptions that alliances of a sufficient quality to effect therapeutic change cannot be developed online. It is argued that a CBT self-administered program can include alliance elements that are potentially useful but falls short of the systematic responsiveness that is endemic in human relationships. The current study seems to support this in that the range, breadth and depth of responsive clinical behaviour cannot be replicated in fullness in computer software, at least not to date. While present in the eCBT condition its impact is

difficult to be precise about, especially given the low statistical power, and more research would be welcome.

The individual scores on the WAI-SR subscales are encouraging, especially for the significant presence of bond scores in the eCBT group over time. However the subscale scores are generally lower than what has been found in other online studies. For example, Knaevelsrud, et al. (2006), used the WAI-S and report mean scores on Goal subscale as 5.8, Task subscale as 5.7, and Bond subscale as 6.2. Cook and Doyle (2002), using the WAI report means for each of the subscales in the region of 7.0 for online therapy and similar scores for face-to-face therapy. Prado and Meyer (2004) while generally report high alliance scores for treatment completers, also report moderate scores for the WAI subscales for patients who abandoned treatment after 5 sessions and did not complete (Prado & Meyer, 2004). Perhaps the high dropout in the current sample can account for the presence of moderate scores on the WAI-SR.

A recent review (Palmqvist, et al., 2007) of internet-delivered treatments with or without therapist input and its relation to efficacy reports a strong correlation (r=.75) between the amount of therapist support and treatment efficacy. In Spek's (2007) meta-analysis the mean effect size is far larger for programs delivered with therapist support than for those without. In the review of studies in chapter 4, larger effects were found in treatments for depression online that included either therapist support (d=1.46) compared to administrative (d=.74) or no support (d=.83). The implication is that the addition of support to treatments allows for the development of responsiveness which potentially has an impact on outcomes. The direction of results

in the current study, especially regarding the role of therapist support, does not contradict earlier research, but rather more supports previous work.

Helpful and hindering aspects of therapy

A unique aspect of the current study was the inclusion of the HAT measure to assess what participants considered to be helpful and hindering events in their session and what possible impact any given event might have. This specific approach studies client-identified events that provide insight into the most fruitful therapeutic work in the case of helpful events and the most problematic points in the case of hindering events (Timulak, 2010). The results give a unique insight into what was considered useful and important and also what outcomes can be achieved from specific aspects of the treatment program and other concrete events that occurred within treatment. The impacts of the various events are interesting in how they support what could be considered welcome outcomes from any therapeutic intervention.

Developing awareness and insight have been recorded and dominate the Helpful Events literature (Timulak, 2007). CBT has a central aim to bring to new awareness and deeper understanding things that were previously unknown to the client. CBT seeks to help the client reframe previously held beliefs and consequently help modify thinking, feelings and behaviour. Such new awareness and insight can arise from many sources but events of note include provision of new information and cognitive restructuring alongside scheduling and planning and monitoring and recording for the cCBT group. All of these events are rated highly for the cCBT group and cognitive restructuring and scheduling and planning are rated highly by the eCBT

group. The different events or CBT strategies engaged can generate awareness and insight for the person and lead to personal discovery. The development of awareness and insight can lead thereafter to significant change in thoughts, feelings and behaviours.

It seems that participants engaging with events, such as those named previously, throughout treatment were able to make significant gains and report a sense of achievement, self-efficacy and consequent empowerment. This category is the highest rated impact in the eCBT group and joint highest in the cCBT group. It is often the case that in depression the individual can feel the opposite of such an impact. Such an impact one can imagine would challenge previously held negative thoughts and self-appraisal schema. It therefore has the potential to adjust traditional schemata and open a way for a well-adjusted appraisal to take root and develop. The category relates to a change in behaviour or thoughts, it heralds a new beginning for the individual that has a basis in being successful and a growing self-belief that the individual can be the agent for their own change. Such a belief promotes hope and empowers the person.

Participants in both groups identify that they learned new coping skills that caused behavioural change and of significance the category relates to changes that are not just once off but that the client now feels equipped with new skills and strategies that can continue to help them self-manage. Certainly it is the case that the variety of events reported upon could contribute to the development of new cognitive and behavioural skills and strategies. It seems more limited in the eCBT condition while the cCBT condition displays a greater spread of events that could contribute to such

an impact. The cCBT group give mention to each of the different cognitive and behavioural strategies employed in the treatment program from monitoring and recording thoughts and feelings to graded exposure technique. The eCBT group are lighter especially when it comes to naming some of the more specific CBT techniques like distraction, relaxation, or graded exposure. Nevertheless of those that supply HAT data both groups report significant changes in acquiring new self-management and self-regulation strategies and skills.

The event of being supported and validated and the impact of being acknowledged and listened to makes an important contribution to the therapeutic relationship (Timulak, 2010). It is suggested that this may also be an indication of the impact of TR to treatment in the eCBT group. Otherwise we would expect to see the category named more in the cCBT group, but it is not. It is argued that TR was the added element that went beyond the Beating the Blues™ program as delivered. It can also be witnessed in the event where participants noted the provision of compassion delivered through the feedback from their counsellor. Such tailored and responsive use of relational and technical skills went beyond the Beating the Blues™ program per se and can even be considered to exist beyond the CBT framework. The experience of support and validation may be seen to compensate for the general lack of spread across the specific CBT techniques as noted earlier for the eCBT group and therefore recognises further that there exists different routes to treatment success, namely through the techniques or through responsive therapeutic contact.

Connection is an impact noted by both groups, but perhaps has operated differently in the groups. For the eCBT group it relates more to experiences of being

able to share personal experience, whereas in the cCBT group it relates more to benefitting from the shared experience of others, for example through the video case histories included as part of the program. Either way both are significant and are related to the events of disclosing as noted by the eCBT group and perhaps the provision of new information as noted by the cCBT group. Feeling connected would increase the chances of participants adhering to treatment and feeling understood or being able to identify with what is happening and perhaps gain insight, learn from others and experience hope for change.

The HAT data also accounts for what participants found hindering in their experience of online treatment. For both groups the most notable hindering impact is that of frustration. The source can be a variety of different events that occur throughout treatment. It can be related to feeling overwhelmed with the burden of work involved in the treatment. For example, events such as the time and the pace of the treatment surface as important elements that caused frustration for both groups in the current study cohort. Time and pace considers issues such as the amount of time demanded by the program and the availability of the participant to schedule the demands of the program. This can become heightened at different times, such as at exam times where other pressures mount. For the cCBT group, participants met technical difficulties throughout the program and this caused significant frustration. The impact brings to the fore issues regarding the delivery of online treatments, the need for flexible delivery and responsive implementation accounting for the user's needs and their external circumstances.

Misunderstanding and disappointment dominate the significant hindering events literature (Llewelyn, 1988; Timulak, 2010). Both groups identify confusion as a hindering impact. These are instances where the program content has caused the user confusion; mostly it is about being left without a clear understanding of treatment elements or indeed homework tasks. However, unlike the cCBT group those in the eCBT group could ask for clarification from their online therapist. Both groups also identify disappointment as an impact. It relates to both treatment content and also form. In the cCBT group some users found the video case histories caused them disappointment also some found that the lack of choice in the program a disappointment. For the eCBT group disappointment surfaces with the content where one user felt it was more friendly advice than something they could really reflect upon. It seems clear that if users experience confusion or disappointment with regard to the content being delivered there increases the risk of dropout and potentially colours their assessment of the usefulness of therapy in general. Items and issues associated with content and the form of its delivery are largely design related and feedback from users needs to be examined. Employing technology to deliver content allows for a wide range of choices in how that content can be delivered to a user. Experimenting with mobile technology, virtual reality and other modes of delivery may prove beneficial in the design and delivery of content (Baños, et al., 2009; Brosnan, 2006; Matthews, et al., 2008; Richards, 2008).

There is a far greater number and variety of different hindering impacts for the cCBT group than for the eCBT group; perhaps this is indicative of the impact of therapist TR to ameliorate against any ruptures in treatment. Irritating is another impact mentioned only by the cCBT group and relates mostly to form of delivery

where at times participants became exasperated with the sound of the background music or with the sound of the voiceover accompanying the program. It seems obvious that the design of such programs can include abilities to switch off music or change voiceovers and these simple additions may enhance treatments. Other categories that appear for the cCBT group alone are anxiety and painful insight. Anxiety comes to the fore in the context of the other demands that any user is grappling with, in this case students and their bulk of academic work. They became anxious about whether they would have enough time and also displayed anxiety when they felt that they were spending too much time on the treatment and felt that they should instead be studying. Flexible implementation that accounts for the users changing context may prove useful.

Painful insight arises out of working through the content of the program and engaging in the variety of exercises. At times a user can receive a personal insight that has a lot of resonance for them. These are key points in the work and have significance for future development of healthy ways of thinking and behaving. Participants in the eCBT group can share and explore such insights with their online counsellor. The insights in the cCBT group are arrived at alone. A key question is how the user deals with these, what they do with such insights? Therapeutic management of emotional insights is an important point in the delivery of any therapy intervention. It makes a strong argument for responsiveness at such points to address what the client may need at such times. Elliott (1984) reports that clients who arrived at insights were ready for interpretation as they were in the process of deepening their understanding and indirectly were asking for help from the therapist in this task (Elliott, 1984).

To conclude, the HAT data has provided some unique insights into the individual who is being treated from session to session. The established CBT principles remain established in online work and in addition therapist responsiveness seems to have a worthy impact, above and beyond any established CBT techniques or strategies. Both helpful and hindering impacts can be achieved and learning from these can help in the design and delivery of future implementations of online treatments.

Satisfaction with treatment

The results from the satisfaction measure are encouraging and demonstrate broadly that participants in both groups, who provided the data, were satisfied with the treatment and found it to be helpful for them. The majority were satisfied to be able to access treatments online and this is encouraging as it also supports the general use of technology in people's lives (Demunter, 2005) and the potential to realise the benefits of using technology to increase access to information and treatments. The population were self-referred and this seems to increase the likelihood of users reporting satisfaction with the medium (Mataix-Cols, et al., 2006). This may also contribute to the fact that the majority of participants found it easy to use, perhaps they were comfortable with their computer literacy prior to electing to participate. This agreement about comfort and ease of use is higher in the cCBT group then in the eCBT group. It is certainly the case for the eCBT group that an e-mail with an attachment that contains a lot of text can appear cumbersome and potentially reduce

ease of use. This might explain why some of the standard CBT elements, such as relaxation techniques, and distraction techniques, were not that much responded to by participants in eCBT condition. Perhaps this format was also a cause of dropout as the presentation is less attractive. It is the case that despite high compliance in the content delivered to both groups the eCBT condition did not include multimedia content. Carlbring (2004) suggests that perhaps contact purely via e-mail is not powerful enough to stimulate the maintenance of treatment (Carlbring, 2004).

Participant's satisfaction with the online treatment disposed them favourably to recommending the treatment to others. The majority of participants said they would recommend the treatment to other users. Only in the cCBT condition is there a small percentage that disagreed. The response corresponds to the outcome that almost 90% in both conditions agreed that the online treatment was helpful. It would seem that if participants find the treatment helpful they are likely to recommend it to other users.

The lowest rated item in the satisfaction measure was if they considered the treatment would have a lasting effect. Both groups report about 43% agreeing that it would, 10% in each group disagreeing and the remainder choosing to neither agree nor disagree. It is not unusual for participants to report low predictive values to whether they find the treatment to have any lasting effects.

The data collected from the qualitative question consolidates the answers already given. Participants in both groups identify self-control over the administration of the program as something liked about the program and potentially contributed to the high rates of helpfulness and satisfaction. It allowed the users to

progress at their own pace and fit the treatment around their own schedules. This clearly places the control and direction of treatment in the hands of the user, a potentially empowering action. This is a noted benefit of online and remote delivery in general (Ritterband, et al., 2003). Such a benefit seems to be an important element in online delivered treatments; participants may be attracted to this form of delivery over and above more traditional means. Perhaps some users need to feel that sense of controlling the pace and direction of their treatment so as to benefit. It perhaps also gives users the necessary flexibility to avail of treatments in the context of other demands in their lives such as work and study. It also suggests that for those who self-select for online delivered treatments that their comfort with technology can be successfully harnessed.

Both groups identify how the treatment was well structured and gave a sense of purpose and learning. It seems that the treatment program was focused and promoted engagement for the users. One user in the cCBT group mentions how the program was encouraging of users to engage and complete homework tasks. This latter point may allude to the more active participation in therapy from online users (Day & Schneider, 2002). At the same time a sense of purposeful engagement in any intervention would be a necessary condition contributing to its success. Engagement was more pronounced in the cCBT group and perhaps the format of asynchronous delivery may be cumbersome and in fact lessen engagement. The self-administered program on the other hand delivers content incrementally and perhaps more manageable for the participant. Participants in the cCBT group note that the program was user-friendly, a variable missing from the feedback from the eCBT group. Design of delivery has been noted by other studies as potentially a significant element in the

success of any treatment and it is therefore worth considering the various aspects of program implementation and their potential impact on users (Meyer, et al., 2009). Certainly it is also the case that the self-administered program would far outstretch the asynchronous delivery of content in terms of multimedia, and the general presentation and delivery of content and this is an important point in terms of attracting interest and maintaining the engagement of users.

The medium of communication through writing for the eCBT group was noted as a benefit, as in a preference to talking. This is also related to a perceived benefit of the form; not having to talk face-to-face, that it allows a level of distance and anonymity that is seen as important. Anonymity and distance have been noted as benefits in online delivery and may have the benefit of increasing access especially for non-traditional users of traditional services (Efstathiou, 2009; Richards, 2009). In addition, such access may in turn act as a gateway to other more traditional services (Efstathiou, 2009; Richards, 2009). It seems pertinent for the eCBT group to be able to communicate with a professional and receive feedback while at the same time being some distance and therefore providing some level of anonymity. It has been suggested that such a form may be necessary for some clients who might feel too ashamed to present face-to-face, at least initially (Liebert, 2006; Simpson, 2009). Writing instead of talking and from a distance has other noted benefits including the therapeutic benefit of writing and the potential for disinhibition (Suler, 2004; J. Wright, 2002).

Only in the cCBT group was content of the program referenced as something that was liked. Specifically users referenced general and specific CBT strategies. In

contrast the eCBT group named support and responsive feedback as something they liked, essentially referring to the feedback received from their counsellor from week to week. It is almost an identification of the active ingredients and definitely an identification of what participants found important in their online treatment. The comments suggest a weight of perception regarding the importance of both techniques and support as active ingredients. This also reflects the differences between the two conditions and may allude to what caused change in the treatments. These elements seem to complement the satisfaction with self-control over the administration of the treatment program and further support the CBT protocol employed but also potentially may support the benefits of multimedia in communicating the core elements of treatment for the cCBT group and secondly the impact of TR as adding value for the eCBT condition.

CBT in general and Beating the Blues™ in particular are highly structured and focused treatments and the same can be said of the asynchronous delivery of the specific CBT content. In the case of the self-administered group the presence of audiovisual content, voiceover, and interactivity may have supported the delivery of the core elements of the treatment. Indeed the satisfaction measure reports that participants noted these aspects of form of delivery as beneficial. In the eCBT group perhaps the structured delivery was augmented by the therapist and their responsive interaction with participants from session to session and this was also noted by participant's feedback from the satisfaction measure. The satisfaction measure and the results from HAT supports the effectiveness of techniques as identified as active ingredients in the cCBT condition and the presence of therapist responsiveness as the appointed active ingredient named for the eCBT group.

Participants in both groups identify aspects of time and pace as something least liked about the online treatment. It appears in feedback in two ways, firstly where participants experienced difficulties in getting the time to complete sessions weekly. The program is demanding and perhaps a more flexible schedule than weekly would be more appropriate. Secondly, that deadlines were largely left up to the individual, the burden of responsibility may be too much for some. Carlbring (2004) reports a similar concern that having no deadlines at all seem to have disadvantages. Considerations of time and pace have implications for optimal delivery of online treatments.

Some users in both conditions experienced the treatment program as complicated. In the eCBT group it was the case that from time to time users lacked understanding of what was being asked of them, however unlike the cCBT group they could ask for clarification and this was noted. The cCBT group are more critical, mentioning that explanations were at times lacking depth and that they were unsure at times that they understood what was being asked of them. Unlike the eCBT condition they did not have the opportunity to ask for clarification and this absence of support is noted. Even at a practical level support seems to be required.

In the eCBT group the delivery mode of asynchronous counselling was found to be impersonal and restrictive, potentially users not being as open as they might in face-to-face setting. Secondly we used a generic online counsellor as sign off. Some users recognised and felt strongly about the fact that their counsellor had no name. There seems to be a need for personal contact throughout the program. Participants'

comments highlight areas of potential weakness in delivering online treatments and making simple changes, like adding the counsellors name, may have the impact of a more personal contact. Indeed recent ethical guidelines for online counselling advocate that online counsellors should have a verifiable identity (Anthony & Goss, 2009). Personal contact in the cCBT condition surfaces as a noted absence of some form of support throughout treatment. There is a risk that self-administered can further isolate users and may aggravate symptoms. The noted absence of support in helping users make decisions at key points in the program and understanding tasks is interesting. It seems that users of the self-administered program are recognising the need for some support, even practical support.

Some users in the cCBT group also experienced frustration with having to choose between some content, the graded exposure and sleep management modules for example. There is a sense at this point where users struggled to make informed choices; one user suggests having a summary sheet so he/she could decide. At other time there was an experience of content mismatching the needs of the user. Where for example an exercise on activity scheduling is offered but not needed. Perhaps at times the content needs more scaffolding to support user choices and secondly flexibility to reject content at times that is unfitting. This is a reflection of the level of responsiveness in such a self-administered program. Content mismatching did not appear as a concern for the eCBT group, but again their focus was more on the support and feedback they received alongside the benefits of communicating with someone in anonymity. It was therefore the case that at all times the eCBT group could consult their clinician and perhaps this again references the benefits and need for supported implementation of online treatments.

As with using technology in any field technical issues can arise for users and online treatments are no exception. At times users experienced difficulties in accessing treatment, printouts or their computer stalling, all causing understandable frustration. Perhaps a consideration for implementing online treatments is to have technical support available to users and this may be more pertinent for self-administered treatments with no support. Other aspects of form that were not liked at times were the voice over and the music. Such design elements can cause frustration and potentially limit the usefulness of the program for some users. Perhaps users might be able to turn off music or change the voiceover to something more suitable. These are significant design issues that may help improve future delivery.

The final theme that occurs for both groups is related to the amount of tasks that the online treatment asks of users. There is a sense where this was experienced as somewhat overwhelming. It needs to be remembered that for the most part users are also have a variety of other commitments in their lives. Students progress through different periods of heightened commitments, such as exam periods and at such times there is a need for more flexibility. More choice about the sequence of completing sessions and meeting deadlines based on a variety of external factors may yield greater adherence.

It is clear that there are things that are part of the delivery in both conditions that potentially enhance or detract from treatment. Aspects of delivery that are identified in the satisfaction measure data need to be considered carefully and can contribute to the successful design, delivery and implementation of online treatments.

Limitations

As with any research study there are notable limitations. Firstly, the study aimed to include 60 participants per condition. For mixed ANOVA tests samples upwards of 60 per group are required to detect an effect equal to the median effect size of .47 of a standard deviation obtained in comparisons between alternative treatments, if the conventional levels of significance (.05) and power (.80) are adopted (Shapiro, 1995). The current study managed to randomise 101 participants and thereafter 80 began treatment upon whom the analysis is based. While our planning was accurate, and we did manage to attract 248 interested participants, we could not have anticipated the large numbers of participants (48%) who would meet the exclusion criteria. Other RCT's in online treatments for depression highlight sample size as a limitation (Grime, 2004; Perini, et al., 2009).

While efforts were made and recruitment was good, to reach numbers suitable for predicted power much more time and resources would be needed than could be supplied. Therefore at post-treatment the power for the current sample of 46 (25 eCBT and 21 cCBT) was 0.11 based on the BDI-II. The given power means that there was only an 11% chance to find a difference of significance in the current sample. A sample size of 326 per group would be needed to reach an 80% chance of detecting a significant difference between the groups for this outcome measure. The power achieved for the current sample of 46 (25 eCBT and 21 cCBT) was 0.16 based on the CORE-OM, meaning that there was only a 16% chance to find a difference of significance in the current sample. A sample size of 188 per group would be needed to

reach an 80% chance of detecting a significant difference between the groups for this outcome measure.

Perhaps the most pertinent limitation to be noted is that of dropout which was very high in the current study. We did not include in the design a follow-up questionnaire for those who initially dropped out pre-treatment and those who dropped out during treatment. This may have yielded significant information that could explain such a high dropout. In the absence of such data for the current sample other studies that have collected similar data might be informative. For example, Proudfoot, et al., (2003), reports on some of the reasons why individuals drop-out including difficulty using the computer, negative features of the program and poor clinical progress, or other extraneous reasons independent of the intervention and research program are sited. Andersson et al. (2005) also reports the main reason cited for withdrawal from the study was that treatment was perceived as too demanding. It is advisable that future research tries and incorporates some measure to capture the reasons why people drop-out. It might also be useful to keep in mind that there are ingredients that users reference that help increase satisfaction with treatment and these should be capitalised upon in design and delivery of online programs.

A related concern regarding attrition is the perennial problem of missing data. Researchers are often left using intention-to-treat analysis and using some mechanism to include missing data. Last Observation Carried Forward (LOCF) is a popular approach, whereby dropouts are presumed unchanged from their last observation; however this may underestimate the true extent of change for the group. The current study decided on a more conservative route and only included participants who had

completed some treatment and not to replace any missing values. This meant we were left with even smaller numbers from first data point to the last. The research response rate in the current study at post-treatment for the main outcome measures was 58%, at week 16 was 55%, and at week 32 was 42%. Chapter 4 reviewed studies in online treatments for depression and reports that research response rates vary from 40%-95%, the average being 60%. This means that the current study is within the range reported in the literature.

The current study did control for participants accessing other treatments, counselling or medication, during the course of the treatment, but this was not controlled for at follow-up, therefore follow-up data is collected, analysed and reported and is uncontrolled for. Therefore participants may have accessed other treatments during follow-up and consequently can impact on the results. Although Ruwaard, et al. (2009) in a study similar to this one notes that the persistent improvements were not explained by additional treatments which participants had sought during follow-up.

Recruiting online, for example, potentially biases the respondents who are comfortable with and presumably computer literate, thereby reducing the potential generalisability of any findings. In addition de Gaff et al. (2009) raise the issue of online data collection and whether it adversely affects the validity as compared with the traditional paper and pencil administrations. Research to date however supports the effectiveness of online data collection and maintains that it does not adversely skew outcomes. A recent study (Thorndike et al., 2009) demonstrates validity for the internet administration of four different measures, including the BDI-II. They report

extremely high correlations between scores on single item and multiple items per page presentations, and at different times (Time 1 versus Time 2), and with different clinical samples (those seeking treatment for depression, social phobia, or panic disorder). However, other research notes that while the psychometric properties replicate over media, score distributions may differ (Buchanan, 2003; Buchanan & Smith, 1999). Further research on screening for depression online is needed.

Another and related limitation is that of relying on self-report data to the exclusion of an official diagnosis. Wright et al. (2005) among others, for example, wonder about the relevance of a single self-report measure for depression. It is the case that independent ratings by clinicians would certainly strengthen the validity of the diagnosis and minimise any potential errors in appropriately excluding or including participants (Andersson et al., 2005). Establishing a formal diagnosis for depression requires a structured diagnostic interview which can be laborious and costly and as Clarke et al. (2002, 2005) points out, may through any quasi-therapeutic benefits imparted in the interview cause a deleterious effect and swamp the therapeutic benefit expected from the internet-intervention.

Because the current sample consists of adult students with mild to moderate depression, the extent to which the findings can be generalised to a broader population or indeed a more severely affected group remains open to further study. Eligibility criteria can often cause homogeneity and also difficulties with extending the results from a single study to other groups. For example, inclusion and exclusion criteria can have the effect of limiting the applicability of findings to for example, highly educated groups (Spek, Cuijpers, et al., 2007; Spek, Nyklicek, et al., 2007), or only

for those with mild to moderate depressive symptoms (Ruwaard, et al., 2009). Such limitations are duly noted and accompanied by a call for further research with different groups or in community and natural settings.

The interventions themselves may be problematic, not necessarily the content as it is generally well-established CBT strategies that are used, but more so the form of delivery. Perhaps there is a lack of functionality, multimedia, interactivity, that might engage any user and support adherence. Meyer et al. (2009) note that with their program it would be interesting to investigate what added components might enhance the program and increase engagement and adherence. Proudfoot et al. (2005) reported negative features of the program as a cause of dropout. Of course increasing some elements like video and audio necessitates better technology and higher internet speeds. Certainly form of delivery was noted by participants in the current study and while it was praised at times, there were occasions where participants were critical of aspects of the form of delivery. Potentially this can have a negative effect and cause dropout. Additionally, the form of delivery, as the eCBT condition did not include any multimedia content and as already referenced e-mail text alone may not be robust enough to compare satisfactorily to multimedia delivered content.

In retrospect several features of the research design support the integrity of the results obtained in the current study. The study employed specific and robust inclusion and exclusion criteria, random assignment to treatment conditions, researchers blind to the assignments, a detailed treatment manual, and an adherence measure employed for the eCBT condition. The design however may have been biased towards excluding participants especially considering the high numbers

excluded at the screening phase. However, design decisions were made in the context of conducting a trial in a naturalistic setting, a mental health service. This precluded the author from having a control condition such as a waiting list or TAU. Also that it was the first trial of online treatments at the mental health service and anxieties had to be managed, robust and stringent eligibility criteria were therefore applied.

Additionally, the author, from the beginning, set about attaining the highest standard in psychological research. The evidence base for online treatments, while growing, is relatively new and consequently seeking the highest standards was a drive for acceptability of the study and its results. It is the case that the sample size was potentially compromised and the consequent impact that can have on any claims being made. Although the group sizes are small, the drive to attain standards and acceptability meant a conservative analytic approach was adopted and missing data were considered missing at random and no strategy for replacing missing values, such as LOCF, was used. Further, the measures were not used in every single session, which makes LOCF difficult. In hindsight, this is what could be recommended to any online studies as they are quite typical for high attrition rates. Another thing would be to study why people do drop-out, is it a lack of responsiveness, so as to improve these types of treatments.

Future Research

Despite the above limitations, the current study extends our knowledge regarding the efficacy of delivering structured manual-based CBT treatments online. Results suggest that the two methods of online delivery employed demonstrate

positive outcomes. Based on the attainment of positive outcomes service providers would do well to consider the benefits of making such treatments available to their users and in doing so accrue any benefits such as cost savings, increasing access and extending resources. It seems reasonable to state that online treatments can be a preference for some and enables access to treatment that might not otherwise occur. It would seem even more desirable for those who self-refer as they can find online treatment easy to use and helpful. Further research of online delivered treatments in community mental health care and other settings would help build the growing evidence base and promote generalisability of findings. Considerations regarding the design of any such implementation would appear to be necessary. The results from the current study on what users find helpful and hindering and what leads to satisfaction with treatments delivered online can all inform future design and delivery of online interventions.

Further, the results confirm that a stable therapeutic alliance can be constructed online and can potentially add value and have a benefit. The current study reveals a moderate to large between-groups effect in favour of therapist-delivered condition. In addition this is given further weight from the results of the WAI-SR correlations with outcome and data from the HAT and satisfaction measures. The study has implications for the nature, type, frequency and duration of support required for the success of online treatments. It seems that the addition of therapist responsiveness has the potential to add value to treatments delivered and certainly its beneficial presence was noted for the eCBT group and its absence noted for the cCBT group. The study suggests that some support is required and that could be practical and therapeutic, and/ or even technical. Additionally any support offered in

implementing online treatments does not need to be face-to-face, and this may be especially so if the users have self-referred. In that case it is likely that they are satisfied and comfortable with using the technology to access treatment.

Careful implementation of supported and unsupported or minimally supported online treatments is warranted. Stepped-care and collaborative care models might be viable options. Cost effectiveness is also an important consideration in implementation and cCBT with minimal support has been shown to be cost-effective. The current study demonstrates a potential lack of cost-effectiveness where one treatment is therapist-delivered, yet the condition yields greater potential for beneficial effects. The results go some way to support the suggestion by Palmqvist et al (2007) and Spek (2007) that the efficacy of online delivered CBT is related to the amount of therapist support. The cost-effectiveness of various approaches to supporting participants awaits further exploration. Future research could compare treatments with varying amounts of therapist support so as to ascertain the best type, frequency and duration of support required for success of online interventions.

In addition, expectancy, credibility and satisfaction with online delivered treatments have seldom been researched. Taken together these elements could help optimise treatment adherence in determining the best way of providing online treatments. This is especially pertinent in light of the worrying trend for high dropout from online treatments. The report from the satisfaction measure has identified areas that support the successful implementation of online treatments and also identify elements that can potentially endanger the success of any implementation. The results from the HAT data also add value to understanding what works and potentially

supports adherence and completion of treatment and what potentially endangers participation and completion. These can further contribute to the design of future interventions and their implementation.

Another consideration is the amount of treatment required. The current study demonstrates that those who complete some sessions do equally well as those who complete all 8 sessions. Other studies in online treatments have noted similar results. Hagga (2000) has suggested that not all patients need the same type and intensity of intervention (Hagga, 2000). Perhaps we can learn from these as to the necessary length of treatment so as to reach a significant reduction in symptoms. Short interventions reduce time and effort for the participants as well as for any supporting therapist. Or perhaps an identification of the necessary and sufficient ingredients may allow for more constructive and tailored interventions. Indeed giving users more control over choosing necessary content that fits for them may be a future area for research in design and implementation of online treatments.

Lastly, the current study design could be modified and alternative methods adopted, such as patient-preference trials, different criteria for inclusion, use of control conditions, and possibly a less conservative analytic approach adopted. Previous studies in online delivered treatments could inform future designs. Naturally any modifications will need to consider the objectives of any study, the population, and the setting. Consideration could be given to the administration of data collection measures more frequently so as to widen the scope of available data analysis. Additionally the design could be enhanced with further follow-up included for those

who dropout as an aid to identify causes, any dissatisfaction, and whether the interventions were a success for early dropouts.

Conclusion

The results indicate firstly that both online treatments modes yield significant statistical and clinical change from pre- to post-treatment and these gains are maintained into follow-up. The results indicate a potential for greater amelioration of symptoms when the treatment is therapist-delivered. The results suggest potentially different routes to treatment success; through the availability of CBT techniques and strategies or techniques alongside the presence of therapist responsiveness, and in particular the development of a working alliance. The satisfaction measure and HAT data also supports this difference and the comments suggest a weight of perception regarding the importance of both techniques and support as active ingredients. This also reflects the differences between the two conditions and may allude to what caused change in the treatments. This would of course support the CBT protocol employed but also potentially may support the impact of therapist responsiveness as adding value. Potentially therefore there may be some greater effect where the treatment includes therapist responsiveness. Several elements related to form of delivery, content, and support can be added to help with successful and cost-effective implementations of online treatments into the future.

Internet-based interventions provide a treatment alternative for individuals who might otherwise choose not to receive treatment because of personal stigma, or who might be unable to obtain treatment because of geographic or physical reasons.

They might also provide an additional tool to enhance traditional therapy as an adjunctive component. Online treatments represent a unique opportunity to influence the availability of therapeutic services that could help to eliminate disparities in health care provision. The present study, examined the treatment of depression online using two modes of delivery in a randomized controlled trial designed to the highest methodological standards. The findings provide support for online interventions as a viable and effective means of offering psychological treatment to clients suffering from depression, whether as self-administered or therapist-delivered.

Further the study provides some evidence for the creation and maintenance of a responsive therapeutic alliance online. As indicated by participants' alliance ratings and the adherence of therapists to the cultivation of non-specific factors in their free-text exchanges with clients in the eCBT condition, it can be assumed that factors such as empathy and the acknowledgement of the clients emotions, provision of guidance and information, validation of clients successes, encouraging self care and social support and building alliance, can be communicated through the internet. Elements of a responsive relationship can have a benefit, although more work is required to determine its exact benefit. Indeed support seems to be required for the success of online interventions in general; the best type, frequency, duration and nature of any support needs optimising. Thus, rather than assume that crucial elements are lost when human relationships are mediated by technologies, it seems more fruitful to examine how they may be altered and optimised in new mediums.

As technologies develop, more and more opportunities will be presented to mental health professionals in delivering treatments. Careful consideration about

legal, ethical and clinical issues needs to inform any future delivery. The potential benefits are vast as there is the possibility for greater numbers of people to receive the care they need when they need it.

Appendices

A. Ethics document and approval letter
B. Questionnaire and report from student feedback
C. History instrument
D. Satisfaction with treatment instrument
E. Helpful Aspects of Therapy (HAT) instrument
F. Working Alliance Inventory – Short Revised (WAI-SR)
G. Adherence Measure
H. Beck Depression Inventory (BDI-II)
I. Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-OM)
J. E-mail advertising the study
K. Website Information Pages
L. Informed consent page
M. Information page – e-mail counselling condition
N. Information page – BTB condition
O. Automatic e-mail sent to users in cCBT after each session
P. Information page – Exclusion B
Q. Information page – Exclusion C
R. Example session from the eCBT condition

Appendix A

Ethics Document and Approval E-mail

Office use only
Application number:
Date of receipt:

School of Psychology
Ethics Committee

Application for approval

Name of applicant	Derek Richards
Date:	Monday, 01 November 2010
Contact details (e.g. e-mail)	Student Counselling, 199-200 Pearse Street, Trinity College. derek.richards@tcd.ie
Status (Staff, post-grad. etc)	Staff
Title of project	**Treatment of depression via the Internet: A randomised controlled trial on a Third Level student Population**
Supervisor (if appropriate)	Dr. Ladislav Timulak
Date of proposed start	01-10-07

(Please note: You may exceed the space provided if necessary)

What is the research question to be addressed? (max 30 words)

The proposed project is a randomised controlled trial investigating the online delivery of psychological interventions for the treatment of depression. **Specifically, the study will assess the efficacy of an online self-directed Computerised Cognitive Behavioural Therapy (cCBT) program compared to a therapist-delivered online CBT counselling intervention for depression.**

Describe the procedures the participants will encounter during the study. This account should convey, in straightforward language, what will happen to participants in your study.

Students will be recruited to the study through advertisement on the SCS website, an e-mail to students, and a leaflet at the College Services such as Unilink, Counselling and Disability. The online interventions will be offered to students through a secure website – the '*TCD Online Mental Health Community*'. Registration will collect data including student username and identification number. At registration students must agree to the '*Terms of Use*' and '*Privacy Policy*' of the website*. Students who express interest in

the treatment will be given information via the website. Students who wish to participate in the study will have to give their informed consent before being allowed to continue. Once informed consent has been established students complete pre-treatment screening and are **randomly assigned to one or other of the online conditions**. Students who are included in the study are also recommended to seek a medical assessment with their GP for general health and depression. Students who don't fulfill inclusion criteria (see below) can however still access the available online and face-to-face services. Students identified as at risk will be referred to face-to-face counselling and/or Psychiatry. The treatments are provided by trained and qualified counsellors and therapists working at the Student Counselling Service at Trinity College, Dublin.

Should participants experience any distress during treatment they will be able to contact a counsellor. In the initial information e-mail sent to participants they will be made aware of the counselling service and its contact details [e-mail and telephone]. They will be able to contact the counsellor during office hours. Outside of these hours participants are made aware of 24 hour counselling services as indicated on the debriefing sheet.

Condition 1: Asynchronous CBT counselling:

On completion of the pre-screening measures (Beck Depression Inventory and CORE-OM) eligible students can write an initial submission to the counsellor. On receipt of the submission the student will receive an automatic message that will outline the treatment protocol and other information about engaging in online counselling. The student will then engage in the treatment plan for up to 6-8 e-mail correspondences with the counsellor.

Condition 2: Self-directed cCBT Beating the Blues:

On completion of the pre-screening measures (Beck Depression Inventory and CORE-OM) eligible students will access the Beating the Blues program and will begin treatment. Any necessary

information is provided by the program and the student can contact a counsellor if they require further information or support. The student will then engage in the treatment plan of up to 6-8 online modules.

Students who choose to participate will undergo a screening and complete the Brief Symptom Inventory (BSI), the Beck Depression inventory (BDI), Clinical Outcome in Routine Evaluation (CORE-10) and information will be collected on previous and current medication and counselling history. During the treatment, for both conditions, participants will be asked to complete the Working alliance Inventory (WAI) at the end of week 2, 4 and week 6. They will be asked to complete the Helpful Aspects of Therapy Form (HAT) after each week: 1-8. At week eight the BDI, CORE-10, and SAT, will be administered to participants. The following instruments will be again administered at week 16, 32 and 1 year follow-up: BDI and CORE.

The website http://www.trinitymentalhealth.com is available for use 24 hours. In the automatic message [see attached] that is sent to participants they will be made aware that any correspondence with student counselling will be made within office hours and, if required, there are supports outside of this time [ref: debriefing sheet].

Outcome and Process research instruments:

a. Brief Symptom Inventory (BSI)
b. Medication and counselling history
c. Beck Depression Inventory (BDI)
d. Clinical Outcome in Routine Evaluation (CORE-OM)
e. Helpful Aspects of Therapy (HAT)
f. Satisfaction with Treatment (SAT)
g. Working Alliance Inventory (WAI)

*[*The data collected at registration will be held in a secure password protected and encrypted database and only the researcher and nominated student counselling personnel will have*

access. The data collected can be used to identify any student and their details in case of any emergency. It is essential that such data and security be put in place for clinical responsibility to be carried out and duty of case to be seamless. The typical protocols and conventions that the student counselling service operates within the face-to-face practice will apply to the online work.]

3. Participant group

1. Students only ✓
2. Other non-clinical groups (e.g. subject panel) ☐
3. Clinical groups*, i.e. any person who is receiving care/treatment presently or in the past. (No consent will be given without approval from the relevant Medical Ethical Authority) ✓

How many participants are required?

Sample Size:

With effective marketing the samples can be 60 per condition. Samples upwards of 60 per group are required to detect an effect equal to the median effect size of .47 of a standard deviation obtained in comparisons between alternative treatments, if the conventional levels of significance (.05) and power (.80) are adopted (Shapiro, 1995).

*if marked please attach the following

1. Letter from clinically responsible person confirming agreement and that numbers of participants proposed will be forthcoming ✓
   Tick box to confirm attachment

Copy of application to relevant hospital ethics committee – Copy to Director of Student Counselling, TCD ✓
Tick box to confirm attachment

4. What design/ methodology will you use?
How will reliability and validity be assessed?

Design:

The project is a Randomised Control Trial examining the efficacy of self-directed cCBT and asynchronous online CBT counselling for depression. The former is client-led and has minimal therapist involvement; the latter is therapist-delivered. The effectiveness of the treatments will be established using a pre-test / post-test two-group design. The treatments will also be benchmarked with face-to-face CBT treatment for depression. A follow-up is included.

☐ **To investigate an innovative intervention for mental health and well-being. Specifically, the study will**

assess the effectiveness of an online self-directed CBT program compared to a therapist-delivered online counselling intervention for depression. Contributing to this main objective will be:

Protocol:

Condition 1: Asynchronous online CBT counselling:

Cognitive Behaviour Therapy (CBT) is a form of psychotherapy that aims to help people change negative thinking and unhelpful behaviour. Online counselling is therapist-delivered and the relationship between counsellor and client is central (Norcross, 2002). The protocol for online counselling is described in Figure 1 below and includes up to 8-sessions of online counselling. The treatment comprise of cognitive-behavioural interventions, including psycho-education, writing assignments, monitoring, cognitive-restructuring, behavioural change, and relapse prevention strategies. It is suggested that a manual, based on the beating the blues protocol, will be devised for the delivery of the online counselling protocol and treatment adherence measures will be developed and employed in the study.

Condition 2: Self-directed cCBT: Beating the Blues:

The protocol for the self-directed cCBT 'Beating the Blues' is outlined in Figure 1 below. It is identical to the treatment protocol of the asynchronous CBT online counselling intervention. Beating the Blues is an 8-session, self-help treatment. During treatment users identify specific problems and realistic treatment goals. They work through cognitive modules which focus on the identification and challenge of automatic thoughts, thinking errors, distractions, core beliefs and attributional styles. The program includes problem-directed behavioural components in which clients can work on any two of activity scheduling, problem solving, graded exposure, task breakdown or sleep management according to their specific problems. The final module looks at action planning and relapse

prevention.

Beating the Blues uses interactive modules, animations and voice-overs to motivate and engage the user. A major feature is a series of filmed case studies of fictional patients who model the symptoms of anxiety and depression and help demonstrate the treatment by cognitive behavioural therapy.

Fig. 1 Structure of the CBT Protocol used in this study [condition 1 and 2] – please see the attached diagram.

Screening and Outcome Measures:

(1) Pre-treatment screening:

a. Brief Symptom Inventory (BSI)

b. History of previous medication, counselling, alcohol/drug use, general medical conditions, diagnosis of mental health disorder, psychotic disturbance, and commitment to the program.

c. **Beck Depression Inventory (BDI)**:

d. **CORE-OM-10**

(2) Outcome measures:

a. **Beck Depression Inventory**:

b. **CORE-OM-10:**

c. **Satisfaction with treatment measure** – a locally constructed survey questionnaire that will measure client's satisfaction with the online treatment.

d. A **cost-effectiveness analysis** will be performed to establish the economy of the delivery of internet interventions as compared with face-to-face counselling.

e. Outcome Rating Scale

(3) Process measures:

a. **Helpful Aspects of Therapy (HAT)**:

b. The **Working Alliance Inventory (WAI)-short form**

c. **Treatment adherence measure** to be developed based on measures that have been developed and used in other studies (e.g. Young & Beck, 1980).

The outcome instruments [BDI, CORE-10] will be administered at weeks 8, 16, 32 and 1 year follow-up.

Data analysis:

The instruments will be administered online and the results automatically recorded in a secure online database. The data collected will be analysed using SPSS.

- Statistical comparison of means will be conducted and the effect sizes established for each intervention on the outcome measures
- Helpful and hindering aspects of online counselling will be quantitatively and qualitatively compared for each intervention
- Levels of alliance will be statistically compared for the three conditions and correlated with outcome
- The level of treatment integrity will be established

Inclusion and Exclusion Criteria:

Inclusion Criteria:

Age 18 years and over

Depressed, depressed/anxious as assessed by a score of 14+ on the B

Registered student at the University

Able to commit to eight weekly sessions

Exclusion Criteria:

Serious suicidal intent

Currently on anti-depressant medication for greater or equal to six

Psychotic illness

Alcohol or drug abuse

Previous diagnosis of a mental disorder

Depression preceding or coinciding with a diagnosed medical condition

Any registered student of the university is eligible to participate in this research. Applicants with BDI scores ≤14 are excluded from the treatment, so too are applicants who score >29. The latter group will be referred to face-to-face treatment for severe depression

Scores of 2 or more on item 9 of the BDI (suicidal thoughts or wishes) or 3 on item 2 (pessimism) will lead to exclusion from the study as responses to these items are particular indicators of possible suicidal risk. Likewise, participants who score above 0 on the CORE-OM-10 risk/harm subscale will be excluded from the study. Depending on their risk/harm level they are offered follow-up services and/or face-to-face counselling. If students indicate any of the following they will be excluded: currently taking anti-depressants, psychotic illness, alcohol and/or drug abuse, previous diagnosis of mental disorder, depression preceding or coinciding with a diagnosed medical condition, and unable to commit to the eight weekly sessions.

5.	**Where will participants be tested / interviewed?**	Participants will be able to fill out the questionnaires on a PC or laptop. Participants can complete the questionnaires at their own pace.
6.	**How long (per participant) will the testing/ interviewing take?**	Approximately 20 minutes to complete the screening. 5-10 minutes to complete the WAI on week 2, 4, and 6 and the HAT on week's 1-8. 15 minutes to complete end of treatment evaluations [week 8]. 10 minutes to complete follow-up evaluations [week 16,32, and week 52]
7.	**Does the study involve deception or withholding of information? If yes, why is this necessary?**	no
8.	**Does the study involve physical risk to the participants? If yes, why is this necessary? How has it been minimised?**	No

Does the study involve any psychological risk to participants (e.g. upset, worry, stress, fatigue, feelings of being demeaned.)? If yes, how has this been minimised?	A Debriefing sheet will be available online and sent to each participants e-mail, offering the participants some options for support should they experience any adverse effect due to taking part in the study. Please see attached.
0. **Does the study involve social risk to participants (e.g. loss of status, privacy or reputation)? If yes, why is this necessary? How has it been minimised?**	no
1. **Does the study require participants to reveal information of a sensitive nature? If yes, why is this necessary, How will the procedure minimise distress caused by such disclosures?**	The researcher makes it clear in the information sheet on the study that there is no obligation at any stage to go beyond a comfortable level of self-disclosure. The debriefing form also gives information on where to seek support should any distress be caused by such disclosures.
2. **Are there any risks other than those encountered in everyday life? If yes, how have they been minimised?**	no
3 **How will confidentiality of participants be assured?**	All information collected will be held in secure databases and only the researcher and nominated Student Counselling personnel will have access. No identifying details will be reported.
Will you be administering any substances or requiring participants to refrain from taking any substances? Give the following details of any such substances: a) substance, b) amount, c) desired effect, c) possible side effects, d) what will be done to minimise risks? Why is it necessary to administer or withhold this substance?	No
Can participants withdraw from the study at any point? How will this be communicated to	Participants may withdraw from the study at any stage without consequence to treatment participation this will be clearly

	participants?	stated in the information they will receive from the researcher.
16.	**If observational research is to be undertaken without prior consent, describe the situation and how privacy confidentiality and dignity will be preserved?**	No
17.	**Will participants be paid? What is the rate of payment?**	No
18.	**With reference to the Freedom of Information Act what measures will you take for data storage?**	Please see http://www.tcd.ie/foi/ for details The computerised data will be password protected and each participant will be identified by a code known only to the researcher. Should participants request any information they have contributed to the study the researcher would provide them with the relevant information. Data collected will be held for a period of 10 years to comply with Student Counselling Service policy on data keeping. This conforms to FOI and also to School of Psychology data protection policy. After which data is destroyed.

How will consent be obtained? (Attach a copy of the consent form).	*Tick box to confirm attachment*	✓
	Potential participants will have had the opportunity to read an outline of the study, view the questionnaires and contact the researcher about the study if they wish to do so, before giving their consent to participate in the study. Their choice to participate or not will not impinge on the services available to them. In addition, the HISTORY collection of medication, counselling, alcohol/drug use, general medical conditions, diagnosis of mental health disorder, psychotic disturbance, and commitment to the program will have a separate consent where students will read: "I agree to provide the above information and understand that it will be held confidentially and anonymously and used only for the purpose of the research. Any subsequent academic reports or publications will not include any personally identifying information.	
Information/ debriefing sheet for participants	Please find attached *Tick box to confirm attachment*	✓
	All participants will be made clear of all elements of the study by the information provided to them though the website. A debriefing information sheet is also made available on the website and includes support services contact details.	
What is your debriefing procedure?	Participants will be made clear of all elements of the study through the initial information sent to them. Participants can contact the researcher if they have any further questions and /or use the services outlined in the debriefing sheet supplied.	

Declaration of applicant
I confirm that I have read and will abide by the School of Psychology Ethical Guidelines and the Psychological Society of Ireland guidelines on Ethical Research.

Signature of applicant

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23. *Declaration of supervisor*
I have read through and approved the contents of this application to the Ethics Committee.

Signature of supervisor

From: Kevin Thomas [kthomas@tcd.ie]
Sent: 27 November 2007 19:22
To: derek.richards@tcd.ie
Subject: ethics application

Dear Derek,
Following receipt of appropriately-amended information and de-briefing sheets, and clarification of the study's psychological distress minimisation procedure, I am pleased to inform you that your application entitled "Treatment of depression via the internet" has been approved by the School of Psychology Research Ethics Committee. A letter to this effect will be sent to your work contact address shortly.

Regards,
Kevin

Dr Kevin Thomas
Lecturer
School of Psychology
University of Dublin
Trinity College
Dublin
Ireland
Tel: 00353 (0)1 896 3237
Fax: 00353 (0)1 671 2006

Appendix B

Questionnaire and Report from Student Feedback

Online Treatments for Depression Study

Dear student,

Thank you very much for your time. Your feedback will inform the development of the website, information and related resources for the online treatment of depression study.

Part 1:

Gender	☐ Male	☐ Female
Age	21	
Faculty	AHSS	
Course	Psychology	

Part 2: The Information WebPages for the study

After reviewing the WebPages that provide information on the study for potential participants, can you answer the following questions:

A. In general, is the information on the pages clear and understandable?

☐ Yes ☐ No

Comments:

B. After reading the information are you clear on what's involved in participating in the study

☐Yes ☐ No

Comments:

C. Are the treatments made clear for potential participants?

☐ Yes ☐ No

Comments:

D. As a reader, can you say whether the information pages have the potential to attract students to engage in the treatments?

☐ Yes ☐ No

Comments:

Part 3: The study protocol – registering, screening and consent

A. Is the process of registering and logging into the site easy to follow?

☐ Yes ☐ No

Comments:

B. Was it clear why you were being asked for your consent to participate?

☐ Yes ☐ No

Comments:

C. Did you understand the screening and was it ok to complete?

☐ Yes ☐ No

Comments:

Part 4: The study protocol –Online Counselling Treatment

A. The process that you followed in submitting your initial text to the counsellor, was it intuitive for you

☐ Yes ☐ No

Comments:

B. After receiving the automatically generated housekeeping message, was the message clear in describing how the online counselling will work and what the next step is?

☐ Yes ☐ No

Comments:

C. When you received the counsellor's first session response was it clear in its instructions and also how do you imagine users may perceive this response?

☐ Yes ☐ No

Comments:

D. On reading the counsellors response, were you clear about what you had to do next, the next step?

☐ Yes ☐ No

Comments:

E. After receiving the general weekly e-mail asking you to complete evaluations was this understandable and easy to follow?

☐ Yes ☐ No

Comments:

Part 4: The study protocol –Beating the Blues Treatment

A. After being assigned to the beating the Blues treatment, was the information provided clear in describing how the program will work and what the next step is?

☐ Yes ☐ No

Comments:

B. The process that you followed in accessing the Beating the Blues program for the first time, was it intuitive for you

☐ Yes ☐ No

Comments:

C. How did you find the beating the blues session, was it clear in its instructions and also how do you imagine users may perceive the program?

☐ Yes ☐ No

Comments:

D. After receiving the general weekly e-mail asking you to complete evaluations was this understandable and easy to follow?

☐ Yes ☐ No

Comments:

Part 5: General comments/suggestions – usability, design etc.

Comments:

Thank you for taking the time to complete this feedback

Feedback from Students – The Online Treatments for Depression study WebPages, screening and protocol.

Introduction

As part of developing a user-friendly, intuitive, clear, concise and understandable study students were invited to spend some time assessing the information WebPages for the study the screening and also to comment on the general protocol that users will be taken through.

For 2 hours on the 18th January 2008 four students were recruited to take part in the feedback session. Recruitment took place through an e-mail that was sent out by the co-ordinator to peer-supporters in the college. Four students replied and said they were available to take part.

A questionnaire was developed that students were asked to complete as they went through the study WebPages, the screening procedure and the general protocol. Students were asked to work individually and complete the questionnaire. The questionnaire was made up of 6 **parts. Part 1** gathered of basic general data that included the student's gender, age, their faculty and course of study. The other parts related to the information about the study, the screening and the general protocol for treatment. The questionnaire contained quantitative items each of when also allows further comments. Students were instructed to use the comment area to fill in any thoughts or comments and also were encouraged to document what they understood was being presented or asked of them at the different points.

Part 2: The Information WebPages for the study

Part 2 contained 4 questions and related to the initial information that is provided on the website about the study. This information is divided into five WebPages and these are:

- Information on this study including benefits of CBT
- Participating in this study
- The treatments
- The Researchers
- Contact

Students were asked ***'in general, is the information on the pages clear and understandable'***. Students were in agreement that the information provided about the study, how to participate and what the treatments are, is written clearly, is simple and easy to follow and understandable. One student documented positively what she understood was being presented. Stating that she now knows what the different treatments are that are available, how to logon and also what is involved in participating.

One student reports that the information for the most part is clear and understandable however, one item left him unclear. This was to do with 1-year follow-up. The student proposed that this may not be clear if it is once off, or every year. In addition the student indicated a lack of clarity regarding the descriptions of one of the treatments; was unsure whether the online counselling was by e-mail or real-time messaging.

One student initially missed the links to the additional pages regarding participating in the study, the treatments, the researchers and contact. The student suggests that these be made bigger. At the same time, another student comments how the links are abundantly clear and clickable.

Another issue raised by one student was that a user can skip the information pages and choose to participate. The student suggests that the information pages be made compulsory viewing before a user can opt to participate. However, this raises a common difficulty, that even though one can made the pages mandatory in terms of them being visited this does not guarantee that the information is read.

The second question in part 2 asked the students: '***After reading the information are you clear on what's involved in participating in the study***'. All students were in agreement and were clear on what was involved in participating. One student comments: "It is clear, tells you exactly what you will be doing, the questionnaires you will be completing, and how long the study will take". Another student wrote a synopsis of what's involved which demonstrates clarity on what is involved in participating.

One student mentions that the information given about online counselling could be developed and added to and gives more information about exactly what the online counselling involves. This is related to the earlier point mentioned about adding to the description of the online counselling condition.

Next the students were asked whether the '***treatments were made clear for potential participants***'. One student agreed and stated that the treatments are explained properly and that potential participants will be able to know exactly what they are engaging with, whether that is e-mail counselling or the self-help Beating the Blues program. The other participants were less clear adding that more detail was needed about the treatments, especially online counselling. One student mentions that it is important to explicitly state that the online counselling is carried out through e-mail with a trained counsellor, that Beating the Blues is computer-based and that importantly for both treatments no face-to-face involvement is required.

Lastly, in part 2, students were asked: '***As a reader, can you say whether the information pages have the potential to attract students to engage in the treatments?***' All students agreed that they would. Further comments were added and include that it could be mentioned that both online counselling and Beating the Blues have previously shown to alleviate depression. One student comments on the information regarding the benefits of CBT and suggests that this would encourage participation.

One student comments that some of the information about the treatments might not interest students. However, the student failed to be specific in what information may or may not cause such a disinterest.

In addition two students commented directly on the website design, mentioning its attractiveness and also that it looks commercially produced. That as such it has potential to increase engagement. The colour scheme didn't suit one of these students; they would prefer something other than the shades of brown. However, the student didn't provide further information regarding their preference.

Part 3: The study protocol – registering, screening and consent

Part 3 of the questionnaire turns its attention to process of registering onto the website, consent and the screening. To begin with all students agreed that the '***process of registering and logging onto the site was easy to follow'***. How the site "explains that you can use your online community password if you have one, and that you can use a fictitious username increases feelings of confidentiality". Additionally, if you don't have an online community password, the site redirects you to the OMHC to register for one. One student thought this was good as it "notifies students of another resource". Having to register may deter some students, is the opinion of another student.

Next students were asked '***whether it was made clear why they were being asked for their consent to participate'***. Clearly the students' were aware as one writes: "Yes I understand that it's not obligatory for me to continue participating and that my consent is required in order to use the information for the study." Two further comments could perhaps add value to this page; firstly, "that information gathered is used for research purposes, that you can be excluded from the study, and that if you are suicidal your information may be passed on to the relevant authorities". Secondly, one student suggests that the tick box to agree to give consent could be placed differently; the student suggests placing it after the paragraph on confidentiality.

All students agreed that the ***screening was understandable and alright to complete***. They mention that it was "straightforward", "easy to understand" and "contains clear instructions and questions".

Part 4: The study protocol –Online Counselling Treatment

Given that there were four students two were assigned to each of the treatment conditions. There two students answered the questions relating to part 4 and equally two to part 5. Students agreed that the '***process that you followed in submitting your initial text to the counsellor was intuitive'***. It was like "sending an e-mail", "simple". But the users commented that the subject line which is already filled in was confusing and they were unsure whether to change this or leave it.

Next students were asked: '***After receiving the automatically generated housekeeping message was the message clear in describing how the online counselling will work and what the next step is?***' This was not at all problematic and students were clear that the message contained and informed them of all they needed to know. One student writes: "Was very clear in laying out the programme and making me feel involved in the process". Also one student writes positively of their understanding of the automatic housekeeping message; that it says when they will receive a reply from the counsellor, what to expect from CBT, and in general "Tells me everything I need to know".

Next the students were introduced to a typical response from the counsellor that a participant might receive after sending their initial story to the counsellor. The questions asks: '***When you received the counsellors first session response was it clear in its instructions and also how do you imagine users may perceive this response?***'. There is a small discrepancy in what the students report. One writes that it is very clear and goes on to state reasons why that is so; in other words provides supporting evidence to substantiate his view. The other writes that it is quite clear and focuses on the beginning of the response and recommends that the free text should make sure that it is personal to each student. It is interesting that each student highlights different aspects, the one highlights the specific factors and the other the non-specific factors. Of course it is not surprising that the latter are less clear.

The questionnaire goes on to ask whether the student was clear from the counsellor's response 'what they had to do next, the next step?' Both students reported that they were mentioning that the summary at the end of the e-mail made a valuable contribution to this. One student also added that it might be useful to detail how often the student can send an e-mail to the counsellor.

Lastly, the students were presented with a typical 'weekly e-mail' that would go out to participants inviting them to complete evaluations. One student comments that it is understandable and easy to follow, "very simple and clearly explained and useful that the link to the evaluation is embedded in the e-mail".

Part 5: The study protocol –Beating the Blues Treatment

Two students were assigned to beating the blues program and initially they were asked '***After being assigned to the beating the Blues treatment, was the information provided clear in describing how the program will work and what the next step is?***' One student writes: "It was good to know what BtB was going to involve in terms of printer, headphones etc".

Unfortunately the activation code for the program failed during the feedback session and consequently the students were unable to access the program. This prevented them from giving further feedback. However, it has to be remembered that even with feedback the author has no rights to be able to change the program as it currently stands.

Part 6: General comments/suggestions – usability, design etc.

Lastly, students were asked to provide general comments or suggestions about any aspect of the study. The following comments were made by students:

"The design was very easy to navigate and read. There was no immediate requirement for advanced understanding of computers and everything was very straightforward."

"Very well laid out, and clearly and thoroughly explained throughout. I think anyone taking part in the study would know exactly what was going to happen and why."

"Ensure that screening cannot be gone back on to alter BDI/CORE score & the resulting actions of that score. Also make sure there are no typos and maybe change the colour scheme? I dunno, green, yellow maybe? Very user-friendly! Good luck :p"

The general feedback from this question is largely positive and repeats earlier comments.

Conclusion

In general the feedback from students was positive and encouraging. It was important for the research study that students could have the opportunity to be involved and comment on the study and its related protocol. This can only ensure that necessary revisions are made now and therefore reduce potential difficulties that may arise when the study is launched.

Some items that were highlighted by students will be given attention and revisions made, these include:

1. The 1-year follow-up for collecting data will be clarified so that the student is clear that it is once off and not every year.

2. The online counselling condition will be explained further to include that is conducted through e-mail and not real-time messaging.

3. The links on the website will be enlarged for better viewing so that potential participants will not miss them.

4. The 'I want to participate' will be removed from the initial information pages and this may encourage students to read fully the information before choosing to participate

5. The information given about online counselling will be developed by adding more detail about the 8-week treatment

6. The site will explicitly state that the online counselling is carried out through e-mail with a trained counsellor, and that Beating the Blues is computer-based and that importantly for both treatments no face-to-face involvement is required.

7. The request to provide information that indicates both online counselling and Beating the Blues have previously shown to alleviate depression would be inaccurate. However, what is included is information that attests to the success of CBT in the treatment of depression. This information will be reviewed.

8. The colour scheme will be considered and an expert in Human-Computer Interaction will be asked to comment

9. The consent page will be reviewed and revised to state that information gathered is used for research purposes, that you can be excluded from the study, and that if you are suicidal your information may be passed on to the relevant authorities

10. The subject line in the e-mail that students send to the counsellor will be removed and not used as it potentially causes confusion.

11. The information page will make sure that it is clarified how often a participant cab send an e-mail to the counsellor

Appendix C

History Instrument

Please take a few minutes to answer the following questions

Have you received counselling/therapy for depression in the past?

Yes I have	No I have not

If yes, can you please describe, indicating how long and the type of counselling/therapy and whether you found it useful?

Are you currently in face-to-face counselling/therapy?

Yes I am	No I am not

If yes, can you please describe, indicating for how long and the type of counselling/therapy and whether you are finding it useful?

Have you in the past been on medication for depression?

Yes I have been on medication	No I have not been on medication

Are you currently on medication for depression?

Yes I am on medication	No I am not on medication

For how long have been on anti-depressant medication?

Less than 6 months	More than 6 months

Has your use of alcohol or other drugs ever meant that you couldn't fulfill your commitments to your studies?

Yes	No

Has your experience of depression been preceded or coincided with a diagnosis of a severe medical condition?

Yes	No

If yes, please name the diagnosed medical condition

Have you ever been diagnosed with schizophrenia or other psychotic disorder?

Yes	No

Do you believe that you will be able to commit to the 8 weekly session treatment program?

Yes	No

I agree to provide the above information and understand that it will be held confidentially and anonymously and used only for the purpose of the research. Any subsequent academic reports or publications will not include any personally identifying information.

Thank you for taking the time to complete these questions.

SUBMIT

Appendix D

Satisfaction with Treatment Instrument

Please take a few moments to answer the following questions giving your feedback about the online treatment you have completed

PART A

In the last eight weeks have you been prescribed anti-depressant medication?

Yes	No

In the last eight weeks have you been to face-to-face counselling/therapy?

Yes	No

PART B

I was happy to use the computer to access treatment

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly

I found the online treatment easy to use

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly

I feel the treatment received will have a long lasting effect

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly

I would recommend the online treatment to other users

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly

PART C

Please rate how helpful you found the online treatment program

Very helpful	Quite helpful	Not really helpful	Not at all helpful

What did you most like about the online treatment?

What did you least like about the online treatment?

Thank you for your time and your feedback- **SUBMIT**

Appendix E

Helpful Aspects of Therapy Form

You have just completed your online counselling, can you please tell us about what you found to be helpful and what you found to be unhelpful in your experience.

HELPFUL ASPECTS OF THERAPY FORM (H.A.T.)

Of the events which occurred in this session, which one do you feel was the most helpful or important for you personally? (By "event" we mean something that happened in the session. It might be something you said or did, or something your therapist said or did.)

Please describe what made this event helpful/important and what you got out of it

How helpful was this particular event? Rate it on the following scale

Hindering				Neutral				Helpful
1	2	3	4	5	6	7	8	9

Did anything else particularly helpful happen during this session? (Please describe this event briefly)

Did anything else particularly hindering happen during this session? (Please describe this event briefly)

SUBMIT

Appendix F

Working Alliance Inventory – Short Revised

Please take a few minutes to complete the following evaluation. The following form is asking you to rate your experience with your online counsellor.

Below are a list of statements about experiences you may have had with your online counsellor. As a user of online counselling, please consider each item carefully and indicate your level of agreement with each statement.

	Seldom	**Sometimes**	**Fairly often**	**Very often**	**always**
As a result of this session I am clearer as to how I might be able to change	1	2	3	4	5
What I am doing in counselling gives me new ways of looking at my problem	1	2	3	4	5
I believe my counsellor likes me	1	2	3	4	5
My counsellor and I collaborate on setting goals for my therapy	1	2	3	4	5
My counsellor and I respect each other	1	2	3	4	5
My counsellor & I are working towards mutually agreed upon goals	1	2	3	4	5
I feel that my counsellor appreciates me:	1	2	3	4	5
My counsellor & I agree on what is important for me to work on	1	2	3	4	5
I feel my counsellor cares about me even when I do things that she/he does not approve of	1	2	3	4	5
I feel that the things I do in counselling will help me to accomplish the changes that I want	1	2	3	4	5
My counsellor and I have established a good understanding of the kind of changes that would be good for me	1	2	3	4	5
I believe the way we are working with my problem is correct	1	2	3	4	5
					SUBMIT

Appendix G

Adherence Measure

Adherence Measure: generic counselling skills

In the session rate whether the following are present or not in the therapist's response:

1. Empathy and Acknowledgement of Emotion

☐ Present ☐ Not present

2. Provision of Guidance and Information

☐ Present ☐ Not present

3. Validation of Successes

☐ Present ☐ Not present

4. Self-care and Social Support

☐ Present ☐ Not present

5. Building Alliance

☐ Present ☐ Not present

Further comments: other therapeutic principles that you encountered

Descriptions:

1. Empathy and Acknowledgement of Emotion

The therapist communicating a sense of respect, understanding and acceptance of the client and what they are writing about in a way that shows the therapist picking up on the emotions the client seems to be expressing, clarify these, reflect them back and helping the client with such self-expression.

2. Provision of Guidance and Information

The therapist helping to normalise any symptoms by giving basic facts. The therapist relating the symptoms to various aspects of the difficulties being worked on. In some cases conveying how the symptoms can be faulty attempts to resolve emotional difficulties at other times directing clients to more appropriate solutions.

3. Validation of Successes

The therapist's support of the client, especially regarding the client's wished to achieve the goals of treatment. The therapist helping clients recognise their strengths and resources and building on the successes that the client reports. Conveying a belief that some change is possible; expressing confidence that the client can achieve some of his/her needs through change in ways of thinking about and looking at a situation.

4. Encouraging either Self-care or Social Support

The therapist raising the client's awareness of self-care, physically and psychologically. Encouraging clients towards useful strategies for care of self. At times the therapist may encourage the client to use and or to develop their social network; family and friends.

5. Building Alliance

The therapist outlining the boundaries and what's involved in the treatment. Highlighting the benefits of going through with any particular session and /or sticking with the program. Acknowledging clients presenting issues and problems, making reference to and presenting specific strategies in sessions that may help with particular issues or problems. Therapist being responsive to the client and what is presented attending to the relationship and resolving any strains that may occur.

Appendix H

Clinical Outcomes in Routine Evaluation – Outcome Measure

CLINICAL OUTCOMES in ROUTINE EVALUATION

CORE-10 Screening Measure

IMPORTANT - PLEASE READ THIS FIRST

This form has 10 statements about how you have been OVER THE LAST WEEK. Please read each statement and think how often you felt that way last week. Then choose the option which is closest to this.

Over the last week ...	Not at all	Only Occasionally	Sometimes	Often	Most or all of the time
I have felt tense, anxious or nervous	0	1	2	3	4
I have felt I have someone to turn to for support when needed	0	1	2	3	4
I have felt able to cope when things go wrong	0	1	2	3	4
Talking to people has felt too much for me	0	1	2	3	4
I have felt panic or terror	0	1	2	3	4
I have made plans to end my life	0	1	2	3	4
I have had difficulty getting to sleep or staying asleep	0	1	2	3	4
I have felt despairing or hopeless	0	1	2	3	4
I have felt unhappy	0	1	2	3	4
Unwanted images or memories have been distressing me	0	1	2	3	4
					SUBMIT

Thank you for your time in completing this questionnaire

CORE-10 Copyright CORE System Trust (February 2006)



Appendix I

Beck Depression Inventory (BDI-II)



Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Click the button beside the statement you have picked. If several statements in the group seem to apply equally well, click the highest number for that group.

1. Sadness

- ☐ **0** I do not feel sad
- ☐ **1** I feel sad much of the time
- ☐ **2** I am sad all of the time
- ☐ **3** I am so sad or unhappy that I can't stand it

2. Pessimism

- ☐ **0** I am not discouraged about my future
- ☐ **1** I feel more discouraged about my future than I used to be
- ☐ **2** I do not expect things to work out for me
- ☐ **3** I feel my future is hopeless and will only get worse

3. Past Failures

11. Agitation

- ☐ **0** I am no more restless or wound up than usual
- ☐ **1** I feel more restless or wound up than usual
- ☐ **2** I am so restless or agitated that it's hard to stay still
- ☐ **3** I am so restless or agitated that I have to keep moving or doing something

12. Loss of Interest

- ☐ **0** I have not lost interest in other people or activities
- ☐ **1** I am less interested in other people or things than before
- ☐ **2** I have lost most of my interest in other people or things
- ☐ **3** It's hard to get interested in anything

13. Indecisiveness

- ☐ **0** I do not feel like a failure
- ☐ **1** I have failed more than I should have
- ☐ **2** As I look back, I see a lot of failures
- ☐ **3** I feel I am a total failure as a person

- ☐ **0** I make decisions about as well as ever
- ☐ **1** I find it more difficult to make decisions than usual
- ☐ **2** I have much greater difficulty in making decisions than I used to
- ☐ **3** I have trouble making any decision

4. Loss of Pleasure

- ☐ **0** I get as much pleasure as I ever did from the things I enjoy
- ☐ **1** I don't enjoy things as much as I used to
- ☐ **2** I get very little pleasure from the things I used to enjoy
- ☐ **3** I can't get any pleasure from the things I used to enjoy

14. Worthlessness

- ☐ **0** I do not feel I am worthless
- ☐ **1** I don't consider myself as worthwhile and useful as I used to
- ☐ **2** I feel more worthless as compared to other people
- ☐ **3** I feel utterly worthless

5. Guilty Feelings

- ☐ **0** I don't feel particularly guilty
- ☐ **1** I feel guilty over many things I have done or should have done
- ☐ **2** I feel quite guilty most of the time
- ☐ **3** I feel guilty all of the time

15. Loss of energy

- ☐ **0** I have as much energy as ever
- ☐ **1** I have less energy than I used to have
- ☐ **2** I don't have enough energy to do very much
- ☐ **3** I don't have enough energy to so anything

6. Punishment Feelings

- ☐ **0** I don't feel I am being punished
- ☐ **1** I feel I may be punished

16. Changes in Sleeping Pattern

- ☐ **0** I have not experienced any change in my sleeping pattern
- ☐ **1a** I sleep somewhat more than usual

- ☐ **2** I expect to be punished
- ☐ **3** I feel I am being punished

- ☐ **1b** I sleep somewhat less than usual
- ☐ **2a** I sleep a lot more than usual
- ☐ **2b** I sleep a lot less than usual
- ☐ **3a** I sleep most of the day
- ☐ **3b** I wake up 1-2 hours early and can't get back to sleep

7. Self-Dislike

- ☐ **0** I feel the same about myself as ever
- ☐ **1** I have lost confidence in myself
- ☐ **2** I am disappointed in myself
- ☐ **3** I dislike myself

17. Irritability

- ☐ **0** I am no more irritable than usual
- ☐ **1** I am more irritable than usual
- ☐ **2** I am much more irritable than usual
- ☐ **3** I am irritable all of the time

8. Self-Criticalness

- ☐ **0** I don't criticize or blame myself more than usual
- ☐ **1** I am more critical of myself than I used to be
- ☐ **2** I criticize myself for all of my faults
- ☐ **3** I blame myself for everything bad that happens

18. Changes in Appetite

- ☐ **0** I have not experienced any change in my appetite
- ☐ **1a** My appetite is somewhat less than usual
- ☐ **1b** My appetite is somewhat greater than usual
- ☐ **2a** My appetite is much less than before
- ☐ **2b** My appetite is much greater than before
- ☐ **3a** I have no appetite at all
- ☐ **3b** I crave food all the time

9. Suicidal Thoughts or Wishes

- ☐ **0** I don't have any thoughts of killing myself
- ☐ **1** I have thoughts of killing

19. Concentration Difficulty

- ☐ **0** I can concentrate as well as ever
- ☐ **1** I can't concentrate as well as

myself, but I would not carry them out

☐ **2** I would like to kill myself

☐ **3** I would kill myself if I had the chance

usual

☐ **2** It's hard to keep my mind on anything for very long

☐ **3** I find I can't concentrate on anything

10. Crying

☐ **0** I don't cry anymore than I used to

☐ **1** I cry more than I used to

☐ **2** I cry over every little thing

☐ **3** I feel like crying, but I can't

20. Tiredness or Fatigue

☐ **0** I am no more tired or fatigued than usual

☐ **1** I get more tired or fatigued more easily than usual

☐ **2** I am too tired or fatigued to do a lot of things I used to do

☐ **3** I am too tired or fatigued to do most of the things I used to do

21. Loss of Interest in Sex

☐ **0** I have not noticed any recent change in my interest in sex

☐ **1** I am less interested in sex than I used to be

☐ **2** I am much less interested in sex than I used to be

☐ **3** I have lost interest in sex completely

Submit

Appendix J

E-mail Advertising the Study

Advertisement: e-mail to students

Subject: Do you suffer with depression?

E-mail body text:

Dear Student,

The Student Counselling Service would like to invite you to participate in a research trial aimed at assessing the effectiveness of online treatments for depression.

Depression is defined as experiencing low mood most of the day with diminished interest in activities, feelings of worthlessness and self reproach may also be present. It may be accompanied by poor concentration, decreased appetite, sleep disturbance, and tiredness that have been present for 2 weeks or more.

If you suffer from depression and would be interested in participating please visit the website for more information at:

Online Treatments for Depression
LINK: https://www.cs.tcd.ie/~drichar/Depression/

Two online treatments are available, e-mail counselling for depression and self-directed software for depression [beating the blues].

The treatment program will involve screening and will require a commitment of **1 hour per week for 8 weeks**.

Yours sincerely,

Student Counselling Service,
199-200 Pearse Street,
Trinity College,
Dublin.

Link: https://www.cs.tcd.ie/~drichar/Depression/

Appendix K

Website Information Pages

Information on the study: Online treatments for depression

Hello and welcome to **Online Treatments for Depression.** By participating in the treatment program you are offered the opportunity to learn new ways of managing your feelings that can help improve your quality of life and general well-being. Click the arrow to read more about benefits ➧

Participating in this study: Online treatments for depression

The study will randomly assign you to one of two available online treatments for depression [e-mail counselling or self-directed software]. Both treatments use Cognitive Behaviour Therapy which is an established therapy for the treatment of depression. There are **4 phases** to the treatment and study:

Phase 1:
You will be asked to complete four pre-treatment screening questionnaires. *Please note that the Phase 1 questionnaires screen for symptoms of depression. It is not by itself a psychiatric assessment and/or a diagnosis.* The research instruments are:

a.**Brief Symptom Inventory (BSI)** - 53 items that ask about general mental health and well-being
b.**Beck Depression Inventory (BDI)** - 21 questions that help screen for the presence and severity of depressive symptoms
c.**Clinical Outcome in Routine Evaluation (CORE-OM)** - 10 questions about general mental health
d. **History** - 11 items gathering data on previous and present medication and counselling experience.

NOTE

The purpose of the screening is to establish that you may have depressive symptoms such that you may benefit from participation. If the screening indicates that your difficulties would be better helped by attending for face-to-face counselling or another treatment these will be recommended to you. The screening questionnaires will also identify possible mental health issues (suicidal risk/psychosis). If indicated, you will be asked to contact the student counselling service. Otherwise the service may contact you.

Phase 2:
After screening you will be assigned to treatment. Treatment is one session of e-mail counselling per week for 8 weeks **or** one session of the self-directed computer program per week for eight weeks. It is important that you are able to maintain this commitment. Click on the link - treatments - to read more about the two treatments available and how they will operate.

During the **8 week treatment** you will be requested to complete the **Working Alliance Inventory** (WAI) on three occasions [weeks 2,4,6]. This WAI asks 10 questions about your perception of the alliance you have with your online

counsellor. Each week you will be asked to complete a session evaluation. This is a 5-item questionnaire called **Helpful Aspects of Therapy** (HAT) .

Phase3:
At the end of the treatment [week 8] you will be requested to complete four questionnaires. These will help determine the effectiveness of the treatment; what you found to be helpful and whether you were satisfied. The measures used here will be:

a. **Beck Depression Inventory** (BDI) - 21 questions
b. **Clinical Outcome in Routine Evaluation** (CORE-OM) - 10 questions
c. **Helpful Aspects of Therapy** (HAT) - 5 questions
d. **Satisfaction with Treatment** (SAT) - 8 questions

Phase 4:
You will be asked to complete the **BDI** and **CORE-OM** at week 16, 32 and at 1-year. This is to determine the lasting effectiveness of the treatments. You will receive a reminder by e-mail that will contain a link to a webpage where you can fill these in.

All the data collected is held confidentially. The questionnaires should take no longer than twenty minutes to complete.

I would like to participate

The Treatments : Online treatments for depression

Both treatments are based on Cognitive Behaviour Therapy (CBT), which is a form of psychotherapy that aims to help people change negative thinking and unhelpful behaviour. CBT can be helpful in managing depression.

Treatment 1: Asynchronous online CBT counselling:

The protocol for online counselling includes **8 weekly sessions** of online counselling. You will be able to write weekly to a professional counsellor at the student counselling service and receive a weekly response. During these correspondences there is opportunity to write freely about how you are and also to receive professional support with your depression. The professional content includes:

Week 1: Identifying what the problem is
Week 2: Automatic thoughts and their impact on mood
Week 3: Identification of thinking errors and management strategies
Week 4/5: Challenging unhelpful thinking and identifying alternatives
Week 6: Core belief identification and modification
Week 7: Attributional style and 'How we view things'
Week 8: Action planning and maintenance of progress

It is important that you are able to agree to send one weekly e-mail over eight weeks and read the counsellors response.

Treatment 2: Self-directed cCBT*: Beating the Blues:

The protocol for the self-directed treatment is 'Beating the Blues'. Beating the Blues is an **8 weekly session**, self-help treatment for depression. We encourage you to be able to schedule 1 **hour each week** for the program at your leisure. During treatment users identify specific problems and work on realistic treatment goals. They work through cognitive modules which focus on the identification and challenging of automatic thoughts, thinking errors, core beliefs and attributional styles. The program includes problem-directed behavioural components and relapse prevention. Beating the Blues uses interactive modules, animations and voice-overs. As a user, each week you will receive an e-mail contact from the student counselling service.

Both treatments are administered online and there is no face-to-face involvement required. Both treatments are CBT based and follow the same content.

*cCBT - Computerised Cognitive Behavioural Therapy

I would like to participate

The Researchers: Online treatments for depression

Mr. Derek Richards:

Derek works at the Student Counselling Service. His background includes Education, ICT and Psychotherapy. In the past number of years Derek has commenced research into the online delivery of mental health services: education, peer support and counselling to the student population. Pilot work has produced positive findings and demonstrated that online mental health service delivery has potential and is meeting a need in the population for appropriate service provision.

Dr. Ladislav Timulak:

Is senior lecturer and course director of the MSc in counselling psychology, school of psychology, Trinity College Dublin.

Contact details: Online treatments for depression

For any questions you have about your participating in the study or the research please contact:

Mr. Derek Richards (Researcher)
Student Counselling Service,
Trinity College,
Dublin 2

E-mail: derek.richards@tcd.ie
Tel: Tel: 01-8963759

Questions regarding the academic research can be directed to the academic supervisor:

Dr. Ladislav Timulak (Supervisor)
Course Director
MSc Counselling Psychology
School of Psychology
Trinity College
Dublin 2

E-mail: timulakl@tcd.ie

Appendix L

Informed Consent

Informed Consent

Thank you for your interest in participating in this research of online interventions for the treatment of depression. Once you agree to participate you will be directed to a screening procedure. The questionnaires should take no longer than 15-20 minutes to complete.

Confidentiality
Should you wish to participate there is no obligation to continue to do so, and you may withdraw from the research project at any time without consequence. All information gathered from this project will be treated with the utmost confidentiality, and no identifying information will be used in the subsequent use of the data obtained for research purposes. Any personal information which you provide and agree to being used as part of the research component of the project will be assigned a code, known only to and accessible by the researcher. All written/paper data obtained will be transferred to a computer database that is password protected. In accordance with the Freedom of Information Act (1997) you shall have full and open access pertaining to any personal information you provide for this project. Any subsequent academic reports or publications will not include any personally identifying information, though some selected quotations may be included.

☐	I have read and understood the information about participating and I agree to participate in this study
	SUBMIT

Appendix M

Information Page – Online Counselling Condition

Please take a few minutes to read the following **IMPORTANT** information

You have been successful in applying to participate in the study - Online Treatments for Depression - and you have been assigned to the treatment for online counselling.

How does online counselling work?

The online counselling follows a treatment plan for depression and involves 8 e-mail correspondences with a professional counsellor. After you read this information sheet you will have an opportunity to fill out and send your first message to your online counsellor. You will then receive an automatic response, called the 'housekeeping message', this will let you know that your message has been received and when you can expect a reply from your counsellor. You will receive correspondence into your regular e-mail account. This information has also been sent to your e-mail.

We recommend that you send one e-mail per week for eight weeks to the counsellor. The counsellor will then reply to the e-mail sent.

The research study:

As you already know we are interested in assessing the effectiveness for online treatments. Therefore, you will be asked to complete questionnaires during your treatment, at the end and follow-up. Please refer back to Participating in this study for the details.

Contact:

If you experience any difficulties during the course of your treatment please mention these to either your counsellor or contact us. If you would like further information about the screening process you can contact the researcher: e-mail given

Click here to send your message

Appendix N

Information Page – Beating the Blues Condition

Please take a few minutes to read the following **IMPORTANT** information

You have been successful in applying to participate in the study - Online Treatments for Depression - and you have been assigned to the self-directed treatment called Beating the Blues.

How does Beating the Blues work:

Beating the Blues is an 8-session, self-directed treatment for depression. Beating the Blues uses interactivity, animations and voice-overs. The program will require a commitment of about **one hour per week for eight weeks**. You can decide when you wish to spend this time.

How to access Beating the Blues:

To access you will need the following activation code [**421827514**] your username for Beating the Blues is **trinity97**. Use the code and follow the instructions on the website: www.beatingtheblues.co.uk **We recommend that you complete one module per week for 8 weeks.** This information has also been sent to your e-mail.

You may need **headphones** to listen to the program in private and you will need access to a **printer**.

The research study:

We are interested in assessing the potential for online treatments. Therefore, you will be asked to complete questionnaires during your treatment, at the end and follow-up. Please refer back to Participating in this study for the details. **We recommend that you keep to a weekly one hour time slot for this program**. At the end of each week you will receive an e-mail contact from the student counselling service.

Contact:

If you experience any difficulties during the course of your treatment please contact us. If you would like further information about the screening process you can contact the researcher: e-mail given

Appendix O

Automated E-mail sent to Users in the cCBT Condition

Dear participant,

You have now completed your # session of treatment as part of the study: Online Treatments for Depression, well done!

Each week you will receive an e-mail from me asking you to complete an evaluation of your experience of the treatment. I encourage you to continue with the weekly treatment in order to realise and maximise the benefit to you.

The evaluation will take less than 5 minutes to complete. To access the weekly evaluations please click on the link below:

https://www.cs.tcd.ie/~drichar/Depression

Thanks for your time and participation in this study.

Warm regards,

Derek Richards,
Student Counselling Service,
199-200 Pearse Street,
Trinity College,
Dublin.

derek.richards@tcd.ie

Appendix P

Information Page – Exclusion B

Please take a few minutes to read the following **IMPORTANT** information

We do not think that online treatments will be helpful to you at this time. We would encourage you to seek face-to-face help and the options that are now available to you include:

A. The College Student Counselling Service:

Can you call the student counselling service for an appointment (01-896 1407), or call into them and book an appointment. The service is open from 9.15 - 5.10 each day, Monday to Friday. You can mention that you have been referred from this website - online treatments of depression. Please print the following referral letter and bring it with you. Student Counselling Service Website

B. College Health Centre:

Alternatively you may like to make an appointment with the College Doctor, either call them (01-896 1556) or call into them. Health Service Website

C. Out of Office Hours Services:

Samaritans - 1850 60 90 90

Aware - 1890 303 302

Baggot Street Alcohol Clinic 01 - 6699300

Appendix Q

Information Page – Exclusion C

Please take a few minutes to read the following **IMPORTANT** information

According to your replies on the questionnaires we have some concern for your well-being. We would like to offer you face-to-face support at the Student Counselling Service. You will be given an immediate appointment.

A. The College Student Counselling Service:

Can you please call the counselling service (01-896 1407), or call into the service and book an appointment. The service is open from 9.15 - 5.10 each day, Monday to Friday and closed for lunch 1-2pm. You can mention that you have been referred from this website - online treatments of depression. Please print the following referral letter and bring it with you. Student Counselling Service Website The Student Counselling Service will arrange for one-to-one counselling and/ or referral to the College Health Service.

B. Other Services:

Aware - 1890 303 302

The Helpline is open seven days a week from 10am-10pm. From Thursday to Sunday, the helpline also operates after 10pm.

Baggot Street Alcohol Clinic 01 - 6699300

Baggot Street Drug Treatment Clinic 01 - 6602189

C. Out of Office Hours Services:

Samaritans - 1850 60 90 90

Please seek help immediately

While the counselling service maintains confidentiality, if we are concerned that you are at risk to yourself or others, this can be broken. If we do not hear from you we will make contact with you.

Appendix R

Sample counselling session eCBT asynchronous communication

E-mail Session 2

Insert free text here

a. Weekly projects

Last session the client was asked to complete the following homework tasks:

1. identify the symptoms
2. record problems
3. use problem diary
4. Pleasurable activity

Can you comment on each of these home work tasks giving feedback?

Project 1: Pleasurable activity

Recognise the symptoms the client has identified

Project 2: Record and monitor your problems.

Did the client report problems and thereafter monitor them using the problem diary? Respond to their problem dairying of the last week.

Project 3: Pleasurable activity

I am glad to hear that you scheduled a pleasurable activity and also that you enjoyed it so much. I would encourage you to continue to plan such activities.

If the client didn't do a pleasurable activity, again explain that you understand and that it can be difficult. Yet, if engaging in some activities that are pleasurable can help in reducing depression.

Also a caveat to support the doing of homework activities: Research has shown that those who do the projects are 3 times more likely to benefit from the program.

Taking the two activities together the pleasurable activity and problem monitoring can you see the link between what you do and what you feel? The more positive activities you do and the more you monitor your problems and deal with them instead of thinking and worrying about them the better you feel.

b. Session 2 – objectives:

Today we will work on:

a. Setting goals for this therapy program – what you would like to get out of it
b. Introduce the topic: Negative Automatic Thoughts and how to record your thoughts
c. Introduce and explain a doing technique called activity scheduling

c. Problems

Rate generally how your problems have been this week on a scale of 1-8 [1=not improved; 8=improved a lot]: comment on clients report about problems

d. Goal Setting

The next stage is to consider what goals would be useful to set for therapy. By working through this program with me, what would your desired realistic outcome be? Here are some tips for setting good goals.

Goals should be positively affirming

So that goals are effective, goals should focus on the positive. Rather than saying you want to stop something negative you need to say what you'd like to do instead. How would I like it to be? For example, instead of saying that I want to stop being tired and depressed you could formulate it positively As: My goal is to establish a better sleep routine and increase the quality of my sleep.

Goals should be realistic

Goals should be realistic and achievable. Don't set goals you can't expect to achieve, or you risk feeling demoralised. For example, don't set the goal of wanting to be an able to drive when you don't have a driving licence. A more realistic goal would be: I want to apply for a driving licence and take two lessons

Goals should be specific

Goals should be specific, avoid vague goals like "I want to calm down". Be as specific as possible for example, when the kids are playing up I want to be able to deal with them calmly and more effectively, without shouting, nine times out of ten.

Goals should be measurable

Goals need to be measurable and repeatable, ask yourself what particular behaviours will change as a result of achieving your goal, how will you or others know this or observe this change? For example I would like to be able to engage in conversation with people three times a day, three days out of seven.

Now look at some case histories and their goals. Present user with different goals of the people from cases and ask them to judge whether they are good goals, whether they are positive, realistic, specific and measurable.

Now focus on setting your own goals for therapy. What I want you to think about is what you want to gain from the program. How would you like it to be? What would you like to achieve through your work? You can type up to 3 goals for yourself reminding you that they should be:

- **Positive**
- **Realistic**
- **Specific**
- **Measurable**

What is your first goal?

Is your goal positive?

Is your goal realistic?

Is your goal specific?

Is your goal measurable?

e. Impact of thinking on our moods

Now you have set some initial goals for therapy, let's examine how we can go about achieving them. Last week I talked to you about the **ABC model**. The key point:

It is not events themselves that upset us, but our interpretation of events that influences our feelings, behaviours and physical reactions.

Worksheet 2.1 which is attached has some situations described, imagine you find yourself in the situation and choose the answer **so that the thoughts may match the feelings, behaviour and/or body reactions**. Can you send me your answers to the worksheet in your next e-mail?

The ABC model helps us understand that the way we think effects how we feel which can alter how we behave. This is important in understanding what contributes to depression, and how depression can be made worse by negative thinking.

Most of the time our thinking is fine, creating realistic and normal feelings and reactions. However, sometimes our thinking can be negative and we can become low, depressed or anxious. Negative Automatic Thoughts or NAT's pop into our thinking uninvited and may even feel plausible in the context of how we feel. Our goal is not to change a 'negative' to a 'positive' thought as this can be difficult to do. We need to examine our thoughts, identifying them as negative and work on constructing a realistic alternative thinking perspective. So let's begin …

The first step in this process is to **recognise our negative automatic thoughts**. **Negative automatic thoughts** usually focus on the bad side of things: for example, that we're inferior, that our problems are overwhelming and that we can't cope.

Examples of automatic negative thoughts:

Andrew: He was called for a meeting with the principle and he thought he would be '**found out**' and was stressed out about it. However, in the end it was only about a parent-teacher meeting.

Jane: when letters come through the letterbox I am always thinking '**it is another bill**'

f. Tools to help us identify NAT's

Thought Records

A good way to identify **negative automatic thoughts** is to recognise any change in your mood then write down what you were thinking at the time. Ask yourself: what was going through my mind when I felt upset?

☞ Let's look at Andrews recording:

Event	Thought	Feelings
One of my classes became unruly and I couldn't keep control	I should be able to control these kids all the time (80%) They walk all over me (90%) I can never get them to behave for me (80%)	Feeling inadequate (90%) Worried (80%)

Using the above example as a guide can you begin to record your thoughts in a similar way, I have attached a thought record that you can use. You can let me know how this is in your next e-mail.

1. Negative automatic thoughts are recognised as they generally make you feel upset/sad, they often have silent words like all, always, should and never … look for silent words in the thoughts
2. Often negative automatic thoughts come as questions? **What if I can't cope?** you can change this to statements: I won't be able to cope, because …
3. Rate your thoughts on how much you believe them (0-100%). Similarly rate how bad the feeling is (0-100%)

Event/situation	Thoughts	Feelings
I am going on an aeroplane	It's bound to crash (80%)	Panic (80%) Fear (80%)

4. Feelings are usually expressed in one word, e.g. irritated, excited, embarrassed, nervous, and happy.

g. The role of Activity Scheduling

So far what we are learning is that what we do and what we think influences how we feel. Up to now we have focused on thinking. It is also important to work on behaviours, body reactions and identifying triggering situations.

Now we will look at techniques to help improve your problems. Choose one of the problems that you identified in session 1 and we can work on that.

Now let's chose a technique to tackle your problem: have you stopped doing things you enjoy or are just too busy. Why not try the activity scheduling technique. I would like you to try and complete a schedule for the week making sure you include activities that make you feel good.

An **activity schedule** is a timetable that you can construct from day to day, the related **activity worksheet** is a record of the things you did during your day that made you feel good or made you feel worse. I have attached both of these for you. Can you try them this week and let me know how you got on in your next e-mail.

As you do the schedule you can ask yourself questions like:

- Are you doing too much?
- Are you doing too little?
- Do you need to change your activities?
- Have you included a pleasurable activity each day?

h. Summary

In summary today we looked at setting goals for your therapy, which we can work towards over the coming weeks. We took a look at how our thinking has an impact on what we feel and what we do or don't do. Sometimes our thinking can be distorted or negative and this can make us feel worse. But that we began looking at a way to help with this, the first step in thought recording. Lastly, we also spoke about activity scheduling and making the distinction between things we do that help us feel better or leave us feeling worse. Well done! I look forward to hearing from you. If you can, please try and reply before **##NAME DAY##**

What is the key learning point from today's session?

h. Homework activities

1. Using a scale of 1-8 can you let me know how depressed you have felt in the last week
2. Let me know the goals that that you have set for therapy
3. Tell me the answers you choose on the worksheet 2.1 about ABC model
4. How was it recording your thoughts, you can send me the thought record if you can
5. Review and feedback on your activity scheduling and identifying what you do to **feel better** and **feel worse**
6. Review and feedback on how your problems are over the last week on a scale of 1-8

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