BEHAVIOURAL ACTIVATION TREATMENT OF ANXIETY (BATA): A PRELIMINARY INVESTIGATION USING A SERIES OF SINGLE-CASE CLINICAL REPLICATIONS

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Declaration

This thesis contains no material which has been accepted for the award of any other degree in any other university and, to the best of my knowledge or belief, contains no material previously published or written by another person, except when due reference is made in the text.

Jarrod Turner

July 2010
A note on dissemination of results to date:

(1) During its preparation, parts of the thesis have been presented at the following conferences:


(2) Parts of the thesis have been presented as an invited workshop:

9 June, 2009 - Western Australian Branch of the Australian Association for Cognitive and Behaviour Therapy: Perth, Western Australia. “Using brief behavioural activation for the treatment of anxiety”.

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* Associate Professor David Leach supervised the thesis.
ABSTRACT

Behavioural activation (BA) therapy (Lejuez, Hopko, & Hopko, 2001; Martell, Addis, & Jacobson, 2001) is based on operant behavioural principles and involves efforts to increase the amount of ‘meaningful’ activity in the client’s everyday life, so that he or she increases contact with positive reinforcement for clinically-healthy behaviours while also decreasing contact with negative reinforcement for ‘depressed’ or ‘anxious’ behaviours. BA is an effective treatment for depression, yet rarely has been applied to anxiety despite functional similarities including the habitual avoidance that is a feature of both disorders. In this study Behavioural Activation Treatment of Anxiety (BATA) was evaluated across a series of single-case replications involving seven adults, each of whom met criteria for clinical anxiety. In each case, following a baseline period, BATA was delivered in twelve weekly 60-minute individual sessions. The effects of the treatment were evaluated using an A-B-C phase change with repeated measurement design. Dependent variables were self-monitored daily anxiety and activity levels, self-reported anxiety, and the participants’ ratings of the ‘therapeutic relationship’ between themselves and the BATA therapist. A measure of treatment integrity was used.

In six of the seven cases significant changes in daily activity levels and clinically significant decreases in anxiety were reported during the treatment phase. In five of those six cases, decreases in anxiety matched decreases in self-monitored daily anxiety. Reductions in anxiety were maintained up to a 3-month follow-up. Overall, participants rated the therapeutic relationship as just approaching ‘adequate’ and these ratings appeared not to be associated with the changes in anxiety and activity levels across the course of treatment. The treatment integrity data showed that the therapist’s behaviour followed the treatment protocol.

Overall, the results of the study were promising and showed that BATA can provide effective treatment for chronic anxiety problems in adults.
Table of Contents

Declaration ii
Dissemination of Results to Date iii
Abstract iv
Table of Contents v
List of Figures xi
Acknowledgements xviii

1.0 General Introduction 1

2.0 Behavioural Activation 6
  2.1 Chapter Overview 6
  2.2 Philosophical Roots 7
  2.3 Conceptual Characteristics 9
  2.4 Technical Characteristics 20
    2.4.1 Measurement 21
    2.4.2 Education 22
    2.4.3 Activation Strategies 25
      2.4.3.1 Goal-Setting 26
      2.4.3.2 Activity Scheduling 29
    2.4.4 Addressing Barriers to Activation 31
    2.4.5 BA Compared to ACT 33
    2.4.6 BA Compared to BATD 34
  2.5 Summary 36

3.0 Behavioural Activation: Research Outcomes Post-1996 38
  3.1 Chapter Overview 38
  3.2 Meta-Analytical Reviews 39
7.0 Case 2

7.1 Characteristics

7.2 Intake Assessment

7.3 Anxiety-Related Outcomes

7.4 Self-Monitored Anxiety and Activity Outcomes

7.5 Therapist/Client Relationship

7.6 Behavioural Cusps

7.7 Treatment Integrity

7.8 Post-Treatment Diagnosis

8.0 Case 3

8.1 Characteristics

8.2 Intake Assessment

8.3 Anxiety-Related Outcomes

8.4 Self-Monitored Anxiety and Activity Outcomes

8.5 Therapist/Client Relationship

8.6 Behavioural Cusps

8.7 Treatment Integrity

8.8 Post-Treatment Diagnosis

9.0 Case 4

9.1 Characteristics

9.2 Intake Assessment

9.3 Anxiety-Related Outcomes

9.4 Self-Monitored Anxiety and Activity Outcomes

9.5 Therapist/Client Relationship
9.6 Behavioural Cusps 147
9.7 Treatment Integrity 147
9.8 Post-Treatment Diagnosis 147

10.0 Case 5 148
10.1 Characteristics 148
10.2 Intake Assessment 148
10.3 Anxiety-Related Outcomes 150
10.4 Self-Monitored Anxiety and Activity Outcomes 153
10.5 Therapist/Client Relationship 158
10.6 Behavioural Cusps 159
10.7 Treatment Integrity 159
10.8 Post-Treatment Diagnosis 159

11.0 Case 6 160
11.1 Characteristics 160
11.2 Intake Assessment 160
11.3 Anxiety-Related Outcomes 162
11.4 Self-Monitored Anxiety and Activity Outcomes 164
11.5 Therapist/Client Relationship 170
11.6 Behavioural Cusps 171
11.7 Treatment Integrity 171
11.8 Post-Treatment Diagnosis 171
12.0 Case 7

12.1 Characteristics 172
12.2 Intake Assessment 172
12.3 Anxiety-Related Outcomes 174
12.4 Self-Monitored Anxiety and Activity Outcomes 176
12.5 Therapist/Client Relationship 182
12.6 Behavioural Cusps 182
12.7 Treatment Integrity 183
12.8 Post-Treatment Diagnosis 183

13.0 Discussion 184

13.1 Treatment Outcomes 184
13.2 Therapeutic Relationship 188
13.3 Behavioural Cusps 190
13.4 Treatment Failure 192
13.5 Walking Activities 194
13.6 Limitations 195
13.7 Strengths 201
13.8 Implications for Practice and Research 204

References 208

Appendix A – Advertisement in Local Community Newspaper Used to Recruit Participants 234

Appendix B – Participant Information Letter 235-237

Appendix C – Participant Consent Form 238

Appendix D – Daily Anxiety Rating Scale (DARS) 239
Appendix E – Behaviour Self-Monitoring Diary (BSMD)  240

Appendix F – BSMD Instruction Form  241-242

Appendix G – Coded Recording System for Behavioural Activation

  Therapy Sessions (CRS-BATS)  243

Appendix H – CRS-BATS Coding Sheet  244

Appendix I – Behavioural Activation Treatment of Anxiety

  Treatment Protocol (BATA)  245
List of Figures

Figure 5.1   Participant Flow Chart                                                                 85

Figure 6.1   Case 1 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases                      102

Figure 6.2   Case 1 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases      102

Figure 6.3   Case 1 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases           103

Figure 6.4   Case 1 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases           103

Figure 6.5 Case 1 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases       104

Figure 6.6   Case 1 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases  105

Figure 6.7   Case 1 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases 106

Figure 6.8   Case 1 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases 106

Figure 6.9 Case 1 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases 107

Figure 6.10 Case 1 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases          108

Figure 6.11 Case 1 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases 108

Figure 6.12 Case 1 Distance Walked Per Day Across Baseline and Treatment Phases                        109
Figure 6.13 Case 1 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase

Figure 7.1 Case 2 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 7.2 Case 2 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 7.3 Case 2 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 7.4 Case 2 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 7.5 Case 2 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases

Figure 7.6 Case 2 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases

Figure 7.7 Case 2 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases

Figure 7.8 Case 2 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases

Figure 7.9 Case 2 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases

Figure 7.10 Case 2 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases

Figure 7.11 Case 2 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases

Figure 7.12 Case 2 Distance Walked Per Day Across Baseline and Treatment Phases
Figure 7.13 Case 2 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase

Figure 8.1 Case 3 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 8.2 Case 3 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 8.3 Case 3 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 8.4 Case 3 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 8.5 Case 3 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases

Figure 8.6 Case 3 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases

Figure 8.7 Case 3 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases

Figure 8.8 Case 3 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases

Figure 8.9 Case 3 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases

Figure 8.10 Case 3 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases

Figure 8.11 Case 3 Distance Walked Per Day Across Baseline and Treatment Phases

Figure 8.12 Case 3 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase
Figure 9.1  Case 4 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 9.2  Case 4 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 9.3  Case 4 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 9.4  Case 4 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases

Figure 9.5  Case 4 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases

Figure 9.6  Case 4 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases

Figure 9.7  Case 4 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases

Figure 9.8  Case 4 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases

Figure 9.9  Case 4 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases

Figure 9.10 Case 4 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases

Figure 9.11 Case 4 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases

Figure 9.12 Case 4 Distance Walked Per Day Across Baseline and Treatment Phases

Figure 9.13 Case 4 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase
Figure 10.1 Case 5 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases 150
Figure 10.2 Case 5 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases 151
Figure 10.3 Case 5 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases 151
Figure 10.4 Case 5 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases 152
Figure 10.5 Case 5 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases 153
Figure 10.6 Case 5 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases 153
Figure 10.7 Case 5 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases 154
Figure 10.8 Case 5 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases 155
Figure 10.9 Case 5 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases 155
Figure 10.10 Case 5 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases 156
Figure 10.11 Case 5 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases 157
Figure 10.12 Case 5 Distance Walked Per Day Across Baseline and Treatment Phases 157
Figure 10.13 Case 5 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase 158
Figure 11.1  Case 6 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases 162

Figure 11.2  Case 6 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases 162

Figure 11.3  Case 6 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases 163

Figure 11.4  Case 6 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases 163

Figure 11.5  Case 6 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases 164

Figure 11.6  Case 6 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases 165

Figure 11.7  Case 6 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases 166

Figure 11.8  Case 6 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases 166

Figure 11.9  Case 6 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases 167

Figure 11.10 Case 6 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases 168

Figure 11.11 Case 6 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases 168

Figure 11.12 Case 6 Distance Walked Per Day Across Baseline and Treatment Phases 169

Figure 11.13 Case 6 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase 170
Figure 12.1  Case 7 BAI Raw Scores at Baseline, Treatment, and Maintenance Phases 174

Figure 12.2  Case 7 DASS-21 Depression Raw Scores at Baseline, Treatment, and Maintenance Phases 174

Figure 12.3  Case 7 DASS-21 Anxiety Raw Scores at Baseline, Treatment, and Maintenance Phases 175

Figure 12.4  Case 7 DASS-21 Stress Raw Scores at Baseline, Treatment, and Maintenance Phases 175

Figure 12.5  Case 7 Daily Anxiety rating Scale (DARS) Scores Across Baseline and Treatment Phases 176

Figure 12.6 Case 7 Minutes Spent Per Day on Self- and Other-Care Across Baseline and Treatment Phases 177

Figure 12.7  Case 7 Minutes Spent Per Day on Housework and Errands Across Baseline and Treatment Phases 178

Figure 12.8  Case 7 Minutes Spent Per Day on Paid and Unpaid Work Across Baseline and Treatment Phases 178

Figure 12.9  Case 7 Minutes Spent Per Day on Interests, Hobbies, and Recreation Across Baseline and Treatment Phases 179

Figure 12.10 Case 7 Minutes Spent Per Day Out of the Home Across Baseline and Treatment Phases 180

Figure 12.11 Case 7 Minutes Spent Per Day Out of the Home with Others Across Baseline and Treatment Phases 180

Figure 12.12 Case 7 Distance Walked Per Day Across Baseline and Treatment Phases 181

Figure 12.13 Case 7 OS-64 Assessment of Therapy Relationship Variables Across the Treatment Phase 182
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CHAPTER 1
GENERAL INTRODUCTION

Anxiety has been defined as “the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension” (American Psychiatric Association (APA), 2000, p. 820) and is the most common mental health problem in contemporary society. In the United States, the lifetime prevalence rate for any anxiety-related disorder is 28.8% (Kessler, Berglund, Demler, Jin, Merikangas, et al., 2005) and the twelve-month prevalence rate is estimated at 18.1% or approximately 40 million adults (Kessler, Chiu, Demler, & Walters, 2005). In Australia, the twelve-month prevalence rate for any anxiety-related disorder is lower at 14.4% yet this rate still equates to approximately 2.3 million adults experiencing some form of clinical anxiety every year (Australian Bureau of Statistics, 2007). In primary care settings, it is estimated that 1 out of every 5 patients fulfill the diagnostic criteria for an anxiety-related disorder (Spitzer, Kroenke, Linzer, Hahn, Williams, et al., 1995).

In the United States alone it is estimated that anxiety disorders represent an economic burden of over US $40 billion annually, 85% of which is the cost of psychiatric and non-psychiatric medical treatment (Greenberg, Sistsky, Kessler, Finkelstein, Berndt, et al., 1999). Sufferers of anxiety disorders experience more physical health problems, use more health services, take more days off work, and access more workers’ compensation compared to those never having been diagnosed with any anxiety disorder (Marciniak, Lage, Landbloom, Dunayevich, & Bowman, 2004). Anxiety is also associated with an increased likelihood of alcohol and/or other drug use (Chambless, Cherney, Caputo, & Rheinstein, 1987), depression (Greer & Trivedi, 2005), and cardiovascular disease (Kawachi, Colditz, Ascherio, Rimm, Givannucci, et al., 1994). Thus, along with the personal cost to the sufferer, anxiety stands as a
significant concern within contemporary society and represents a major challenge to the practicing clinician.

Cognitive behavioural therapy (CBT) holds an almost unequivocal primacy as the empirically supported front-line psychological treatment for anxiety-related disorders (Barlow, 2002). Typical components of CBT include psycho-education, breathing retraining, cognitive restructuring, imaginal exposure, and in vivo exposure. Exposure, which essentially requires the anxiety-sufferer to deliberately and repeatedly contact fear-evoking stimuli, is perhaps the most scientifically valid and reliable component of CBT for anxiety-related disorders (Barlow, 2002). CBT has been shown to be the most effective psychological approach to the treatment of anxiety and has been found to be at least as effective as medication alone and often more so (White & Barlow, 2002).

Nonetheless, contemporary psychological treatments for anxiety require further development because clinically significant outcomes often are not achieved by a proportion of the clinical population who receive CBT and other empirically supported, established treatments. For example, subsequent to psychological treatment, recovery rates range from 58% to 76% among obsessive-compulsive disorder (OCD) sufferers (Whittal, Thordarson, & McLean, 2005); approximately 75% among panic disorder with agoraphobia (PDA) sufferers (Ost, Thulin, & Ramnero, 2004); and 58% for people suffering generalised anxiety (Ladouceur, Dugas, Freeston, Leger, Gagnon, et al., 2000). However, more generally between 20% and 80% of the clinical population will not benefit from contemporary treatments (Barlow, Allen, & Choate, 2004) and, although 20% to 80% may achieve desired outcomes, the shortcomings of present day clinical practices require continued efforts to develop more effective treatments.

Applied behaviour analysis (ABA), an analytical approach founded on fundamental principles of operant psychology, emerged in the 1960’s and has been
shown to be highly effective in changing behaviour within clinical and community settings. Mostly, however, ABA has been utilised with severely impaired populations; such as those with autism, acquired brain injury, and developmental disabilities - with relatively few published accounts describing the use of traditional ABA with non-disabled populations with clinical problems such as adults experiencing anxiety (Friman, Hayes, & Wilson, 1998; Friman, 2010). However, some recent accounts describing the broad application of behaviour analysis to ‘traditional clinical issues’ (clinical behaviour analysis; Dougher & Hayes, 2000) have included increased discussion of the applications of ABA principles transferred to more common clinical populations. Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991), Dialectical Behavior Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and Behavioral Activation (BA; Martell, Addis, & Jacobson, 2001) are among the most notable. They have been categorised as third-wave therapies (Hayes, 2004) with a growing body of empirical support (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Mazzucchelli, Kane, & Rees, 2009). Generally, in therapies such as ACT and BA, clinically relevant behaviour is organised into broad functional classes (e.g., avoidance) and is analysed with reference to environmental events and conditions (e.g., loss of job, death of spouse). The causes of the behaviour are “the external conditions of which behaviour is a function” (Skinner, 1953, p.35).

A behaviour-analytic approach to clinical issues has achieved growing attention from clinicians because private events, such as feeling anxious or depressed, have been included and examined from a functional perspective (Ferster, 1973; Friman et al., 1998). Also, the function of escape and avoidance behaviour has been emphasised particularly in recent behavioural models of depression (Kanter, Cautilli, Busch, & Baruch, 2005). In this model, depressed individuals show a class of responses defined
by common functions of escape and avoidance. Thus, for example, avoiding contact with the social community or staying in bed all day can function to avoid exposure to environmental stimuli that elicit aversive thoughts and feelings in the individual (Martell et al., 2001). Lejuez, Hopko, and Hopko (2001) have argued that depressed behaviour can be explained by application of the matching law (Hernstein, 1961, 1970) suggesting that response allocation (i.e. either avoidant or approach behaviour) is a function of the relative reinforcement associated with each class of responses. They argue that concurrent reinforcement schedules of negative reinforcement of avoidant behaviour and decreased response-contingent positive reinforcement of approach behaviour maintain depression. Likewise, recent accounts of behavioural activation (BA) therapy have involved strategies, such as activity scheduling, that decrease avoidance behaviour as well as increase approach behaviour leading to a greater likelihood of expanding behavioural repertoires maintained by response-contingent positive reinforcement (Dimidjian, Martell, Addis, & Herman-Dunn, 2008). Some research has suggested that BA alone is as effective as cognitive-behavioural therapy in the treatment of depression (Jacobson, Dobson, Truax, Addis, Koerner, et al., 1996) and BA has received strong empirical support as a stand-alone treatment for depression (Cuijpers, van Straten, & Warmerdam, 2007; Mazzucchelli et al., 2009; Spates, Pagoto, & Kalata, 2006).

BA is designed to assist the depressed individual to systematically increase the range of activity in his or her life contexts where contacting sources of reinforcement for activity potentially fulfils an anti-depressant function (Martell, et al., 2001). Anxiety shares functional similarities with depression because individuals reporting behaviours typically classed as anxious respond in contexts in which relatively high frequencies of negative reinforcement and avoidance behaviour is commonplace (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). In behavioural terms, avoidance has been defined
as “the substitution of behaviors that bring immediate relief from distress for behaviors that may cause immediate discomfort or anxiety but can be very helpful over the long run” (Addis & Martell, 2004, p.49). Techniques that function to block avoidance are major aspects of BA and they may be as effective in the treatment of anxiety as in the treatment of depression. For example, the range of alternative approach responses emitted by an anxious individual could potentially widen proportionate to increased contact with potential positive reinforcers leading to a concurrent decrease in negatively reinforced behaviour, such as avoidance of pain, fear of task difficulty or threat. Increased approach behaviour may result in approach behaviours that include *behavioural cusps*, which are defined by Rosales-Ruiz and Baer (1997) as “behaviour change that has consequences for the organism beyond the change itself, some of which may be considered important” (p.534). To date, BA therapy has rarely been applied and evaluated with clients reporting mainly anxiety problems (e.g., Jakupcak, Roberts, Martell, Mulick, Michael, et al., 2006). However, it was the success of BA treatment for depression that led to the study reported in this thesis. This study describes one of the first clinical applications of a BA approach to reducing chronic anxiety in adults and its subsequent experimental evaluation.
CHAPTER 2

BEHAVIOURAL ACTIVATION

2.1 Chapter Overview

One of the principles of behaviour analysis is the use of objective definitions and descriptions of behaviour and the environment (Skinner, 1966). Being the treatment investigated within this study, it is important that behavioural activation (BA) and its scientific context are properly described. Essentially, BA is a structured therapy that focuses on increasing behaviour in socially important areas such that opportunities for contact with naturally occurring positive reinforcement are increased, along with increases in the likelihood of concurrent changes to mood, thought, and even overall quality of life. The most important distinction between BA and frontline psychological treatments such as cognitive behavioural therapy (CBT; Beck, Rush, Shaw, & Emery, 1979) is that within BA there is no focus on directly modifying covert private behaviour such as thinking and feeling.

Contemporary BA (e.g., Martell et al., 2001) has been practiced since the mid 1990s (Jacobson et al., 1996) yet BA-type interventions (although not referred to as such) have been in use at least since the early 1970s (e.g., Lewinsohn & Graf, 1973). There are two current accounts of BA (Brief Behavioural Activation Treatment for Depression (BATD); Lejuez et al., 2001; Behavioural Activation (BA); Martell et al., 2001) that are commonly applied in clinical settings. In this chapter contemporary BA will be discussed in terms of its essential philosophical, conceptual, and technical characteristics. Also, differences between BA and other popular contemporary behaviour-analytic treatments are discussed along with the differences between the two predominant BA treatment models.
2.2 Philosophical Roots

Contemporary behavioural activation therapy (BA) developed from a radical behaviour-analytic viewpoint (Ferster, 1973; Skinner, 1953; 1966). Behaviour analysis places emphasis on identifying behaviour, the context in which it occurs, and the functional relations between behaviour and context. The *causes* of behaviour are to be discovered by analysing the events that precede behaviour (antecedents) and the events that follow the behaviour (consequences). A cause is a change in the independent variable that effects a change in the dependent variable. Thus, the “old cause-and-effect connection becomes a functional relation” (Skinner, 1953, p. 23). The underlying philosophy is *contextualism* or *functional contextualism*, which views human behaviour as the “act in context” (Hayes & Brownstein, 1986, p. 177) and focuses on the environmental context of behaviour and the functional utility of the behaviour itself (Biglan & Hayes, 1996). As a scientific philosophy functional contextualism can be practically synonymous with *radical behaviourism*. However, radical behaviourism historically has been misunderstood (Chiesa, 1994) and the term, ‘functional contextualism’, may be more contemporarily relevant, especially with regards to clinical behaviour analysis (Hayes & Hayes, 1992).

The ‘functional contextualist’ views any overt or covert behavioural event as an interaction between the person and a context that is defined by historical and current antecedents and consequences of behaviour. Functional contextualism has been referred to as a “practical” and “pragmatic” approach to changing behaviour (Hayes, 1993). Essentially, all behaviour whether covert (e.g., private thoughts, feelings, recollections) or overt (e.g., shouting, complaining) occurs due to its “successful working” (Hayes and Brownstein, 1986) within context. Thus, in applied settings, the *analysis* in behaviour analysis is a means to an end – not the end itself. The analysis of clinically-relevant behaviour orientates the therapist towards actions that are likely to be therapeutic.
Simply stated, if the desired change (e.g., a reduction in anxiety) occurs as a consequence of the planned actions taken or arranged then the analysis is complete. If change is not forthcoming or is unpredictable (i.e., variable) then the analysis ought to continue. Although the underlying principles are considered lawful and immutable (Skinner, 1953), behaviour-analysis is inherently idiosyncratic and views the person as unique, singular and belonging to heterogeneous groups.

Behaviour analysis stands in obvious contrast to those approaches described as “mentalistic” (e.g., cognitive psychology; Hayes & Brownstein, 1986). In these types of approaches, the private behaviour of the individual (thinking, feeling, remembering) is given causal status and assumed to lead to and maintain other behaviour (e.g., declining social invitations), or mediate the relationship between an environmental event (e.g., receiving social invitations) and behaviour (e.g., declining invitations). Cognitive processes are often purported to hold central agency in producing, predicting and understanding others’ behaviour. For example, “Automatic thoughts are those thoughts that intervene between outside events and the individual’s emotional responses to them” …… “the patient in cognitive therapy must learn to recognise these automatic thoughts for therapy to proceed effectively” (Young, Weinberger, & Beck, 2001, p.278). And, “It is important to remember that anxiety results from overestimating the cost of feared events….” (Clark, 1999, p. 27). Conversely, an example of a behaviour-analytic view is: “The behavioral activation therapist accepts her clients’ thinking, but encourages clients to look at the context of thinking rather than at the content of thoughts. So, when clients present ruminative thinking about their depression or bad life circumstances, the BA therapist will help them look at the antecedents and consequences of this kind of thinking” (Martell et al., 2001, p. 64). In this way, instances of private behaviour are regarded as units of behaviour caused by the same
external conditions that occasion more public behaviour such as running and eating (Skinner, 1953).

Although some behaviour analysts have objected to the study of private events on methodological grounds (e.g., Lamal, 1998), Skinnerian behaviour analytic approaches never denied the existence of private events. Skinner stated, “We need not suppose that events which take place within an organism’s skin have special properties for that reason. A private event may be distinguished by its limited accessibility but not, so far as we know, by any special structure or nature” (Skinner, 1953, p. 257). Any type of behaviour, private or public, is considered a legitimate goal of analysis (Hayes, 1993). The behaviour analyst simply rejects the view that behaviour of one kind is best explained as the manifestation of some other internal process occurring within the individual. A description of private events is considered as exactly that – a description of psychological phenomena that requires explanation, and a satisfactory (i.e., workable) explanation, such as the description of functional relations, is unachievable without taking into account events external to the overt and covert behaviour of the individual (Hayes & Brownstein, 1986).

2.3 Conceptual Characteristics

Hayes (1978) stated, “Ways of talking about the world…. emerge which encompass general rules, principles, or laws. These relate not so much to specific ways of doing things as to a general theoretical or conceptual system” (p. 26). Within behaviour analysis, new findings are organised according to empirically established principles of behaviour (Moore & Cooper, 2003) which hold an extensive history in basic and applied research (see Catania, 1998 and Sulzer-Azaroff & Mayer, 1991).

Although Skinner (1953) displayed considerable prescience in his early writings and discussed clinical concerns including anxiety, depression, and drug addiction, it was
Skinner’s post-graduate student Ferster (1973) who provided a behavioural explanation of depression that is most often referred to within the contemporary BA literature (Martell et al., 2001). Ferster emphasised the usefulness of a clinical approach that considered “the circumstances currently present, the person’s activities, the consequences of the person’s acts both inside and outside of his skin, and the functional relation between the component events” (p. 868). Ferster placed considerable emphasis on the high probability of avoidance and escape behaviours by the depressed individual that consequently limit the opportunities for the positive reinforcement of alternative anti-depressant behaviour, thereby holding the individual within a context that regularly occasions depressed thoughts and feelings. For example, in a recently published BA-related case study, a 46-year-old male with ‘depression’ reported regularly occurring aversive feelings (e.g., anger, irritability, agitation, sadness) and a large repertoire of avoidance behaviour, including isolating himself, yelling at his wife, ruminating, excessive sleeping, and long periods of television watching. Although this provided relief from his ‘depression’, the relief was only ever temporary, and in the long-term his depression-related behaviour became more frequent and intense, and critical aspects of his life (e.g., his relationship with his wife and children) became more negative (Santiago-Rivera, Kanter, Benson, Derose, Illes, et al., 2008). Thus, from a BA perspective, clinical symptoms such as withdrawal and avoidance are operant behaviours maintained according to schedules of naturally occurring reinforcement.

Early descriptions of BA-type operant approaches to the treatment of depression, though not referred to as BA (Lewinsohn & Libet, 1972; Lewinsohn, Sullivan & Grosscup, 1980), and the more recent descriptions (Lejuez et al., 2001; Martell et al., 2001) have emphasised the central importance of principles of reinforcement in clinical analysis and treatment. For example, Lewinsohn et al. (1980) explained depression as resulting from the loss of positive reinforcement for alternative anti-depressant
behaviour, and found that an increase in response-contingent positive reinforcement (achieved by increasing activity levels in certain areas) led to improvements in mood (decreased Beck Depression Inventory (BDI) scores), increased engagement in pleasant events, and decreased engagement in unpleasant events. Thus, decreases in non-depressed behaviour have also been attributed to a lack of positive reinforcement for what might be termed ‘healthier’ alternative behaviour (Lewinsohn, 1974). Also, approach behaviours (e.g., attending a party) may be punished due to behavioural deficits (e.g., poor social skills), thus adding to ‘depressed’ behaviour (e.g., withdrawal; Lewinsohn et al., 1980). More recently, BA techniques have focused on decreasing depressed behaviour by increasing opportunities for non-depressed behaviour in order to contact reinforcement and thereby produce corresponding improvements in mood and overall quality of life (Martell et al., 2001).

Although the distinction between negative and positive reinforcement has been criticised in the past as being either imprecise, inaccurate, or unnecessary (Michael, 1975), both of these terms have been used in clinical applications of the analysis of behaviour including depression and anxiety (e.g., Martell et al., 2001; Ramnero & Torneke, 2008; Skinner, 1953). For example, depression-related behaviour, such as complaining, ruminating, or excessive alcohol use may function to avoid aversive conditions, such as silence, boredom and social embarrassment. Thus, the relationships between variables can be illustrated using the standard three-term (ABC) contingency:
Within a different context depression-related behaviour may be maintained by positive reinforcement:

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Behaviour</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>In presence of therapist, experiencing worry</td>
<td>Complaining and reporting of lists of symptoms</td>
<td>Therapist talks reassuringly and gives advice and support</td>
</tr>
</tbody>
</table>

In any natural setting, behaviour may be reinforced in multiple ways, both positively and negatively (Skinner, 1953). It has been estimated that up to 15% of all problem behaviour is maintained by multiple reinforcement contingencies (Hanley, Iwata, McCord, 2003). Crucially, according to behaviour-analytic principles, if the examples of behaviour (i.e., alcohol use, complaining and reporting of symptoms) increase or re-occur in the future then the behaviour is being reinforced by its consequences. Accordingly, the properties of different types of behavioural classes (e.g., avoidance, rumination) are defined with respect to the consequences of the behaviours rather than their topographical features. The BA therapist accepts that “the form of a behavior is less informative than the function of that behavior. Two clients may do exactly the same thing, but the behavior has very different contexts and consequences” (Martell et al., 2001, p. 50). Thus, within the BA approach to therapy the focus is on broad classes of clinically-relevant behaviours and on the function of those classes of behaviours rather than on their form or topography.

At the level of application, BA is a *molar* approach. This term refers to the analysis of broad patterns of behaviour within contexts that are to be understood according to an aggregate of events over time. *Molecular* refers to the analysis of discrete antecedents and behaviour occurring within momentary time intervals (Baum, 1989). Molecular analysis is most useful and prevalent within the context of basic research, in which a high degree of experimental control is available and the elements of
functional relations (e.g., task demands, types of prompts, presence of preferred reinforcers) are able to be observed within discrete time intervals. The variables are more easily described in concrete, measurable components and are temporally distinct (Carr, Carlson, Langdon, Magito-McLaughlin, & Yarbrough, 1998). Natural environments, however, do not hold equivalent properties, and when working with a client in typical clinical settings it is impractical to attempt to conduct a functional analysis of every contingency maintaining all clinically-relevant behaviour. Thus, molar relations might be more relevant to clinical behaviour analysis.

Within BA the therapist collaborates with the client to identify patterns of operant behaviour and focuses on the contingencies between clinically relevant behaviours and their consequences. For example, the BA therapist may employ the use of the traditional ABC acronym or the newer TRAP acronym: Trigger, Response, Avoidance-Pattern (Martell et al., 2001, p. 100). The data may be informal with events discussed in session, or formal based on data from clients’ daily self-monitoring. Gaynor and Harris (2008), for example, investigated the use of BA for depression within an adolescent population and stated within the procedure, “The objectives….were to begin an ideographic functional analysis of the adolescent’s depression. The adolescent was asked about current activities, attempts to alleviate depression, and….to self-monitor activities and mood” (p. 379). Because the therapist is working to identify broad classes of behaviour, there is less necessity for the precision expected from within basic research. However, the moment by moment imprecision is countered by the attention given to analysing broad tracks of client behaviour. An individual functions under multiple schedules of reinforcement for his or her entire repertoires of operant behaviour (Sulzer-Azaroff & Mayer, 1991). Some behaviour may be reinforced immediately, and is associated with minimal effort (e.g., staying in bed), and some behaviour may be associated with maximum effort before reinforcement
occurs (e.g., going to work). Reinforcement may occur frequently (e.g., alcohol-use) or intermittently (e.g., gambling). These schedules ultimately will determine the day to day behaviour of the individual and may become clear by organizing client behaviour according to molar functional relations (Waltz & Follette, 2009).

Lejuez et al. (2001) and more recently Waltz and Follette (2009) have discussed the principle of the Matching Law (Hernstein, 1961, 1970; McDowell, 2005) when discussing clinically-relevant behaviour, and the relevance of matching to approaches that emphasise molar functional relations. The behavioural Matching Law describes the relation between overall patterns of responding and reinforcement. Thus, the amount of time an individual spends engaging in a particular activity (e.g., staying in bed) compared to the amount of time spent engaging in an alternative activity (e.g., going to work) is relative to the amount of reinforcement obtained for engaging in activity 1 compared to engaging in activity 2. Engagement is further influenced by the amount of effort involved in contacting reinforcement, such that the individual may “choose” to spend his or her time engaged in activity 1 even when a larger amount of reinforcement is available for activity 2, because more (aversive) effort, at least initially, is involved in engaging in activity 2 (Fisher & Mazur, 1997). Over time, individuals typically learn to allocate their behaviour among alternative responses available to them proportionate to the amount or intensity of positive and negative reinforcement provided across those alternatives.

In an example from sport, basketball players can attempt a 2-point shot or a 3-point shot. The 3-point shot must be launched from outside of the 3-point line (23 ft 9 in) which consequently increases the difficulty of the shot and decreases the rate of reinforcement (points scored) relative to the degree of difficulty and rate of reinforcement for 2-point shots which can be scored from within the line. For a 3-year period, however, between 1994-1997 the National Basketball Association in the US
reduced the distance of the 3-point line to 22 ft thereby increasing the likelihood of obtaining reinforcement for 3-point shooting. During this period, NBA players responded by increasing their 3-point shooting by 23.9% (Ramanowich, Bourret, & Vollmer, 2007). In an earlier study, Conger and Killeen (1974) measured the amount of in-conversation attention participants allocated between two confederates, each of whom provided social reinforcement (e.g., “I agree with that point”) set to independently controlled reinforcement schedules. In a 30 min period, the researchers were able to demonstrate that the amount of attention allocated by participants between confederates matched the relative rates of social reinforcement delivered by each confederate. These findings were replicated by Borrero, Crisolo, Tu, Rieland, Ross, et al. (2007) with confederates providing independently scheduled positive social consequences following statements by participants during conversations about drug and alcohol use and the quality of schools. Overall, the duration and frequency of attention displayed by participants to confederates was consistent with the confederates’ varying independent schedules of social reinforcement.

Consideration of the Matching Law is important within BA because the BA therapist and client can reliably assume that the proportional rate of engagement in, say, depression-related activity, such as staying in bed, using alcohol, procrastinating and ruminating, compared to non-depression related activity, such as working and socialising, matches the proportional rate of reinforcement for depression-related activity compared to non depression-related activity. Also, if reinforcement rates are increased for one class of behaviour such as going to work, and decreased or even eliminated for another class of behaviour such as staying in bed, then there is an increased likelihood that the behaviour operating under the weaker schedule of reinforcement will be reduced in relative proportion. In principle, increasing reinforcement of healthy, non-depressed behaviour, while concurrently decreasing or
eliminating reinforcement of depressed behaviour, is an example of differential reinforcement of incompatible behaviour (DRI). Operant extinction also occurs when “a procedure in which the reinforcement of a previously reinforced behavior is discontinued….the process by which a previously learned behavior disappears as a result of nonreinforcement” (Sulzer-Azaroff & Mayer, 1991, p. 590).

DRI strategies have been shown to be effective in treating a range of clinical behaviours including binge eating (Bosch, Miltenberger, Gross, Knudson, & Breitweiser, 2008), Tourette’s syndrome-related behaviour (e.g., tics; Verdellen, Hoogduin, Kato, Keijsers, Cath et al., 2008), smoking (Gifford, Kohlenberg, Hayes, Antonuccio, Piasecki et al., 2004), excessive alcohol use (Fournier, Ehrhart, Gliedermann, & Geller, 2004), and aggression (Durand & Merges, 2001). With BA techniques, an automatic consequence of facilitating the client’s increased engagement in activities that are likely to be positively reinforced, such as visiting friends, is the co-occurring equivalent decrease in negative reinforcement for depressed behaviour, such as staying home alone. In this case, there is an increased likelihood of extinction of ‘staying home’ behaviour. Increased activation of a client’s behaviours automatically alters the density of reinforcement contingent on other behaviours and it follows that as some behaviours are maintained and strengthened, other behaviours will weaken and reduce.

When the BA therapist is working to identify behaviour classed according to its consequences he or she may also identify behaviour classed according to its relation to the client’s psychological health. Thus, there will be examples of behaviour within a client’s repertoire that are likely to support ‘better psychological health’ (e.g., visiting friends and working) and examples of behaviour that are likely to be maintaining ‘poorer psychological health’ (e.g., staying in bed and not answering the phone for long periods). At this point, consideration of Matching Law is of vital importance. It is not
enough for the BA therapist to simply recommend a change in behaviour without at
least initially attempting to identify potential sources of reinforcement available to the
client that will function to maintain the alternative behaviour. The reinforcers must be
available within the environment just as the client’s behaviour must contact them.

Clients referred for ‘depression’ or ‘anxiety’ may demonstrate a narrow
response class such that they are not typically behaving in ways that lead to positive
reinforcement for more desirable behaviour. Lewinsohn (1974), for example,
emphasised the underlying lack of response-contingent positive reinforcement within
the depressed individual’s day to day life. Thus, when collaborating on goals to increase
particular behaviours, the BA therapist must consider the range of potential responses
from the client, whether the required behaviours are within the client’s behavioural
repertoire, and whether reinforcement is reliably available in the client’s natural
environment to support the behaviour (Kohlenberg & Tsai, 1991). The last point of
consideration is perhaps the most important. The principle of shaping, in which
successive approximations of the complete behaviour are reinforced, suggests there is
the likelihood that with adequate reinforcement available within his or her environment
the client can attain an accomplished level of healthy (i.e., non-depressive) behaviour –
even if the initial presentation suggests considerable behavioural deficits. According to
the principles of operant conditioning (Catania, 1998; Skinner, 1953), a single response
is all that is needed to begin to build a comprehensive behavioural repertoire.

Finally, within a BA-type approach to treatment there is a high probability of
occurrence of what have been named ‘behavioural cusps’ (Rosales-Ruiz & Baer, 1997).
In principle, a behaviour change is considered a ‘cusp’ when the change introduces the
individual to novel or (similar-to) previously contacted environments that occasion new
behaviours or reinvigorate old, rarely displayed behavioural repertoires, and provides
new or (similar-to) previously contacted contingencies of reinforcement. Thereby,
specific changes in targeted behaviours in treatment may ultimately lead to a beneficial expansion of the individual’s repertoire of behaviour. Examples of cusps include a toddler learning to walk, when he or she gains access to a range of new contexts in which he or she can develop new behaviours as a consequence of operating within and upon an expanded range of environments. A non-verbal child may be provided with an electronic communication device that supports the child to effectively engage with his or her typically developing peers and come into contact with their reinforcement of typical or desirable social behaviour. A young adult starting a course at university may find him or herself exposed to a wide range of new social, educational and political experiences and new contingencies related to ‘university attending’ behaviours.

Within the published literature, behavioural cusps have rarely been discussed in relation to common clinical problems. Nor have behavioural cusps been discussed within the context of behavioural activation (BA) treatment or other behaviour-analytic approaches. In fact, a lack of clinical and research interest is surprising given that the central aim of BA specifically (and behaviour analysis generally) is overt generalised behavioural change. Due to its emphasis on increased behavioural activation, BA treatment automatically increases the likelihood of cusps. The more varied and frequent an individual’s daily activities become, the more likely that person will engage in some activity that occasions new behaviours or reinvigorates past behaviours with the potential for contacting multiple sources of reinforcement that leads to a ripple effect as even more related behaviours are generated. However, just as increased activation within BA therapy and its relationship to the client’s mental health and wellbeing is the means of analysis and not the end of analysis, only subsequent to its occurrence is the client’s behaviour change able to be assessed as a cusp. Furthermore, because cusps occur as a consequence of a treatment plan that encourages activation across a range of life-areas rather than specifically programmed individual activities, they do not hold the
experimental property typically sought after within traditional behaviour analysis (Rosales & Baer, 1997) and an *a priori* identification of cusps may be time-consuming and (ultimately) fruitless.

Bosch and Fuqua (2001) have expanded on Rosales and Baer’s paper to propose criteria for selecting potential cusps. They argue that, in order to meet the criteria, a ‘cusp’ behaviour change should (a) provide access to new environments, reinforcers, and contingencies; (b) possess a general utility (i.e., generativeness); (c) compete with inappropriate or undesirable behaviour within the individual’s repertoire; (d) benefit others within the individual’s environment; and, (e) help the individual to meet the demands of his or her social environment. As an example, a depressed client may complain of feeling sad and tense in his usual social settings and having coped by either avoiding social occasions or excessively using alcohol, particularly before leaving home to attend social gatherings as well as when interacting in social settings. This may result in the client spending most of his non-work time at home alone, performing poorly in social situations due to intoxication, and regularly being absent from work due to ‘hangovers’. In collaboration with his BA therapist, he may consider scheduling visits to his local gymnasium. If he regularly visits the gym (a new environment with positive contingencies) there is an increased likelihood that he would decrease his alcohol use, meet new people, increase his work-attendance, better manage his time, improve his sleep, and overall improve his physical and mental health and wellbeing. As a behaviour change target, working-out with gym equipment simply suggests the potential outcome of physical improvement, yet if a range of adjunctive contingencies occur which are important to the individual within his social context, then the behaviour change might meet the criteria of a cusp. Thus, the analysis of the client’s behaviour in context ought to provide indications of the types of behaviours to be activated that may potentially function as behavioural cusps.
Finally, the identification of behavioural cusps must take place subsequent to change in the targeted behaviour. This is similar to the assessment of reinforcement. Once a response occurs and is met with a specific stimulus event (consequence), an increase in the probability of the response contingent on the occurrence of that consequence shows that reinforcement occurred (Catania, 1998). Although reinforcers are often identified before procedures aimed at increasing target behaviours are conducted through reinforcer assessments, reinforcement is proven only with post hoc analysis of change in the target behaviour (Sulzer-Azaroff & Mayer, 1991). Similarly, behavioural cusps are established only after actual behaviour change has occurred and must involve the post hoc analysis of outcomes. Although Bosch and Fuqua (2001) have provided guidelines (only) for the a priori identification of behavioural cusps, in clinical settings such a system could involve assessment against the criteria proposed by Bosch and Fuqua of reductions in the client’s presenting problems and additional (unplanned) positive changes in ‘healthier’ behaviours in his or her everyday living.

2.4 Technical Characteristics

BA is a focused clinical model of therapy with a core set of techniques. At the technical level, BA typically includes techniques that are drawn from traditional behaviour therapy. The overall goals of BA therapy are to help the client to describe his or her behaviour and its associated eliciting, discriminating, and reinforcing stimuli, and to select ‘healthy’ target behaviours for activation. Two predominant models of BA therapy exist. One has a duration varying from 12 to 24 sessions (Behavioural Activation (BA); Martell et al., 2001), and the other a briefer 10 to 12 sessions protocol (Brief Behavioural Activation Treatment for Depression (BATD); Lejuez, et al., 2001). The techniques considered here are the essential elements of both BA and BATD.
2.4.1 Measurement

Consistent with behaviour analytic principles, BA utilises ongoing assessment through repeated measurement of key outcome variables. This technique provides a quantification of the client’s clinical concerns (Barlow, Hayes, & Nelson, 1984) and provides feedback to the therapist and client of the client’s progress. If, for example, the measures indicate unchanging or deteriorating outcomes then the conditions of therapy are modified. Observations and objective measurement are necessary for the precise definition of behaviour within behaviour analysis, yet in clinical practice indirect and sometimes subjective methods are used and are justified because the naturalistic clinical setting is far less-controlled than a typical research environment such as a laboratory (Iwata & Dozier, 2008). For instance, in addition to the obvious ethical concerns within typical adult out-patient mental health services it is often impractical for clinicians to directly observe clients within their natural settings (e.g., home, workplace; Kohlenberg & Tsai, 1991). Within BA therapy Martell et al. (2001) recommend the use of a standardised self-report instrument at regular intervals, such as the Beck Depression Inventory (e.g., BDI-II; Beck, Steer, & Brown, 1996) which asks respondents to rate the level of their depression-related symptoms during the prior two weeks. Clients are also asked to self-monitor their daily activities by completing daily activity charts that require them to record what they were doing, who they were with, and how they were feeling in 1-hour periods throughout the day (Martell et al., 2001, p. 201). Ideally, practitioners will obtain sufficient information about clients’ problem behaviour from multiple sources in order to provide information that enables an ongoing analysis of functional relations between behaviour and consequences as well as identifying antecedent conditions and providing a comprehensive illustration of clients’ clinical behaviour in context.
Self-monitoring of one’s own behaviour has been suggested as an effective stand-alone treatment strategy (Heidt & Marx, 2004). Past research has shown that self-monitoring was effective in reducing smoking rates among college students (McFall, 1970), reducing obsessive thoughts by a 25-year-old woman (Frederickson, 1975), and improving mood in depressed adults (Harmon, Nelson, & Hayes, 1980). Change subsequent to the implementation of self-monitoring is explained in terms of reactivity, which has been defined as “changes in the client’s behavior that are due to the measurement process per se” (Barlow et al., 1984, p. 93). However, other studies have shown that self-monitoring alone is insufficient to maintain clinically-significant change among marijuana users (Twohig, Shoenberger, & Hayes, 2007) and OCD-sufferers (Abramowitz, Franklin, Zoellner, & Dibernado, 2002). The use of self-monitoring within BA primarily is to measure outcomes and to provide data for ongoing functional analyses and is one component of the total intervention.

2.4.2 Education

Typical of the behavioural therapies, BA contains a substantial amount of psycho-education for the client. This includes discussing the client’s presenting problems, possible etiology, providing a behavioural explanation of behaviours that may be labelled ‘depression’ or ‘anxiety’, discussing the function of clinically-relevant behaviour such as avoidance of social occasions, and providing information about the BA treatment model itself. In relation to the reported symptoms of ‘depression’, there is little difference between BA and any other traditional treatment modality in terms of acceptance of the diagnostic criteria and the client’s problem behaviour. For example, low mood, sleep problems, poor concentration, and feelings of hopelessness are all typical symptoms reported by clients with ‘depression’ (APA, 2000) and are included within the case-formulation as descriptors (Martell et al., 2001). The BA therapist will
provide diagnostic classification of a client’s reported behaviour if required. However, it is important to note that the use of the terms ‘depression’ or ‘anxiety’ is only to apply a socially-constructed verbal term to the private and public behaviour that typically is reported as ‘depression’ or ‘anxiety’. Thus, in behaviour analysis the term properly applied should always be considered separate from the actual events that cause the experience of ‘depression’ or ‘anxiety’ itself (Anderson, Hawkins, Freeman, & Scotti, 2000). These events are the subject matter of analysis in BA, not the labelling of people. Further, by placing depressive behaviour within its context BA treatment moves away from illness-based models of depression that emphasise brain function (e.g., serotonin deficits) and cognitive processes (e.g., negative thinking) and this is considered a part of efforts to ‘de-medicalise’ conditions including depression (Jacobson & Gortner, 2000).

The BA model is formally presented to the client in the early stages of treatment and is regularly discussed throughout subsequent sessions (Jacobson, Martell, & Dimidjian, 2001). Initially, the client may hold alternative explanations for his or her behaviour including biology, genetics, and treatment received as a young child. The BA therapist acknowledges the influence that genetic, biological and more distal factors such as early life experiences may have on the subsequent development of a condition such as depression. However, often these types of explanations are unhelpful for the client because the proximal physical properties of the environment of which the client’s depressed behaviour is a function are not adequately addressed. Thus, the BA therapist will work carefully to orientate the client towards a functional analysis of his or her ‘clinical’ behaviours. For example, the therapist might say, “BA is based on the idea that the events in your life and how you respond to such events influence how you feel” and, “Pulling away from the world when feeling down is natural and understandable” (Dimidjian et al., 2008, p. 333).
It is an assumption of BA and other behaviour-analytic approaches such as Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991) that functional-analytic interpretations of behaviour will be therapeutic. Technically, this involves the clients observing and describing their own behaviours along with the associated reinforcing, discriminative, and eliciting stimuli. In this way, a client is educated about functional relations and analysis. The client’s description of functional relations is assumed to increase the likelihood of him or her contacting reinforcement for ‘healthy’ behaviours (Kohlenberg & Tsai, 1991). This would work according to ‘rules’ that the client forms that include descriptions of the contingencies that support ‘healthy’ and ‘non-healthy’ behaviours (see Mallot, 1989 for discussion of ‘rule-control’). This might lead to the depressed individual increasing alternative behaviours that could have an anti-depressant effect, and decreasing behaviours that have a depressant effect. If the natural environment provides reinforcement contingent on these alternative behaviours then they will be strengthened. Additionally, the client may choose to delay reinforcement, such as the person with social anxiety who stays at a party until his or her anxiety naturally decreases rather than receiving a more immediate decrease in anxiety by quickly leaving the party at the first signs of anxiety. Initially, the client may stay at the party (follow a rule) based on the knowledge of the contingencies controlling his or her ‘escape’ behaviours that was gained in the education process within BA, whereas subsequent partying behaviour is more likely under the control of naturally occurring contingencies.

Therefore, an in principle characteristic of clinical behaviour analysis is the modification of the verbal behaviour of clients, at least in relation to how they describe clinically-relevant behaviour. Depending on the starting point, it is subsequent to the initial sessions and by degrees that descriptions of behaviour in terms of functional relations attains significance for the client. That verbal behaviour is shaped by its
consequences has been well established (Catania, 1998) although the shaping of client verbal behaviour within specific clinical contexts awaits further empirical confirmation beyond the findings of the few studies conducted thus far (e.g., Busch, Kanter, Callaghan, Baruch, Weeks et al., 2008).

2.4.3 Activation Strategies

The core strategy of BA is focused activation which is thoroughly explained to the client early in treatment. Examples include, “In this treatment, we will work together to help you become more active and engaged in your life”; “Each session will involve developing practical and doable steps to engage in activities that improve mood and to solve specific life problems”; and “Activating and engaging in specific ways can help you experience more reward and effectively solve life problems” (Dimidjian et al., 2008, p. 333). The therapist explains that the aim is not to simply engage in increased activation at random, or in activities that are generally assumed to have anti-depressant properties (e.g., going to the movies, eating ice-cream) which was a feature of early models (Lewinsohn & Libet, 1972). Rather, the activation targets in BA are identified according to the initial and ongoing functional analysis of client behaviour and, as such, reflect ideographic rather than nomothetic principles. In practice, activities may actually be considered “unpleasant” to some – yet function to improve a particular client’s overall health and wellbeing.

This point is a critical difference between activity scheduling within BA and the type of activity scheduling used within CBT (Young et al., 2001). Within CBT, the therapist collaborates with the client to increase client engagement in activities chosen according to assumed properties of “mastery” and “pleasure”. In contrast, BA emphasises engagement in activities that potentially attract positive reinforcement for a particular client and follow a functional analysis of that individual client’s daily life.
Engagement in these activities is simultaneously informed by the analysis and forms the analysis. In other words, engagement in any activity is the means of analysis, not the ends of analysis.

2.4.3.1 Goal-Setting

From information gained from the client’s in-session verbal reports and between-session monitoring the BA therapist, in collaboration with the client, is able to generate potential targets for activation. Typically, the obtained data will indicate the types of activities the client is avoiding, the types of activities that are under-activated, and the types of activities that are over-activated. The rate of engagement in these activities is assumed to correlate with reported positive mood, thought and overall quality of life.

These activities initially are able to be organised according to their relationship to broader treatment (life) goals (goal defined as “the object or aim of an action”, Locke & Latham, 2002, p. 705). Goal-setting is part of contemporary BA treatment protocols (e.g., Lejuez et al., 2001; Martell et al., 2001) as well as other behavioural approaches (e.g., ACT; Hayes et al., 1999) and functions to organise activities according to their goal-related properties, and to orientate client behaviour according to his or her stated goals rather than according to often vague and ambiguous internal signals associated with depression and anxiety. Lejuez et al. (2001), for example, use a “Life Areas Assessment” (p. 269) form that requires clients to “describe activities that you would like to accomplish” within broad areas such as family relationships, employment, and hobbies. This form itself is an adaptation of the “values assessment homework” described by Hayes et al. (1999) which is used to identify values, goals, and actions within the ACT framework.
It is well established that explicit and specific goal-setting can improve practically any area of human performance (Gollwitzer, 1999; Locke & Latham, 2002; Sulzer-Azaroff & Mayer, 1991) and is a key strategy within self-management approaches to mental health (Rehm & Adams, 2004). Goals may be determined by their temporal characteristics in that some goals are more immediately achieved than others, and therefore it is possible to label goals as short, medium, or long-term. Ultimately, though, labeling in this way is an arbitrary exercise as every goal will consist of short-term subgoals which are quantifiable steps towards a larger goal (Sulzer-Azaroff & Mayer, 1991). Thus, in order to achieve “ultimate” goals there will be immediate and intermediate goals that need to be accomplished along the way (Malott & Garcia, 1987). This is important in the context of BA therapy in at least two ways. Firstly, the therapist and client can collaborate in generating concrete goals without strict adherence to any particular time-frame in relation to the accomplishment of the goals, even within the time-frame of a typical course of therapy (e.g., 12 weeks). Secondly, because clients will typically be oriented towards behaving in ways that accomplish immediate yet unhelpful goals such as a temporary reduction in feelings of tension or sadness, well-specified and valued short-term goals can function to orientate behaviour in ways that increases the probability of contacting more immediate positive reinforcement in the steps towards the larger, long-term goal(s) (Malott & Garcia, 1987).

Verbally-stated goals are assumed to function as discriminative stimuli or prompts (i.e., verbal antecedents to operant behaviour) such that they specify the antecedents and consequences of behaviour associated with accomplishing the goal (Sulzer-Azaroff & Mayer, 1991). Thus, statements serve to: (a) delineate the necessary environmental conditions for the accomplishment of the goal, (b) prompt specific actions by the individual to accomplish the goal, and, (c) signal the consequences for acting in accordance with the accomplishment of the goal. Goal setting can influence
choice and preference within behaviour classes. This is important because all
individuals have multiple response options available to them at any one time within the
context of their reinforcement history (Fisher & Mazur, 1997), yet the day to day
activities of many (most) clients are determined by the immediate consequences of
avoidance behaviours rather than more constructive, ‘healthy’ approach behaviours. For
example, Mullick and Naugle (2004) applied BA as treatment with a 37-year-old man
(“Bruce”) who was experiencing co-occurring post traumatic stress disorder and
depression. At assessment Bruce complained of having an unfulfilling and uninteresting
job as well as being severely socially isolated. However, avoidance of effort and
anticipated potential setbacks included no action to find alternative employment (“His
job….was something he could handle because it required little of him”, p. 380). Also,
avoidance of uncomfortable emotions meant he had steadily lost contact with his friends
and didn’t plan or engage in any social activities outside of his work setting. Thus,
Bruce’s long-term goals included re-engaging with past friends and re-starting a
business as a magician/entertainer, something he had experienced considerable success
with in the past.

The goals of any individual are likely to indicate individually and socially
important sources of reinforcement. In other words, the choice of any goal will be based
on a past history of reinforcement provided contingent upon actions associated with
attempts to reach a goal. Thus, the consequences of acting toward a goal are implicit
within the goal itself. The goal may function as a rule in that the individual is stating
that, “In the past my behaviour has been reinforced for …..and if I engage in ….. my
behaviour will be reinforced again”, or “In the past I felt happy when I ….. and if I
engage in ….. I will feel happy again”. Over time goals, like rules, can form a general
functional class and decrease the time required for ‘depressed’ clients to establish
contexts supportive of alternative ‘healthy’ behaviours compared to a possible large number of direct trial and error experiences (Malott, 1989).

2.4.3.2 Activity Scheduling

Subsequent to the goal-setting exercise, clients are prompted to identify specific activities to engage in (Lejuez et al., 2001). The activities are likely to be goal-related, such as enquiring about a gym membership as a step towards improving fitness levels, and function as alternatives to avoidance, such as attending a social event. Activities may be attempted according to degree of difficulty, preference and logistical order. In BA, clients are expected to formally schedule activities in an activity log (Lejuez et al., 2001, p. 273) along with the preferred frequency and duration of engagement (e.g., walking around park, 3 occasions, 30 min per walk). Activities may be scheduled in-session or between sessions and are varied across individuals. Examples in the literature include church going, driving, visiting gravesites, arranging photographs (Hopko, Bell, Armento, Hunt, & Lejuez, 2005), walking, attending outdoor concerts (Bottonari, Roberts, Thomas, & Read, 2008), and hiking, talking with partner, and visiting family (Armento & Hopko, 2009). However, activity scheduling in contemporary BA is not the same as the activity scheduling which was part of earlier approaches (Lewinsohn & Libet, 1972). Earlier models focused on pleasant events scheduling, which was based on the concept that the non-engagement in ‘pleasant events’ led to and maintained depression. This approach was not always successful (Hammen & Glass, 1975).

Activity scheduling within contemporary BA (Addis & Martell, 2004; Martell et al., 2001) is guided by two standards: the short, medium, and long term goals of the client, and the initial and ongoing functional analysis of the client’s clinically-relevant behaviour. In terms of functional analysis, Addis and Martell (2004) use a simple acronym (ACTION, p. 74) to help the client analyse his or her behaviour: A = assess
mood and behaviour, C = choose alternative behaviour, T = try out the alternatives, I =
integrate the changes into your life, O = observe the results, N = now evaluate. This
approach reflects early behaviour analytic accounts of depression (Ferster, 1973;
Skinner, 1953) where the individual’s current mental-health status exists within
historical and present patterns of behaviour. The aim is to help the client respond
differently within various daily settings, and then to observe what happens and evaluate
the outcomes. When changes in overt behaviour are associated with changes in covert
behaviour (e.g., mood) then this is discussed with consideration of the contextual
variables that may have influenced both changes (Jacobson et al., 2001).

The BA therapist does not need to speculate whether an activity involves
pleasure or mastery or any other standard categorisation such as occurs in CBT for
depression (Beck et al., 1979). Although the briefer BA treatment (Lejuez et al., 2001)
does state, “If you believe that completing a particular activity would bring a sense of
pleasure and/or accomplishment, then it probably would be good to include it” (p. 268),
this might be an unnecessary and unreliable element of treatment, especially if the client
has experienced a chronic loss of contact with the very functional properties of events
they are being asked to identify. In the longer version of BA (Martell et al., 2001) the
authors state, “It (pleasure/mastery rating) is not essential” (p. 109). From a functional
contextual perspective activities should be assessed post hoc according to workability
(Hayes, 1993). If engagement in certain scheduled activities is shown to produce
 corresponding improvements in mood or overall quality of life, then the client is
couraged to continue engaging in such activity. Even without a corresponding
improvement in mood, the exercise may demonstrate to clients that they can work
towards personal goals regardless of mood states. If there is sufficient reinforcement
contingent upon engaging in the activity clients may establish new patterns of
responding and thereby broaden their behavioural repertoires. Without any direct
evidence supporting their continued use within contemporary BA, the use of mastery and pleasure ratings seems only to be an artifact of the full CBT protocol (Beck et al., 1979) from which current approaches to BA were developed.

Changes may be observed in new and therapeutic behavioural routines in the client’s life (Jacobson et al., 2001). Poor mental health is often characterised by unregulated routine activities, or a lack of opportunities, that occasion symptomatic responding (e.g., mood disorders; Plante & Winkelman, 2008). Regular engagement in alternative activities may become routine such that healthy behaviours become commonplace. The BA therapist works with the client to identify areas of regulation of routine that may have a therapeutic outcome. The provision of materials, such as self-monitoring forms and daily activity logs, prompt and help to establish those routines.

2.4.4 Addressing Barriers to Activation

Every scheduled activity and every goal represents a ‘task’ – something that needs to be done. As such, every activity and goal may be part of a task assessment in which the activity is broken down into smaller components or steps. Any task regardless of complexity is able to be ordered according to its behavioural elements - the actions needed to meet the larger behavioural objective (Sulzer-Azaroff & Mayer, 1991). Addis and Martell (2004), for example, discuss strategies to help clients “break down the components” of activity and make changes “one step at a time” (pp. 107 – 127). This is different to treatment approaches such as graded exposure for anxiety (White & Barlow, 2002) in which a hierarchy of activities is constructed relative to the degree of difficulty inherent in each activity due to the anticipated level of emotional responding. Within a task analysis, a chain of behavioural steps is created according to the most efficient, logical sequence of events needed to reach the overall objective; emotional responding is (technically) irrelevant. To illustrate, attaining employment may be a behavioural
objective set by the client during BA treatment. There are a number of steps towards such an objective including updating a person’s resume, listing preferred employment, reading job advertisements, conducting online searches, calling employment agencies, registering with job agencies, contacting potential employers, submitting applications, and attending interviews. Each of these activities can also be broken down further into smaller components if necessary.

The BA therapist must work with the client to be specific and detailed in the description of scheduled activities, including what behavioural steps are necessary to complete the activity (Jacobson et al., 2001). If the client fails to complete any of the scheduled activities necessary to reach the longer term goal the therapist and the client can perform a task analysis to identify possible barriers to activation. If the barriers are environmental, such as time demands, social intrusion or transport, ways can be formulated to address the barriers and plans drawn up as to how to manage them. If the barriers are psychological, such as avoidance, the therapist returns to discussing the BA model and identifies the function of the client’s behaviour.

Thus, barriers within BA therapy are met with even more focused analysis and subsequent activation. Traditional behavioural techniques, including social skills training and time management strategies, may need to be implemented, but the overall aim is for component behavioural deficits to be addressed within the context of naturally occurring reinforcement contingencies within the client’s specific environment. Only a small step may be needed for the client to enter into a behavioural “trap” where ample or high quality reinforcement is contactable to support further behaviour change (Stokes & Baer, 1977). In effect, clients’ skills are to be shaped by their interactions with the broader environment rather than relying on interactions only within the therapy session. Any behaviour change that occurs in natural “community” settings is more likely to generalise to other settings and be maintained long-term
(Kohler & Greenwood, 1986). The technique of focused activation in everyday contexts stands in contrast to behaviour-analytic approaches such as FAP (Kohlenberg & Tsai, 1991) which relies heavily on client/therapist in-session interactions to produce therapeutic change.

2.4.5 BA Compared to ACT

BA differs from another behaviour-analytic approach to the treatment of psychopathology, Acceptance and Commitment Therapy (ACT; Hayes et al., 1999). The main difference is that the ACT model emphasises the verbal context of clinical behaviour, assuming that the client’s responses are predominately under the control of his or her own verbal processes, and that they have become insensitive to direct environmental contingencies (for a more comprehensive comparison see Kanter, Baruch, & Gaynor, 2006). In the BA model, the emphasis is on behaviour/environment relations, and ‘depressed’ behaviour is assumed to be predominately controlled by external stimuli. Thus, ‘avoidance’ is due to contingencies involving the negative reinforcement of avoidance behaviour, whereas in the ACT model ‘experiential avoidance’ (Hayes et al., 1996) is due to verbal processes that function to maintain avoidance repertoires, as well as the external contingencies of reinforcement. ACT includes techniques such as ‘defusion’, ‘acceptance’, and ‘mindfulness’ which are aimed at altering the verbally derived support for avoidance behaviours whereas BA does not. For example, the ACT therapist might conduct the ‘Milk, Milk, Milk’ exercise (Hayes et al., 1999) in which the client is asked to quickly repeat a ‘negative’ word or words (e.g., “I’m bad”) to alter the symbolic function of the words and demonstrate to the client that the stimulus functions of words are largely derived. Or the ACT therapist might strategically employ the use of ‘metaphors’ in order to ‘deliteralise’ the provocative content of the clients’ verbal behaviour.
Both BA and ACT treatments include ‘activation’ strategies. The difference is that in BA treatment activation is the first and foremost strategy, designed to reduce avoidance and to assist the client in establishing contexts that provide positive reinforcement for ‘healthy’ behaviours based solely on a collaborative functional analysis. In ACT, activation occurs in the context of ‘valuing’ where the aim is for clients’ overt behaviours to come under the verbal control of their ‘values’, defined as “verbally construed global desired life consequences” (Hayes et al., 1999, p. 206). Activities are called ‘actions’ in ACT and are chosen according to their correspondence with the client’s goals. A difference is that the scheduling of and engagement in activities is preceded by ‘values’ exercises where a client might be asked to describe an ideal friendship, or the type of person he or she would like to be in an intimate relationship. Furthermore, activation itself is preceded by strategies aimed at directly modifying verbal processes through defusion and mindfulness and ‘valuing’ occurs in the latter stages of treatment (e.g., Chapter 11; Hayes, 2005). In BA, a focus on activation appears early in the treatment manual (e.g., Chapter 2; Addis & Martell, 2004). Both BA and ACT acknowledge that clients’ clinical behaviours are operant behaviours supported by contingencies of reinforcement. The central difference is that ACT focuses on verbally ‘derived’ consequences of client behaviour whereas BA is more concerned with ‘direct’ consequences. Whether there are any differences in terms of traditional psychotherapy outcomes between ‘valuing’ alone, ACT, and BA awaits empirical evaluation (see Ruiz, 2010 for a comprehensive review of the ACT research).

2.4.6 BA (Martell et al., 2001) Compared to BATD (Lejuez et al., 2001)

The BA model of treatment as discussed in this chapter has been shown to be comprised of the essential elements of the two predominant contemporary BA treatments (BATD; Lejuez et al., 2001 and BA; Martell et al., 2001). The aim has been
to present BA in its most parsimonious and principled form. Both BA and BATD are treatments based on operant principles and both assume depression is maintained by contingencies of positive and negative reinforcement. BATD is briefer than BA (10 – 12 sessions compared to 20 – 24) and has fewer procedures. Both treatment models include self-monitoring of activities and mood, specific and concrete goal setting, and activity scheduling. Both models recommend active ‘problem solving’ to address barriers to activation, hierarchical ordering of activities according to difficulty or effort, and the involvement of ‘significant others’ for practical support. BATD includes a ‘Life Activities Checklist’ which lists potential activities a client may choose to engage in. This is similar to the ‘pleasant events scheduling’ within earlier BA-type approaches to the treatment of depression (e.g., Lewinsohn, Munoz, Youngren, & Zeiss, 1986). In fact, BATD is closer in practice to earlier models of BA-type interventions. BATD encourages clients to “engage in activities that bring you a sense of pleasure and/or accomplishment” (Lejuez et al., 2001, p. 261). In comparison, BA clearly states that simply increasing pleasant activities is insufficient treatment and emphasises a collaborative functional analysis of the client’s day to day behaviours with activities scheduled in order to match the client’s goals and provide alternatives to avoidance behaviours. Altering avoidance patterns is the focal point for intervention in BA rather than simple engagement in ‘pleasant’ activities.

BA has a larger set of procedures than BATD. BA also includes teaching functional analysis to clients and uses the analysis to orientate behavioural activation. BA includes verbal (imaginal) rehearsal of scheduled activities (e.g., phoning a friend), in-session role-playing, therapist modeling, relief techniques (e.g., distraction), ‘behavioural stopping’ (in which the client is advised to do something to stop his or her own undesirable behaviour at the time it occurs), mindfulness exercises, and skills training (e.g., social skills). The authors (Martell et al., 2001) differentiate the use of
these techniques in BA from other treatment approaches (e.g., ACT; Hayes et al., 1999) by suggesting that any technique in BA is used only to increase activation rather than to target verbal processes or directly alter cognitions.

BA was used in the two largest randomised controlled trials comparing BA to the full CBT package (Jacobson et al., 1996; Dimidjian, Hollon, Dobson, Schmaling, Kohlenberg, et al., 2006), the results of which largely provide the empirical support for using BA treatment for depression (see Chapter 3 for a comprehensive review). However, neither of these studies provided information regarding the frequency, degree, or intensity of which any or all of these recommended techniques were used. A direct comparison of the effectiveness of the two treatments is yet to be conducted.

2.5 Summary

This chapter discussed the philosophical, conceptual, and technical characteristics of behavioural activation therapy (BA). BA is a contemporary behaviour-analytic approach to the treatment of depression, and the two predominant models are the brief 10 – 12 session format (BATD; Lejuez et al., 2001) and the longer and more comprehensive 20 – 24 session protocol (BA; Martell et al., 2001). There is also a self-help manual (Addis & Martell, 2004) and a recent book chapter describing BA for depression (Dimidjian et al., 2008). BA has its philosophical roots in radical Skinnerian behaviourism – also referred to as functional contextualism. Within the BA model, a person’s mental health and wellbeing is understood to be determined by the external environment and the individual’s patterns of responding within the environment. BA is based on empirically supported principles of (behaviour) change including the principles of operant conditioning.

The BA techniques discussed in this chapter are components shared by BA and BATD and form the core of the BA model for anxiety investigated in the present study.
Focused activation is the central technique within BA aimed at increasing the ratio of response-contingent positive reinforcement for ‘healthy’ behaviours to response-contingent negative reinforcement for avoidance behaviours. BA therapy places a strategic emphasis on addressing the high frequency of avoidance and escape behaviours typically shown by the depressed or anxious individual. These behaviours limit the opportunity for the reinforcement of other behaviour, thereby holding the individual within a context that regularly elicits depressed or anxious thoughts and feelings. Targets for activation are revealed in goal-setting exercises and initial and ongoing functional analyses. Outcomes are regularly evaluated using subjective and objective measures, and changes are discussed with the client with a focus on trends in the data and the functional relations between events and behaviours. Barriers to treatment typically are met with even more focused activation and breaking goals into more immediately attainable steps.

BA is different from other popular behavioural-analytic approaches such as FAP and ACT because BA emphasises out-of-session behaviour change, and on modifying the direct environmental contingencies acting on client behaviours in everyday contexts. There are two main differences between the predominant BA models. BA is longer than BATD (20 to 24 sessions compared to 10 to 12) and has more procedures. BA focuses on altering patterns of avoidance behaviours whereas BATD focuses on increasing ‘pleasurable’ and ‘masterful’ activities. In practice, BA is closer to applied behaviour analysis (Sulzer-Azaroff & Mayer, 1991) than BATD with a clear emphasis in BA on the functional analysis of client behaviours. Both models, however, are based on operant principles and each has received empirical support, although the evidence to support the use of BA is stronger as is shown in chapter 3.
CHAPTER 3

BEHAVIOURAL ACTIVATION: RESEARCH OUTCOMES POST-1996

3.1 Chapter Overview

Contemporary behavioural activation therapy initially developed from the seminal component analysis study by Jacobson et al. (1996) of Beck and colleague’s cognitive behavioural therapy for depression (1979; ‘CT’, synonymous to ‘CBT’), in which Jacobson and colleagues showed that the behavioural component alone was as effective in the treatment of adult depression as the complete CBT protocol. The authors concluded that, “If BA treatments are as effective as CT…not only the theory but also the therapy may be in need of revision” (p. 303). However, historically, BA was formed from earlier functional explanations of depression (Ferster, 1973; Lewinsohn, 1974; Skinner, 1953), and BA-type interventions have been reported at least since the 1970s (Lewinsohn & Graf, 1973; McLean, Ogston, & Grauer, 1973; Shaw, 1977).

There was a decline in reports of BA after the emergence of more cognitive-oriented models of depression (Beck et al., 1979), and this situation continued until the re-conceptualisation of CBT by Jacobson et al. (1996). It was subsequent to this latter study that there has been an ever expanding body of literature regarding BA treatment for depression as well as other clinical-psychological conditions. Given that the present study is concerned with the application of contemporary BA, and the importance of early investigations notwithstanding, this chapter will focus on research relating to BA that has been published post-1996.
3.2 Meta-Analytical Reviews

A computer search through key databases including PubMed, PsycINFO, and Science Direct revealed four meta-analyses published since 1996 that have included BA-related studies (Cuijpers, van Straten, Andersson, & Oppen, 2008; Cuijpers, van Straten, & Warmerdam, 2007; Ekers, Richards, & Gilbody, 2008; Mazzucchelli, Kane, & Rees, 2009).

The most recent of these was by Mazzucchelli et al. (2009) who conducted a systematic search of a database of over 580 articles, chapters, and theses generated from a comprehensive search of PsycINFO and MEDLINE databases. The authors included studies that compared the effects of BA treatment on adults with clinical or elevated levels of depression-related symptomatology to a control condition or another psychological or psycho-pharmacological treatment in a randomised controlled trial. BA was defined as “treatments for depression that require patients to increase overt behavior to bring them in contact with reinforcing environmental contingencies” (p. 383).

There were 34 studies with a total of 2,055 participants included in the analysis. In 16 comparisons of BA to no-treatment control conditions, the pooled Hedge’s $g$ effect size estimate was 0.78 (large; 95% CI = 0.42 to 1.15), although adjustment for selection bias reduced $g$ to 0.65 (medium; 95% CI = 0.34 to 0.96). In 15 comparisons of BA to cognitive-behavioural therapy (CBT) or cognitive therapy (CT) the pooled $g$ was – 0.01 (95% CI = -0.17 to 0.16), indicating negligible difference between the alternative treatments. In 17 comparisons of BA to other interventions (e.g., non-directive therapy, anti-depressant medication) the pooled $g$ was 0.33 (medium; 95% CI = 0.16 to 0.49) (adjusted to 0.31 – medium; 95% CI = 0.06 to 0.55 to account for bias), indicating BA to be more effective overall. Comparisons of BA with control conditions, CBT/CT, and other treatments across a range of monthly follow-up times (1-3, 4-6, 7-
revealed that the gains associated with BA were maintained beyond treatment at levels equivalent to CBT and higher than other psychotherapies including non-directive therapy. The significant differences in outcomes between BA and control conditions were also maintained at follow-up.

The authors also compared BA to other conditions in treating participants with a clinical diagnosis of major depressive disorder (MDD). In 3 comparisons of BA to no-treatment control conditions the pooled $g$ was 0.74 (large; 95% CI = 0.31 to 1.17), indicating BA was superior. In 6 comparisons of BA treatment of major depression to CBT/CT, the pooled $g$ was 0.04 (95% CI = -0.16 to 0.23), indicating equivalence between the treatments. In 4 comparisons of BA to other interventions in the treatment of major depression the pooled $g$ was 0.11 (small; 95% CI = -0.23 to 0.45), slightly favouring BA ahead of the other interventions. Comparisons of BA with control conditions, CBT/CT, and other treatments at follow-up revealed that there was no difference between BA and CBT/CT at follow-up and BA was superior to other interventions including non-directive therapy at follow-up. The significant differences in outcomes between BA and control conditions were maintained at follow-up.

There were some limitations to this meta-analysis. The authors attempted to account for the quality of the studies by including the use of a rating system based on the methodological features of research that were considered important. These included studies having an adequate sample size and description, the use of reliable and valid outcome measures, the reporting of follow-up data, the use of treatment manuals, and adequate therapist training and monitoring (see Chambless & Hollon, 1998). However, there were no independent allocation of studies to the analysis, and “disagreements regarding study quality were dealt with by discussion” (Mazzucchelli et al., 2009, p. 387). It can only be assumed that this discussion was ordered according to the guidelines such as those set out in Chambless and Hollon (1998) due to the omission of
any detail within the review regarding how these discussions were organised. As an example, a study by Padfield (1976) that compared BA to counselling was included within the meta-analysis yet was excluded from an earlier meta-analysis by Ekers et al. (2007) because of “insufficient reported data” (p. 613). Furthermore, to enhance the analysis Mazzucchelli and colleagues also included unpublished data to avoid any biases that might be present within the existing published literature, yet the authors noted that overall the quality of all included studies “varied considerably” (p. 406). The outcomes of two comparisons required adjustment due to “bias favouring BA”, which reduced effect size estimates There were also relatively few studies within some of the comparisons made. For example, only 2 studies were included that compared the effects of CBT versus BA on major depression at 24 month follow-up, and only 1 study was included that compared the effects of BA versus non-CBT psychotherapy at 12 month follow-up.

The two contemporary BA models are ‘contextual’ BA (Martell et al., 2001) and BATD (Lejuez et al., 2001). However, this meta-analysis included reports of four variants of BA: ‘pleasant activities’ (e.g., Shaw, 1977), ‘self-control’ (e.g., Fuchs & Rehm, 1977), ‘contextual’ (e.g., Jacobson et al., 1996), and ‘BATD’ (e.g., Hopko, Lejuez, LePage, Hopko, & McNeil, 2003). The authors placed all these behavioural approaches to the treatment of depression within the broader BA class. Only four reports of contemporary BA compared with CBT and medication were included in this meta-analysis. Three of these were contextual: Dimidjian et al. (2006); Jacobson et al. (1996); (Wagner, Zatzick, Ghesquiere, & Jurkovich, 2007) and one was BATD: Hopko et al. (2003). Another two reports by Dobson, Hollon, Dimidjian, Schmaling, Kohlenberg, et al. (2006) and Gortner, Gollan, Dobson, and Jacobson (1998) described follow-up data from Dimidjian et al. (2006) and Jacobson et al. (1996). These limitations notwithstanding, the meta-analysis provided clear evidence for the
effectiveness of ‘BA-type’ interventions in the treatment of adult depression with outcomes comparable to CBT/CT post-treatment and at follow-up, and exceeding those of other approaches such as counselling and non-directive therapy.

Cuijpers et al (2008) conducted a systematic search of a database of 832 articles generated from an examination of 6,947 abstracts relating to the psychological treatment of depression sourced from a comprehensive search of the databases of PubMed, PsycINFO, EMBASE, and the Cochrane Central Register of Controlled Trials. The authors included studies that compared the effects of a psychological treatment for adults with clinical or elevated levels of depression-related symptomatology to another psychological treatment in a randomised controlled trial. BA was defined as “activity scheduling when the registration of pleasant events and the increase of positive interactions…were the core elements of the treatment”.

There were 53 studies, with a total of 2,757 participants within the meta-analysis including 15 studies and 21 comparisons involving BA, CBT (38/56), non-directive therapy (21/31), psychodynamic therapy (10/16), problem-solving therapy (7/7), interpersonal psychotherapy (6/8), social skills training (5/7), and other psychotherapies (15/17). Overall, there was little difference between any treatment with pooled Cohen’s $d$ (effect size estimates) ranging from -0.26 to 0.40 (small). Non-directive therapy was slightly less effective than other treatments with a pooled $d$ of – 0.17 (small; 95% CI = - 0.32 to – 0.03) and interpersonal therapy was slightly more effective than other treatments with a pooled $d$ of – 0.21 (small; 95% CI = 0.01 to 0.42). In 11 comparisons between BA and CBT, the pooled $d$ was – 0.08 (95% CI = - 0.29 to 0.13) indicating equivalence. However, the relative risk of drop-out during treatment was significantly higher with CBT compared to BA. Analysis also showed no difference between CBT, BA, psychodynamic therapy, social skills training, and nondirective
therapy at follow-up (range = 1 to 24 months). The problem-solving and interpersonal therapies were excluded from the analysis due to insufficient data.

There were some limitations to this meta-analysis. In relation to BA, the 15 studies included were fewer than in Mazzucchelli et al.’s (2009) meta-analysis. Also, although a strength of the analysis was the overall inclusion of a large number of comparisons, the number of comparisons including different treatments varied considerably (e.g., CBT = 38, interpersonal psychotherapy = 6). The studies themselves were not independently selected for inclusion within the review, and the authors noted that the quality of many studies included was “not optimal” (p. 919). In relation to the lack of available data for some follow-up comparisons, the analysis was unable to provide evidence of effectiveness beyond the completion of treatment for problem-solving therapy, interpersonal psychotherapy and “other” psychotherapies (i.e., undefinable). The meta-analysis contained a broad class of BA-type interventions, including ‘pleasant events’ scheduling, ‘self-control’ training, and even social-skills training. Only two studies reporting the outcomes of contemporary BA compared with CBT and medication were included (Dimidjian et al., 2006; Jacobson et al., 1996). No studies of BATD were included. As with Mazzucchelli et al. (2009), the results of this meta-analysis indicated ‘BA-type’ interventions were as effective as other contemporary psychological approaches to the treatment of adult depression with equivalent outcomes when compared to CBT, yet with a lower probability of recipients dropping-out of treatment (BA compared to CBT).

In a third meta-analysis, Ekers et al. (2008) conducted a systematic search of a database of 3,353 studies generated from a search of the databases of Medline, EMBASE, PsycINFO, the Cochrane Library, CINAHL, AMED, and the British Nursing Index. The authors included studies that involved comparisons of behavioural interventions for adult depression with other psychotherapies (e.g., CBT/CT, supportive
therapy) and no-treatment control conditions within the context of randomised controlled trials. The authors defined behavioural therapy (BT) as treatment that involved “the rescheduling of activities to reintroduce positive reinforcement and reduce avoidance” (p. 612) that was similar to contemporary definitions of BA (Martell et al., 2001).

There were 17 studies with 1,109 participants included in the meta-analysis of which 12 compared behavioural therapy (BT) to control conditions, 12 compared BT to CBT/CT, 3 compared BA to brief psychotherapy, and 3 compared BT to supportive therapy. In comparisons of BT to no-treatment control conditions the pooled standardised mean difference (SMD; effect size estimate) was –0.70 (large; 95% CI = -1.00 to -0.039) indicating BT was superior. When BT was compared to CBT/CT the pooled SMD was 0.08 (95% CI = -0.14 to 0.30) indicating equivalence between treatments. In comparisons between BT and brief psychotherapy and BT and supportive therapy the pooled SMDs were –0.56 (large; 95% CI = -1.00 to -0.12) and –0.75 (large; 95% CI = -1.37 to –0.14) respectively, indicating BT was superior to both alternative treatments.

The authors compared treatments at an average follow-up period of 4-months and in relation to drop-out rates. With drop-out rates there were no differences between BT and any other control conditions or treatments, although BT was not compared to supportive therapy due to the unavailability of sufficient data. In comparisons between gains associated with BT and CBT/CT at follow-up the pooled SMD was 0.25 (95% CI = -0.21 to 0.70) indicating equivalence between the treatments. When BT was compared to brief psychotherapy at follow-up the pooled SMD was –0.50 (medium; 95% CI = -0.90 to –0.09) indicating BT was superior. There were insufficient data available to compare BT and supportive therapy at follow-up.
Recovery rates were calculated as a dichotomous variable. BT was superior when compared to no-treatment controls with 52% of participants receiving BT recovering from depression as defined by clinical interview (unspecified) and BDI scores against 21% of those waiting for treatment. Comparisons of BT to CBT/CT revealed no difference between treatments with a co-occurring rate of 55% of participants recovering from depression. When compared to brief psychotherapy, BT was superior with 57% of participants recovering from depression compared to 36% of participants who received brief psychotherapy. There were insufficient data available to compare recovery rates between recipients of BT and supportive therapy.

The limitations of this meta-analysis included the small number of studies that compared BT to brief psychotherapy (n = 3) and to supportive therapy (n = 2), and the inclusion of some low quality studies that produced results that “deviated considerably from the overall picture” (Ekers et al., 2008, p. 620). More importantly the meta-analysis included a broad class of behavioural therapies and failed to list the different types, simply labelling all BT as ‘behavioural’. A closer examination of the original reports included revealed that four contemporary BA reports were part of the analysis. Thus, this meta-analysis provides some support for the use of ‘BA-type’ interventions in the treatment of adult depression.

Finally, Cuijpers et al. (2007) conducted a systematic search of a database of 777 articles generated from an examination of 5,178 abstracts relating to the psychological treatment of depression found in the Pubmed, PsycINFO, EMBASE, and the Cochrane Central Register of Controlled Trials databases. The authors also examined the primary studies included in an earlier meta-analysis of psychological treatments for depression (Cuijpers & Dekker, 2005) and the reference list from a review of activity-scheduling (National Institute for Clinical Excellence, 2004). The authors included studies that compared the effects of BA-type interventions (defined as
those that focused on ‘activity scheduling’) for adults with clinical or elevated levels of
depression-related symptomatology to other psychological treatments, psycho-
pharmacological treatments, or a no-treatment control condition in a randomised
controlled trial.

In total, 16 studies with 780 participants were included within this meta-
analysis. In 10 comparisons of BA to control conditions the pooled Cohen’s $d$ was 0.87
(large; 95% CI = 0.60 to 1.15). In 18 comparisons of BA to all other treatments (e.g.,
CT/CBT, counselling, supportive therapy) the pooled Cohen’s $d$ was 0.12 (95% CI = -
0.05 to 0.29) indicating BA was an as effective yet not necessarily superior treatment. In
10 comparisons of BA to CT the pooled Cohen’s $d$ was 0.01 (95% CI = - 0.22 to –
0.24), indicating equivalent outcomes. When activity scheduling was included within
CT and compared to BA in 3 studies the pooled Cohen’s $d$ was – 0.01 (95% CI = - 0.34
to 0.33), again indicating equivalence. In the one study that compared BA to anti-
depressant medication the Cohen’s $d$ was 0.26, suggesting BA was slightly superior to
medication.

Follow-up data were also analysed. At 2 months to 12 month periods the gains
from BA treatment were maintained at comparable rates to other treatments with a small
but statistically insignificant improvement ($d = 0.18$; 95% CI = - 0.25 to 0.31) found in
comparisons with all other treatments that included data collected up to 3 months.
Compared to CT alone, there was no difference between the treatments in relation to
outcomes up to 3 months follow-up with a Cohen’s $d$ of 0.02 (95% CI = - 0.47 to 0.51)
and up to 6 months follow-up with a Cohen’s $d$ of – 0.13 (95% CI = - 0.46 to 0.20).

There were several limitations in this meta-analysis. There were relatively few
studies included. For instance, Mazzucchelli et al. (2009) included 34 studies whereas
this analysis included 16. Also, some of the comparisons were based on relatively small
sample sizes and in some areas of analysis, such as the comparison of BA to medication
and to CT at 12 month follow-up, there was only one comparison in each analysis from which to calculate effect size estimates. Finally, the authors conceded that the overall quality of the studies included within the meta-analysis was “not optimal” (Cuijpers et al., 2007, p. 323). Within the meta-analysis, only two reports of contemporary BA were included. Nonetheless, the results are equivalent to those produced from the recent meta-analyses show ‘BA-type’ interventions to be as effective as CT/CBT in the treatment of adult depression.

In summary, the four meta-analyses discussed show that in the treatment of adult depression, contemporary BA and other BA-type approaches are more effective than no-treatment, and are as effective as CBT/CT with gains maintained at follow-up. There was also some evidence that BA-type treatment was more effective compared to brief psychotherapy and supportive therapy (Ekers et al., 2008) and equivalent or possibly superior to medication (Cuijpers et al., 2007; Mazzucchelli et al., 2009). Although there were limitations within each meta-analysis each included a number of quality studies that reported comparisons between CT/CBT and BA-type approaches.

Overall, there were only 3 studies included that investigated contemporary contextual models of BA and 1 that investigated BATD. There were 2 follow-up investigations of contextual BA. Thus, the majority of studies included within these analyses were of ‘BA-type’ interventions versus control conditions or other treatments. This is not due to a lack of quality within existing randomised controlled trials involving contemporary BA, but simply due to an overall low number of experimental trials.

### 3.3 Randomised Controlled Trials

A computer search through key databases (e.g., PubMed, PsycINFO, Science Direct) revealed eight randomised controlled trials (RCTs) published since 1996 that
investigated the effectiveness of BA compared to either no-treatment control conditions or alternative treatments. Aside from the well-established scientific advantages such as controlling for factors common to all therapies (Behar & Borkovec, 2003), RCTs are considered important within the field of psychology because technically the criteria established by the Task Force on Promotion and Dissemination of Psychological Procedures of Division 12 (Clinical Psychology) of the American Psychological Association (APA) for identifying empirically supported therapies (Taskforce; Chambless & Ollendick, 2001) mostly relies on evidence from RCTs to determine whether a therapy receives the highest level of endorsement (i.e., is considered well-established). For example, non-specific behaviour therapy (essentially any behavioural technique within a typical CBT protocol) is considered a well-established empirically supported therapy for unipolar depression (Chambless & Ollendick, 2001, p. 693).

Foa and Meadows (1997) outlined “gold standards” to apply to the review of psychological outcome research. These standards were also used by Spates et al. (2006) in their review of BA treatment for major depression and they will be used to guide this section. The standards include: 1) clearly defined target symptoms, 2) reliable and valid measures, 3) use of blind evaluators, 4) assessor training, 5) manualised, replicable, specific treatment programs, 6) unbiased assignment to treatment, and 7) treatment adherence (see pp. 453 – 455 for definitions). Commentary within this section is further guided by the checklist of 27 recommendations for high-quality outcome research proposed by Behar and Borkovec (2003).

As noted, contemporary models of BA (Martell et al., 2001) initially developed from a randomised controlled trial in the early 1990s (reported in Jacobson et al., 1996) that compared the effectiveness of the complete cognitive and behavioural therapy protocol (originally called ‘CT’ and synonymous with what is now called ‘CBT’ ; Beck et al., 1979), BA alone which was comprised of behavioural strategies from the Beck et
al. protocol, and a third condition, BA with strategies to address automatic thoughts (AT). There was a large sample of outpatient (n = 151; 80% referred, 20% respondents to public service announcements) participants diagnosed with moderate to severe major depression. All diagnoses were made by independent trained assessors using the Structured Clinical Interview for DSM-III-Axis I Disorders (SCID-III; Spitzer, Williams, & Gibbon, 1987). The BA alone condition was comprehensive, essentially incorporating behavioural techniques to address common problems associated with depression. Techniques included (a) daily self-monitoring of activities, (b) assessment of the pleasure and mastery associated with activities, (c) graded task engagement (i.e., from easy to difficult), (d) imaginal rehearsal of future engagement in specific activities, (e) identification of wide problems (e.g., sleep) and the prescription of relevant behavioural strategies for treatment, and (f) social skills training (Jacobson et al., 1996, p.297).

The research team made considerable effort to establish integrity within the study. The participants were randomly assigned to 20 sessions of one of the treatment conditions and parametric analyses included the entire sample. Four experienced cognitive therapists (average 14.8 years postgraduate experience) provided treatment in the three conditions. All sessions were audio-recorded and 18% of sessions (3 sessions from 9 participants in each condition) were randomly selected and rated for therapist adherence to the treatment condition by independent trained coders who were blind to the participant’s treatment condition using a modified version of the National Institute of Mental Health Collaborative Study Psychotherapy Rating Scale (CSPRS; Hollon, Evans, Elkin, & Lowery, 1984) that outlined protocol procedures, prescribed, and proscribed treatment techniques for each treatment condition. Ratings were made on a Likert-type scale ranging from not at all (0) to extensively or frequently (6). According to the authors, “the higher the score, the more frequently or thoroughly these
interventions were made” (p. 299). Importantly, internationally recognised experts in CT were involved in the study, including Keith Dobson who supervised all CT therapists and rated CT therapists using the Cognitive Therapy Scale (CTS; Young & Beck, 1980), a validated and reliable measure of CT therapists’ competence. This was used to control for the standard of therapist in the CT condition and countered any potential bias given most of the research team were of a behavioural orientation. No comparable measure of BA therapist competence was available so competency was not formally evaluated in the BA condition. Both CT and BA supervisors would meet together monthly to discuss treatment integrity issues.

The results were “as clear as they were surprising” (Martell et al., 2001, p. xxiii). There was no significant difference between conditions at post treatment and at 6-month follow-up. Whether the participant received BA, AT, or CT post-treatment recovery rates were similar (BA = 46%, AT = 51%, CT = 56%) as were the rates of improvement (BA = 61%, AT = 58%, CT = 68%). At 6-month follow-up, the no-relapse rates also were similar (BA = 85%, AT = 92.3%, CT = 81%). There was also no significant difference in relation to drop-out rates between treatments and treatment gains from each treatment were maintained to 6 months. Presented data showed a high degree of adherence within each treatment condition including BA according to CSPRS ratings. Interrater reliability averaged 0.81. There was a high level of therapist competency within the CT condition according to CTS ratings.

These findings prompted the researchers to question whether “not only the (CT) theory but also the therapy may be in need of revision” (Jacobson et al., 1996, p. 303) and that BA may actually be considered more useful than CT due to its relative straightforwardness and capacity for peer administration, thus obviating the need for the total CT-package when treating depression. A subsequent investigation found no difference
between treatment outcomes for the original participants at 2-year follow-up (Gortner, et al., 1998).

The study by Jacobson and colleagues (1996) met all seven criteria that characterise “gold standard” treatment outcome studies as outlined by Foa and Meadows (1997). The researchers clearly defined target symptoms and provided delineation of inclusion criteria. They used reliable and valid measures (e.g., Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967). Assessments were independently conducted by trained assessors blind to the treatment condition. Specifically trained assessors and therapists were involved. Research therapists used and provided (on request) detailed manuals for each of the treatment conditions. Participants were randomly assigned to treatment conditions and the researchers provided treatment adherence and competency ratings. Thus, the methodology employed within this study was of the highest quality.

More recently, Dimidjian and colleagues (2006) conducted a similar type of study in which 241 outpatient participants (27% referred, 62% recruited through advertising, 11% by other means including word of mouth) diagnosed with major depression were randomly assigned to either 24 sessions of full cognitive behavioural therapy (‘CT’, also known also as ‘CBT’ and based on the manuals of Beck et al., 1979 and Beck, 1995) or BA (based on the manual of Martell et al., 2001); or anti-depressant medication (ADM; selective serotonin reuptake inhibitor), or a pill placebo (PLA) condition. All diagnoses were made by independent trained assessors using the Structured Clinical Interview for DSM-IV-Axis I Disorders (SCID-IV, First, Spitzer, Gibbon, & Williams, 1997). As was the case with Jacobson et al. (1996), the delivery of treatment within the CT condition was overseen by experts in CT (Keith Dobson and Steven Hollon). All treatment sessions from each condition were audio-taped and
treatment *adherence* in a random sample of 33.3% of sessions was assessed by trained observers blind to the treatment condition with the same rating system (CSPRS; Hollon et al., 1984) used by Jacobson et al. (1996) along with the same therapist *competence* rating (CTS; Young & Beck, 1980) for the CT condition. A comparable measure of BA therapist competency was not available. BA was provided by three experienced (average 7 years) practitioners, CT by three experienced practitioners (average 14 years), and ADM and PLA by five pharmacotherapists (average 12 years).

Consistent with earlier findings, the results showed that all active conditions represented equally effective treatments for the less severely ‘depressed’ participants. Placebo medication was also as effective as ADM among less depressed participants. However, with high-severity participants (i.e., > 20; HRSD), ADM and BA outperformed both CT and PLA. BA was considered the most efficacious treatment given that regardless of depression severity the ADM condition had a significantly higher attrition rate than BA (36% compared to 9%). Drop-out rates for CT, BA, and PLA were equivalent. The results showed that the research therapists strictly adhered to the BA and CT treatment modalities. Overall, the therapists in the CT condition received high ratings for competency.

Treatment responders in the CT, BA, and ADM conditions were followed for a 2-year period, and the results showed that CT, BA, and ADM shared equivalent long-term outcomes across a range of indicators such as recovery rates, sustained response, relapse, although the cumulative direct financial cost of ongoing ADM was significantly higher than both BA and CT. If medication was withdrawn after the first year of follow-up, then the average performance of the ADM group deteriorated to the point where CT and BA were superior (Dobson et al., 2008).
The study by Dimidjian et al. (2006) met six (possibly seven) of the methodological criteria outlined by Foa and Meadows (1997). The researchers clearly defined target symptoms and provided delineation of inclusion criteria. Reliable and valid measures (e.g., BDI-II, HRSD) were used. Assessments were conducted by trained evaluators blind to the participants’ treatment condition. Specific manuals for each of the treatment conditions were cited and described although they were not made available on request. There was randomised assignment of participants to treatment conditions and researchers provided treatment adherence data for all treatment groups. Competency ratings were obtained only for the CT condition. As was the case with the study of Jacobson et al. (1996), the methodology employed in this study was of a high quality.

Cullen, Spates, Pagoto, and Doran (2006) compared a brief (10 session) version of BA (Martell et al., 2001) to a no-treatment control condition with a sample of 25 adult participants diagnosed with depression who were recruited through advertising and solicitations to health agencies and allied health professionals. All diagnoses were made by independent trained assessors using the Structured Clinical Interview for DSM-IV-Axis I Disorders (SCID-IV, First, et al., 1997). The participants were randomly assigned to either condition and were evaluated independently of the two treating therapists at pretreatment, posttreatment, and 3 months follow-up intervals. The therapists had previous training in CBT and had received an additional 12 hours training in BA. Therapists were provided with a stepwise protocol for each treatment session and all sessions were video-recorded with 11% of sessions randomly selected and rated by trained observers using a modified version of the National Institute of Mental health Collaborative Study Psychotherapy Rating Scale (CSPRS; Hollon, et al., 1984) that included the procedural steps in BA, prescribed techniques (e.g., activity scheduling),
and proscribed techniques (e.g., cognitive strategies). Weekly research meetings were held to discuss cases and review therapist performance.

Statistical procedures showed that BA was more effective than no-treatment (waiting list) in reducing self (i.e., BDI-II) and other (i.e., HRSD) reports of depression among the participants. Treatment gains were also maintained at a 3-month follow-up. Although there were improvements within the no-treatment group, the improvements for those who received BA treatment were larger. Post-treatment BDI-II scores were evaluated using Jacobson, Roberts, Berns, and McGlinchey’s standard (1999) and they showed that a clinically significant decrease had occurred from pre-treatment to post-treatment measurement (BDI-II) for both treatment and no-treatment groups. The results showed that 88% of all treatment delivered was consistent with the BA protocol used in this study.

The study by Cullen et al. (2006) met six (possibly seven) of the methodological criteria outlined by Foa and Meadows (1997). The researchers defined target symptoms and provided delineation of inclusion criteria. Reliable and valid measures were used and assessments were conducted by trained evaluators blind to participants’ treatment condition. A specific treatment protocol was used (but not available on request), there was randomised assignment of participants to treatment conditions, and researchers provided evidence of treatment adherence.

However, there were several limitations in this study. The investigation was conducted using a small sample, diminished due to drop-out rates of 32% overall which reduced the number of participants completing treatment to 9 in the BA condition and 8 in the no-treatment condition. Efforts were made to establish treatment integrity consistent with previous approaches yet only 11% of treatment sessions were rated compared with 18% in Jacobson et al. (1996) and 33.3% in Dimidjian et al. (2006). Behar and Borkovec (2003) recommended that integrity assessment be conducted on a
minimum of 20% of treatment sessions in psychotherapy outcome research. The modified version of BA (Martell et al., 2001) used in this study was not described in detail nor made available on request to the reader. Finally, although statistical procedures controlled for the influence of time, the results clearly showed that in relation to the participants’ reporting of depression symptoms both the treatment and no-treatment conditions experienced clinically significant decreases that were maintained at 3-month follow-up. This suggests that the control group showed spontaneous and natural recovery rates comparable to but not as large as the treatment group. This brings into question the relative effectiveness of the BA treatment as applied in this particular study.

The effectiveness of brief BA for depression (BATD; Lejuez et al., 2001) was investigated within a small sample (n = 25) of inpatient participants within a psychiatric facility setting (Hopko, Lezuez, LePage, Hopko, & McNeil, 2003). In this study, participants diagnosed with major depression by the hospital psychiatrists were randomly assigned to receive either modified BATD (n = 10) or supportive psychotherapy (SP; n = 15) for 14 days or until discharge (whichever occurred first; M = 12.7 days for BA, M = 14.0 for SP). The participants received 3 x 20 min sessions per day. Both groups also received antidepressant medication. Masters’ level therapists provided BATD and a single Masters’ level therapist provided SP. BA treatment adherence was monitored by weekly supervision meetings by a psychologist experienced in BA.

The results showed that BATD was significantly more effective at treating depression than SP. For the participants in the BATD condition, the mean change in BDI-II scores from pretreatment to posttreatment was 35.1 (severe) to 19.1 (moderate). For the participants in the SP condition, the mean change in BDI scores from pretreatment to posttreatment was 37.1 (severe) to 30.2 (severe). When the
posttreatment scores for the BATD condition were compared to the SP condition the calculated Cohen’s $d$ (estimated effect size) was 0.73 (medium).

This study provided a demonstration of the effectiveness of BA compared to SP within an inpatient population. Furthermore, the results suggest that BATD may have benefits for the patient beyond the “common-factors” of psychotherapy (e.g., attention, support, expectancy effects) and beyond any benefits that may have been attributed to the effects of anti-depressant medication. Uniquely, the study included a description of a participants’ activity log – which provided an example of a critical BA technique referred to as ‘activity scheduling’. The results, however, should be interpreted with caution. According to Foa and Meadows’ criteria (1997), the study failed to meet many of the standards expected of high-quality outcome research. Random assignment was employed and the outcome measure (BDI-II) has good psychometric properties. Masters-level therapists were used and supervised by an experienced practitioner. However, there was no reporting of data regarding levels of treatment adherence or competency for either condition or information regarding the level of experience of the research therapists. Although there was reference to a readily accessed BA treatment manual (Lejuez et al., 2001), the specific approach used was modified to include the use of a token economy with re-organised sessions (3 daily 20 min sessions compared to the recommended 1 weekly 60 min session). The format is not typically used in applied settings. Tokens were provided to participants in the BATD group for completing BATD-related goals and the tokens were able to be exchanged for off-unit ground passes, phone cards, snacks, and access to community activities. Token economies are used in applied behaviour analysis but are not specifically outlined within the BATD manual (Lejuez et al., 2001). A treatment protocol including these modifications to the original manual was not provided. Also, the SP condition was briefly outlined but there was no reference to or provision of a specific treatment manual or protocol, nor were
any steps taken to establish treatment integrity and no tokens were used. The authors noted that this form of SP is not an empirically validated treatment, notwithstanding the inclusion of common therapy components. Furthermore, the sample size was less than would normally be expected of a high-quality RCT and no follow-up data were collected.

The effectiveness of BATD was investigated more recently in the treatment of moderately depressed (i.e., BDI-II score of 14 or above) university students (Gawrysiak, Nicholas, & Hopko, 2009). A non-clinical sample of 30 participants who responded to an online advertisement for students willing to receive brief therapy for depression were randomly assigned to either BATD ($n = 14$) or a no-treatment control condition ($n = 16$). Participants were assessed at pretreatment and posttreatment intervals using the BDI-II, Beck Anxiety Inventory (BAI; Beck & Steer, 1993), the Environmental Reward Observation Scale (EROS; Armento & Hopko, 2007), and the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The BATD group received a single individual 90 min session of BATD (Lejuez et al., 2001) with materials (activity logs), and the control group received only general information about the research design and was told to “engage in their lives as usual” (p. 471) before returning in 2 weeks for re-assessment.

Two clinical-psychology doctoral students delivered the intervention according to a structured protocol. To establish treatment adherence the therapist “checked off” (p. 471) the prescribed BATD steps as each occurred in the session. The results showed that there was a significantly greater decrease in mean depression symptoms from pre to posttreatment for the BATD group (BDI-II: $M = 21.0$ to $8.1$) compared to the no-treatment group (BDI-II: $M = 19.8$ to $14.7$) and a significantly greater increase in contacting reinforcement was reported by the BATD group (EROS: $M = 23.8$ to $28.5$) compared to the no-treatment group (EROS: $M = 24.9$ to $24.6$). Reliable change indices
(Jacobson & Traux, 1991) showed that 93% \((n = 13)\) of the treatment group improved on the BDI-II measure compared to 31% \((n = 5)\) in the control group. On the EROS measure, 64% \((n = 9)\) of the treatment group improved compared to 0% in the control group. There were no notable differences on the other dependent variables.

This study by Gawrysiak et al. (2009) produced promising evidence of the effectiveness of a brief (1 session) BA intervention aimed at decreasing depression-type symptoms in a non-clinical population. The study, however, met only three (possibly four) of Foa and Meadows’ (1997) criteria for high quality outcome research. The study included clearly defined target symptoms and used measures with good psychometric properties. There was random assignment to either condition and a power-analysis was conducted prior to recruitment to determine an appropriate sample-size, which was met (i.e., > 26). A brief description of the treatment was provided with reference to the manual on which it was based (Lejuez et al., 2001), although the actual treatment protocol was not made available. Nevertheless, there was inadequate evidence regarding treatment adherence with no rating of competency, and participant evaluations were not conducted by independent assessors. Other limitations included the very brief assessment period (2 weeks,) the absence of follow-up data, and no use of any formal diagnostic measure. The study sample was not a clinically–depressed group and a single-session treatment is unusual in applied settings, and further caution must be exercised before results found within a non-clinical student sample are considered generalisable to clinically-depressed individuals.

BA has been investigated as a treatment for depression among adult illicit drug users (Daughters, Braun, Sargeant, Reynolds, Hopko, Blanco, et al., 2008). A sample of 44 participants diagnosed with depression according to DSM-IV criteria (Mini-International Neuropsychiatric Interview; Sheehan, LeCrubier, Sheehan, Amorim,
Janavs, et al., 1998) and receiving inpatient-treatment for substance abuse (e.g., cocaine, marijuana, alcohol) were randomly assigned to receive either treatment as usual (TUA) or TUA with BA (“LETS Act”) for 6 sessions over a 2 week period. TUA included being taught stress and anger management strategies, education and work-related skills, and daily Alcoholics/Narcotics Anonymous meetings. The BA components incorporated into TUA were from the BATD manual including ‘activity scheduling’ (Lejuez et al., 2001). LETS Act sessions (but not TAU) were audio recorded and 20% of sessions were randomly selected and rated for treatment adherence and competency by a single independent evaluator with expertise in BA (D.R. Hopko) using a 9-point Likert scale ranging from 0 (no adherence/competence) to 8 (complete adherence/competence). LETS Act sessions were conducted by two specifically trained doctoral-level therapists. Dependent variables included measures of depression symptoms (HRSD; BDI-II), anxiety (BAI), environmental rewards (EROS), and treatment satisfaction (CSQ; Client Satisfaction Questionnaire, Larsen, Attkission, & Hargreaves, 1979). Assessments were conducted by independent trained assessors blind to the participants’ treatment condition at pretreatment, posttreatment and 2 week follow-up intervals.

The results showed that clinician-rated depression within the LETS Act condition reduced significantly from pre to posttreatment ($M = 12.4$ to $M = 6.7$) compared to the TAU condition ($M = 14.1$ to $M = 14.9$). There were no differences in pre- to post-treatment reductions in self-reported depression (BDI-II) between groups and equivalent rates of improvement shown. However, the LETS Act group continued to improve at 2-week follow-up ($M = 13.6$ to $M = 11.3$) whereas the TAU group had an increase in BDI-II scores over the same period ($M = 14.4$ to $M = 15.7$). Follow-up data on the other measures (HRSD, BAI, EROS, TSQ) were not collected. Post-treatment increases in the reported amount of environmental reward were greater for the Lets
ACT condition and the level of treatment satisfaction was higher. There were no differences between groups based on BAI scores. Treatment adherence ratings averaged 7.3 out of a possible 9 and competency rating averaged 7.1 out of a possible score of 9 suggesting a high level of treatment adherence and competency within the Lets ACT condition. Drop-out rates between conditions were equivalent (2 versus 2).

The study by Daughters et al. (2008) is a good demonstration of the effectiveness of a BA intervention for treating depression among individuals with alcohol and/or other drug problems and adds to contemporary BA literature. The methodology employed by the researchers was strong, meeting six (possibly seven) of Foa and Meadow’s (1997) standards criteria. The results suggest that adding BA to TAU within the context of drug and alcohol treatment is worthwhile. The outcomes, however, occurred in a very discrete population of predominantly black, male, inpatients with drug and alcohol problems. The participants didn’t receive typical BA but a hybrid treatment consisting of BA strategies embedded within TAU. Furthermore, assessments were conducted over a relatively brief period (1 month) without adequate follow-up assessments.

BA in a group format was evaluated by Porter, Spates and Smitham (2004) among a sample of 26 individuals seeking mental health services for depression. Assessments including the BDI-II and HRSD were conducted pre-treatment, post-treatment and at 3 month follow-up. All diagnoses were made by trained assessors using the SCID-IV (First, et al., 1997). Participants were randomly assigned to either a 10-week group BA treatment or a no-treatment (waiting list) condition. A total of eight Masters’ level therapists delivered treatment. A specific treatment protocol based on Jacobson et al. (1996) was developed, described, and made available on request from the first author. The treatment was briefer (10 sessions compared to 20) and concentrated only on the functional analysis of the participants’ depression-related
behaviour, identification of habitual avoidance behaviours, and increased activation. Sessions were longer (95 min compared to 60 min).

The results showed a significant reduction in depression symptoms for the treatment group from pre- to post-treatment and at a 3-month follow-up. Symptom levels remained stable in the no-treatment group until they received group BA when they experienced equivalent rates of improvement. In total, 100% of all participants ($n = 26$) met the criteria for major depression pretreatment and 26% ($n = 7$) met the same criteria at post-treatment and 3-month follow-up. Thus, three-quarters of the participants experienced clinically significant outcomes and these gains were maintained at follow-up.

This study achieved five of seven standards of quality outcome research (Foa & Meadows, 1997). The major limitations included the absence of any treatment integrity data, the relatively small sample size, and assessments that were not conducted by independent assessors blind to treatment condition. Also, the therapist characteristics and training levels were not clearly detailed and the majority of participants (89%) were female. Notwithstanding these limitations, the study did provide evidence that BA may be effectively delivered in a group format which has appeal especially in terms of cost-effectiveness.

The final BA-related RCT published post-1996 was conducted by Wagner et al (2007). In this study, a small sample of 8 patients recovering from physical trauma, such as vehicle crashes and assaults, who also met the diagnostic criteria for PTSD and MDD were randomly assigned to either an out-patient BA or treatment as usual (TAU) condition. All diagnoses were made by independent trained assessors using the SCID-IV (First, et al., 1997) and the Clinician-Administered PTSD Scale for DSM-IV (CAPS-IV; Blake, Weathers, Nagy, Kaloupek, Gusman, et al. 1995). BA was based on the Martell et al. (2001) manual and included functional analysis including the
identification of avoidance behaviours, activity scheduling, goal setting, ‘attention to
time experience’ strategies (mindfulness), and discussion of the role of the ‘significant other’
in supporting behaviour change. The original manual was modified to a 6 session format
with treatment lasting an average of 10 weeks across participants. BA treatment was
provided by the lead author. TAU was provided by the trauma care facility but the
treatment was not described. PTSD, depression and general health assessments were
conducted pre- and post-treatment by a Masters’ level independent evaluator blind to
treatment condition assignment.

The results from this study were somewhat surprising in that the only difference
between either condition occurred on the measure of PTSD symptoms, the PTSD
Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1994), with the BA group
reporting a greater decrease in symptom severity from pre- to post-treatment ($M = 54.2$
to $M = 39.0$) compared to the TAU group ($M = 55.5$ to $M = 57.7$). On all other measures
(The Center for Epidemiological Studies Depression Scale, Radloff, 1977; The SF-12
Health Survey, Ware, Kosinski, & Keller, 1996) the groups were equivalent. The
change in PCL scores for the BA group must be interpreted with caution given the
authors’ note that scores of 44 and above typically correspond with a diagnosis of
PTSD. The change may not actually be clinically significant. In fact, on a case by case
basis, only 2 participants within the BA group showed clinically significant
improvement on the PTSD measure and 1 actually worsened.

The study fails to meet most of the standards expected of high quality outcome
research (Foa & Meadows, 1997), although the authors make efforts to note that it was
intended as a preliminary study. In particular, there was no reference to any attempts to
establish treatment integrity for either condition, treatment was delivered by a single
therapist, and there was scarce description of the TAU condition or who delivered the
intervention. Furthermore, the absence of any follow-up data removed the opportunity
to show any long-term improvement that may have occurred in either condition or whether the (albeit small) treatment gains were actually maintained post-treatment.

In summary, an extensive search of the relevant databases revealed eight randomised controlled trials (RCTs) published post-1996 involving contemporary BA. RCTs are an important type of psychotherapy outcome research because the design controls for or holds equivalent the many variables that may influence change in participants’ behaviour other than the (treatment) variable under investigation (Behar & Borkovec, 2003). The American Psychological Association (APA) Division 12 Task Force criteria for identifying empirically supported therapies requires any treatment to have been shown effective within the context of at least two high quality between-groups experiments before it is considered a well-established treatment (Chambless & Ollendick, 2001).

Contemporary BA is a relatively new therapy with an emerging body of evidence supporting its use. The first RCT that studied contemporary BA was published in 1996 (Jacobson et al.) and only seven subsequent trials of varying quality having been published since. In contrast, between 1977 and 1997 there were at least 75 similar trials published investigating CBT for depression (Gloaguen, Cottraux, Cucherat, & Blackburn, 1998). Nonetheless, the studies by Jacobson et al. (1996) and Dimidjian et al. (2006) deserve attention because they are RCTs of the highest quality and they show that BA alone can be as effective as any other well-established approach to treating depression – and possibly more effective for severely depressed individuals (Dimidjian et al., 2006). Furthermore, participants in both studies were followed for 2 years and the maintenance of gains achieved with BA was equivalent to those obtained from CBT (Dobson et al., 2008; Gortner et al., 1998).

For any therapy to be considered well-established based on only two RCTs, the studies should be conducted by independent research teams (Chambless & Ollendick,
2001). Some, though not all, of the researchers involved in Jacobson et al.’s study (1996) were also involved in Dimidjian et al.’s study (2006). Thus, if that specific criterion was stringently applied, contemporary BA currently meets the criteria for ‘probably efficacious treatments’ of unipolar depression (Chambless & Ollendick, 2001). Although the other RCTs published post-1996 add further support to the effectiveness of BA-interventions, the quality of these studies is not of the standard of Jacobson et al. (1996) and Dimidjian et al. (2006) and only three (Cullen et al., 2006; Porter et al., 2004; Wagner et al., 2007) investigated the model of BA as used in the former two studies. This was either abbreviated (i.e., 10 sessions compared to 20/24 sessions) or abbreviated in a group-format (Porter et al., 2004). The three other studies investigated brief BA for depression (BATD). One was within the context of drug and alcohol treatment (Daughters et al., 2008), another was a 1-session format within a non-clinical population (Gawrysiak et al., 2009), and the third was BATD with the addition of a token-economy (Hopko et al., 2003). These studies also had substantial limitations as pieces of research including (but not limited to) inadequate treatment descriptions for replication, a lack of data regarding treatment integrity, and limited or a complete absence of follow-up data. Thus, in the context of the APA’s criteria for well-established treatments (Chambless & Ollendick, 2001), contemporary BA may not be (technically) regarded as such based on the evidence from RCTs alone.

In contrast, however, in Barlow’s latest edition of Clinical Handbook of Psychological Disorders (2008) BA is recommended as an evidence-based treatment for depression alongside CT and interpersonal psychotherapy (IPT), with a chapter included in the volume describing BA therapy (Dimidjian et al., 2008). BA was not included in the previous edition of this handbook (Barlow, 2001) with only CT and IPT detailed in that particular volume as evidence-based treatments for adult depression. Thus, within the field of clinical psychology, subsequent to the work of Jacobson et al. (1996) BA
has been considered sufficiently developed and established, in the various RCTs, single-
group and single-subject studies, as to be recommended as a front-line treatment for
depression. As a final point, the APA Division 12 Taskforce lists empirically supported
treatments at http://www.PsychologicalTreatments.Org, and has categorised BA as
having strong research support which the website defines as the treatment having met
the Taskforce’s criteria as a ‘well-established treatment’.

3.4 Single Group and Single-Subject Studies

A computer search of key databases (e.g., PubMed, PsycINFO, Science Direct)
revealed that, following Jacobson et al’s (1996) important work, there have been at least
twenty published single group or single participant studies of BA applied across a range
of clinical and non-clinical populations including cancer patients (Hopko, Bell,
Armento, Hunt, & Lejuez, 2005), elderly people (Meeks, Teri, Van Haitsma, & Looney,
2006), people from Latino backgrounds (Santiago-Rivera et al., 2008), suicidal people
(Hopko, Sanchez, Hopko, Dvir, & Lejuez, 2003, adolescents and young adults (Gaynor
& Harris, 2008), and obese people (Pagota, Bodenlos, Schneider, Olendzki, & Spates,
2008).

Hopko et al. (2005) provided nine individual sessions of BA to six cancer
patients with diagnoses of major depression. The results showed that 5 out of 6
participants experienced clinically significant decreases from pre- to post-treatment on
self- and other-report measures of depression (e.g., BDI, HRSD), and their improvement
continued through to 3-month follow-ups with effect size estimates (Cohen’s $d$) ranging
from 1.3 to 2.3 (large). Pagota et al. (2008) applied BA therapy to a group of 14 obese
individuals diagnosed with major depression. After 12 weeks of BA there was a
significant overall reduction in mean BDI ($M = 26.7$ to $M = 6.71$) and HRSD scores ($M = 16.0$ to $M = 5.85$) for the group. At post-treatment follow-up, 72% of participants ($n =$
10) no longer met the clinical criteria for depression. Bottonari, Roberts, Thomas, and Read (2008) introduced BA therapy to a 62-year-old outpatient who had already received 21 sessions (147 days) of CT for depression. Until the introduction of BA, the participants’ depression symptoms had remained stable with a trend towards a worsening of his condition. Subsequent to the introduction of a course of BA, there was significant improvement in the first 147 days of treatment compared to the 147 days of CT with an effect size estimate (Cohen’s $d$) of 1.37 (large).

Generally, the effects of BA in these experimental, though less methodologically rigorous studies, are equivalent to those found in the larger-scale RCTs. Unfortunately, due to many limitations in the conduct of these studies the outcomes may not be considered appropriate to consider as evidence of treatment-efficacy outside of the context of the case itself. The Division 12 Task Force criteria (Chambless & Ollendick, 2001) consider a treatment as well-established if supported by evidence gained from well-designed RCTs or a large series of well designed single-case experiments. Single-case experiments may provide as many valid inferential possibilities as RCTs if the methodology is sound (e.g., repeated measurement, baseline/follow-up data, clearly defined and replicable treatment). Indeed, single-case research has particular relevance to applied clinical psychology (Barlow et al., 1984) due to the focus on intra-subject variability, and frequent measurement of change that is closer to the clinical reality of, say, working with a client for one session per week compared to simply observing changes in a homogenous group’s mean scores at pre and posttreatment intervals as with RCTs. Methodologically sound single-case experimental design is the cornerstone of behaviour analysis (see flagship publications: *Journal of Applied Behavior Analysis*, *Journal of the Experimental Analysis of Behavior*).

There is not the space to review every single-case study published investigating BA. However, there are some essential elements of single-case experiments that are
missing from the extant BA literature and should be considered. In single-case design, variables extraneous to the main independent variable (treatment) are controlled by using repeated measurement across a baseline phase. This phase should be continued until stability (i.e., an absence of upward or downward trend) in the data is established. Then, the treatment phase can begin and any subsequent changes in the targeted dependent variable(s) may be, all things being equal, taken to be due to the treatment itself. However, only one small series of clinical replications, investigating BA for adolescent depression (Gaynor & Harris, 2008), has included what would probably qualify as adequate baseline data (see Barlow et al., 1984; Shernoff, Kratochwill, & Stoiber, 2002 for guidelines). Typically, in published single-case investigations of BA, there has been no or only brief follow-up assessment with a narrow range of outcome measures (Bottonari et al., 2008; Hopko et al., 2003; Yon & Scogin, 2009). For instance, only one BA study (Gaynor & Harris, 2008) has included ‘activity levels’ as an outcome variable despite the aim of ‘increased activation’ as central in BA treatment (Martell et al., 2001) and this involved a simple checklist of whether the client engaged in scheduled between-session activities. Surprisingly, given its philosophical and conceptual roots, BA has rarely been investigated within the recommended parameters of behaviour-analytic single-case research methodology (Gaynor & Harris, 2008).

3.5 Research Investigating Behavioural Activation for Anxiety

Given the obvious functional similarities between depression and anxiety (e.g., negative reinforcement and avoidance behaviour), the effects of BA on measures of anxiety have been investigated mostly within the context of treatment for individuals with a principal diagnosis of depression. A computer search of key databases including PubMed, PsycINFO, and Science Direct revealed only two single-group studies, one group comparison, and five single-case studies that investigated BA and anxiety or anxiety-related disorders. Of these, no study investigated the effectiveness of BA with
participants who only met the clinical criteria for types of anxiety. Instead, the studies included participants diagnosed with both major depressive disorder (MDD) and PTSD (Jakupcak et al., 2006; Mulick & Naugle, 2004; Wagner et al., 2007), MDD and generalised anxiety disorder (GAD; Armento & Hopko, 2009; Chu, Colognori, Weissman, & Bannon, 2009), MDD, pain disorder, and social anxiety disorder (SAD; Lundervold, Talley, & Buermann, 2006), dysthymic disorder and panic disorder with agoraphobia (Hopko, Lejuez, & Hopko, 2004), and MDD, social anxiety disorder, and specific phobia (Hopko, Robertson, & Lejuez, 2006). Thus, there has been no published research investigating BA for referred problems of anxiety alone.

Nonetheless, these studies do provide an indication of the effectiveness of BA therapy on reported anxiety symptoms. Jakupcak et al. (2006), for example, conducted 16 sessions of individual BA (Martell et al., 2001) in the treatment of PTSD and MDD with an outpatient group consisting of 10 war veterans (all male) and 1 victim of sexual assault (female). The participants were formally diagnosed and assessed pre- and post-treatment by a clinical evaluator independent of the therapy team who at posttreatment was blind to pretreatment scores. Diagnosis was determined using the SCID-IV (First, et al., 1997). Assessments included the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995), the BDI-II, and the Quality of Life Inventory (QOLI; Frisch, 1994). Three doctoral level psychologists trained in BA delivered the interventions, with all sessions audio recorded and reviewed by an expert in BA (Martell) who also provided weekly supervision.

The results from this study were unimpressive. Two participants dropped out of treatment, and within the remaining group (including data to week 15 for one of the drop-outs) there was a significant change in pre-treatment to post-treatment scores only on the PTSD measure (CAPS) with an estimated effect size (Hedge’s $g$) of 0.58 (small to medium). A case by case analysis showed that only five participants actually
demonstrated reliable symptom reduction on the CAPS and one deteriorated. Interestingly, there was no improvement in depression ratings with four deteriorating. This trend of non-improvement was also found by Wagner et al. (2007; see RCT review in this chapter) who investigated MDD and PTSD among 8 injury-trauma victims. Unfortunately, neither study provided any data relating to treatment adherence and competency and the treatment manual used in either study was not provided to the reader, although Wagner et al. (2007) provided a brief session overview.

Other limitations of Jakupcak et al’s study (2006) include the absence of baseline and follow-up assessment, an almost all-male sample (15 males, 1 female). Anti-depressant medication use was not controlled for dose or frequency over the duration of the study, and all participants except one were ex-soldiers. The study failed to control for variables external to the treatment that may have influenced the outcomes and its limitations would make any attempt at replication difficult.

Chu et al. (2009) held 10 sessions of group BA (adapted from Martell et al., 2001) to five junior-high school students who had been nominated by school-counsellors as having a range of diagnoses including major depressive disorder (MDD); generalised anxiety disorder (GAD); and social anxiety disorder (SAD). Diagnoses were made using the Anxiety Disorders Interview Schedule for DSM-IV Child Interview (ADIS-IV-C; Silverman & Albano, 1996). Treatment outcomes were assessed at pre- and post-treatment with well-validated instruments by trained evaluators. The group BA was delivered by a clinical psychologist with 13 years experience and a trained clinical psychology doctoral student. The treatment protocol was comprehensively described in a stepwise fashion although there was no reference to any attempts to establish treatment integrity.

In terms of therapeutic outcomes the results were mixed. One child failed to complete treatment and did not contribute any posttreatment data. The remaining four
self-reports indicated that participant 1 demonstrated clinically significant improvement on both anxiety (MASC-C; Multidimensional Anxiety Scale for Children, March, Parker, Sullivan, Stallings, & Conners, 1997) and depression (CESD; Center for Epidemiologic Studies Depression Scale, Radloff, 1977) measures, although according to his parents’ ratings (MASC-Parent Version, CESD-Parent Version) – there was no change. Participant 2 reported a clinical improvement in depression, yet her parents reported an improvement in her anxiety and not depression. Participant 3 did not report any improvement, but her parents reported improvements in her anxiety and depression. There was no change in any depression or anxiety ratings for the final participant 5. Interestingly, the one child who failed to complete treatment (participant 4) was actually the only participant who met criteria for an anxiety-related disorder alone. The authors reported that “all treatment completers reported a reduction in avoidance” (p. 417). However, no data were presented to support this claim. The authors stated that 3 of the 5 participants showed “clinically significant change in their principal diagnoses” (p. 417) and that at posttreatment 2 of the 5 participants no longer met DSM-IV criteria for any disorder. All 5 had met DSM-IV criteria pre-treatment.

There are several limitations within this study. Recruitment was potentially biased as it involved school counsellors selecting students whom they considered to be suitable for group BA. Assessments were not conducted independently of the research team. The treatment protocol was well-defined but there were no attempts to establish treatment integrity. The study used a pre- to post-treatment design with no controls and no continuous data were collected over an extended period. The authors still concluded that the “results suggest that students experiencing significant anxiety and depression may benefit from the group” (p. 418), which is surprising given the reported data showed little changed for most of the participants.
The studies by Armento and Hopko (2009), Hopko et al. (2004), and Hopko et al. (2006) were single-case investigations of the application of BATD to the treatment of adult major depression and anxiety. These studies tended not to have an extended baseline, follow-up assessments and assessments of treatment integrity but they did provide a thorough description of the participant characteristics, case conceptualisation, treatment approach, and both qualitative and quantitative data. Valid measures (BAI; Beck Anxiety Inventory, BDI-II; Beck Depression Inventory, HRSD; Hamilton Rating Scales for Depression) were taken pre- and post-treatment, and Armento & Hopko (2009) included follow-up assessments. All three cases involved female adult participants who had presented for outpatient therapy.

Armento & Hopko (2009) provided eight weekly 1-hr sessions of BATD (Hopko & Lejuez, 2007) for a 58-year-old breast cancer sufferer who met DSM-IV criteria for MDD and GAD. Treatment was successful with clinically significant decreases pre to posttreatment on the BDI-II (25 to 0), BAI (15 to 0), and the HRSD (25 to 0). There were also increases on the Environmental Reward Observation Scale (EROS; Armento & Hopko, 2007) and the Quality of Life Inventory (QOLI; Frisch et al., 1994). The gains were maintained up to 6-months following the ending of treatment. The authors included a sample of an activity log used by the participant throughout the course of the study which provided examples of the activities she engaged in during treatment.

Hopko et al. (2004) also reported promising, but less impressive outcomes for a 28-year-old student who met DSM-IV criteria for panic disorder with agoraphobia and dysthymic disorder. The participant received 10 weekly individual 1-hr sessions of BATD (Lejuez et al., 2001). She had just completed 18-months of CBT prior to her involvement in the study with little reported change in the degree of her symptomatology. Following the course of BA therapy, pre to posttreatment change
occurred on the State Trait Anxiety Inventory (STAI; Speilberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), BAI, BDI-II and the QOLI. There were no follow-up data. An example of an activity log showed scheduled activities included calls to sister, walking dogs, attending church, and watching a favourite TV program.

Hopko et al. (2006) conducted 9 weekly 1-hr individualised sessions of BATD (Lejuez et al., 2001) with a 31-year-old female who met DSM-IV criteria for major depression, social anxiety, and specific phobia. Assessments were conducted pre- and post-treatment. Outcome measures showed modest reductions occurred on the HRSD, BDI-II, and the BAI. There were no follow-up data.

Mulick and Naugle (2004) employed a more experimental methodology in their investigation of the effects of 11 weekly 1-hr individual sessions of BA (Martell et al., 2001) on a 37-year-old male police officer/military veteran who met DSM-IV criteria for major MDD and PTSD. Diagnosis was confirmed using the SCID-I (First et al., 1997). A range of assessments were applied at repeated intervals during and between sessions, and after a 1 month posttreatment follow-up period. The participant was stabilised on antidepressant medication 9 months prior to the commencement of and during therapy. Each treatment session was recorded, and one session was randomly selected and rated for adherence to BA treatment protocol and therapist competency by an expert in BA using a modified version of the National Institute of Mental health Collaborative Study Psychotherapy Rating Scale (CSPRS; Hollon, et al., 1984) that included 11 items relating to BA techniques and ‘therapeutic skill’. For each item, the therapist’s behaviour was rated using a Likert-Scale (0 = poor to 6 = excellent). The treatment was described with reference to the manual on which it was based (Martell et al., 2001).

The results showed a pre to posttreatment reduction in scores on measures of PTSD, including the Clinician Administered PTSD Scale for DSM-IV (Blake et al.,
1997), and from pretreatment to 1-month follow-up on the PTSD Symptom Scale (Foa, Riggs, Dancu, & Rothbaum, 1993). On the quantitative measure of depression (BDI-II) there also was a reduction pretreatment to 1 month follow-up. Posttreatment and at follow-up, the participant no longer met DSM-IV criteria for MDD or PTSD. Therapist competency averaged 4 (‘good’) out of a maximum of 6 (‘excellent’) across all 11 items.

A major strength of Mulick and Naugle’s study (2004) was the use of repeated measures which tends to increase the precision of evaluation (Barlow et al., 1984). In this study, the change in dependent variables session by session and week by week was clearly identified. Interestingly, change was not linear with many peaks and troughs throughout the data series. This intra-subject variability probably matches clinical reality (Barlow & Nock, 2009). Only around week 8 of treatment did scores begin to move into the ‘non-clinical’ range. Thus, the study provides a good description of the topography of change as it may occur when applying BA to MDD and PTSD within a clinical setting. The treatment was well described for replication and treatment outcomes appear promising. In common with other evaluations, however, efforts to establish treatment integrity were inadequate with only 1 treatment session reviewed for competency and treatment adherence using a subjective rating scale. Although well-defined, the treatment manual used was not made available. There was a reference made to the longer (20 to 24 session) BA protocol (Martell et al., 2001) and a lone practitioner delivered the treatment and conducted all assessments. Also, the author referred to a baseline phase yet closer inspection revealed that the baseline actually consisted of a pre-treatment assessment and then 2 treatment sessions (“Session 1” and “BA session 1”). The author explained this by stating, “No specific therapeutic techniques were used during this session (1)” and “BA was initiated during session 2” – with no description of what occurred during “BA session 1”. It is well known that there are common factors in
psychotherapy that may change targeted behaviour beyond specific therapy techniques (Behar & Borkovec, 2003). For example, high levels of self-reported in-session experiences of private events (e.g., emotional arousal) and independent ratings of the ‘alliance’ between the therapist and client have been shown to be related to improvement during cognitive therapy (Castonguay, Goldfried, Wiser, Raue, & Hayes, 1996) and these variables are not unique to cognitive therapy.

In summary, no published studies have investigated BA for anxiety alone. The studies that have been conducted have involved participants who have met DSM-IV criteria for both depression and anxiety. In clinical settings clients meet criteria for anxiety and depression in approximately 1 out of every 2 cases (Greer & Trivedi, 2005). The symptom overlap between both disorders (APA, 2000) decreases the external validity of these BA studies and generally, the methodological standard of these studies is only moderate. Thus, only limited inferences may be drawn from the single-case studies that have shown BA therapy to be associated with decreases in anxiety (Hopko et al., 2006; Mulick & Naugle, 2004).

Of greater importance is that many of the BA treatments of these studies included techniques that are more typically employed in mainstream CBT approaches to anxiety treatment. For example, they included graded exposure (Chu et al., 2009; Hopko et al., 2004); graded exposure with relaxation training (Armento & Hopko, 2009; Hopko et al., 2006); and relaxation training (Lundervold et al., 2006). Only the studies by Jakupcak et al. (2006), Mulick and Naugle (2004) and Wagner et al. (2007) appear to have applied BA alone to the treatment of anxiety within the context of mixed anxiety/depression symptomatology.

Finally, no study investigating the effect of BA treatment on anxiety presented quantitative evidence of the changes that occurred in the participant’s activity levels with treatment. This is a serious limitation of the literature given that the primary aim of
BA is to *activate* the individual in socially important ways. Although a focus on the reduction of private responses is valid due to the reporting of such responses within the typical clinical presentation, it nonetheless represents an incomplete analysis from a behavioural perspective. If the claim is to be made that a functional relationship exists between the individual’s activity levels and his or her reporting of private events such as anxiety or depression, then it would be desirable to have a measure of both overt and covert dependent variables. Certainly behaviour analysis (Skinner, 1953; Sulzer-Azaroff & Mayer, 1991) has long recognised the need to measure and account for the main variables under investigation. It would seem reasonable to suggest that, if the basis of BA therapy is indeed the eliciting of change in an individual’s activity levels, then this change ought to be demonstrated.

3.6 Summary

There is an emerging body of evidence supporting the use of contemporary behavioural activation (BA) in the treatment of adult depression including meta-analyses, randomised controlled trials, single group designs, and single case studies. These studies have demonstrated that BA is as effective as other front-line treatments including CT/CBT and antidepressant medication, and may be more effective when attrition rates, level of depression, and the financial costs of medication and longer-term treatment are accounted for. Indeed, although there is a need for more research including better designed single-case experiments, BA could be considered a well-established treatment for adult depression according to current standards (Chambless & Ollendick, 2001).

However, there are limitations within the extant literature. The studies by Jacobson et al. (1996) and Dimidjian et al. (2006) are of the highest methodological quality and represent the core of contemporary BA evidence, yet technically they may be considered to have not been conducted independently of each other. Moving away
from these two studies, there is significant variability in terms of experimental rigour within the remaining literature reporting evaluations of BA. The investigation of different treatment protocols, although in principle they are all BA (e.g., Lejuez et al., 2001; Martell et al., 2001), further limits the conclusions of current best evidence. To this point, there may be a requirement for a component analysis of BA to be conducted, similar to Jacobson et al.’s. 1996 study that compared the full CT package to BA only, to establish the most parsimonious (BA) approach to treatment. Greater control is also needed if research is to show the complex functional relationships between activity and private events that are assumed to relate to the development and maintenance of clinically healthy behaviour. No study exists that has provided quantitative measurement of the real-time activity levels of individuals receiving BA therapy.

Despite functional similarities with depression, little research has been conducted on BA therapy for anxiety. As far as can be ascertained, no study has investigated BA therapy for anxious behaviours alone. Existing studies that have focused on anxiety with other DSM-IV diagnoses such as depression have methodological limitations and have reported mostly equivocal and/or clinically-insignificant findings. Yet, given common principles, it can be argued that BA ought to be as effective in the treatment of anxiety as for depression. Future investigations require more rigorous experimental control with a focus on anxiety alone. The use of well controlled single-case experimental designs would have a distinct advantage over current research that has relied heavily on between group comparisons and single group designs in that the putative functional relationship between treatment and anxiety could be systematically analysed within individuals undergoing BA therapy during the course of their treatment.
CHAPTER 4
RATIONALE FOR THE PRESENT STUDY

4.1 Rationale

From a behaviour-analytic perspective, the functional similarities between ‘depression’ and ‘anxiety’ suggest that behavioural activation treatment for anxiety (BATA; described in Chapter 5) may provide as effective a treatment for anxiety as has been shown with depression. As best as can be known, BA has not been trialled with adults who fulfilled DSM-IV criteria only for an anxiety-related disorder, and within a single-case experimental research design. These two points prompted the development of the present study and it was designed as a preliminary investigation into the effectiveness of BA as a stand-alone treatment for anxiety among a clinical adult population using an experimental single-case methodology.

4.2 Behavioural Activation Treatment of Anxiety (BATA)

BATA is composed of the essential elements of BA (Lejuez et al., 2001; Martell et al., 2001) as outlined in Chapter 2. At the conceptual level, it is consistent with exposure therapy as the client is encouraged to come into contact with aversive stimuli with the aim of extinguishing the conditioned anxiety/fear response. However, BATA is different from exposure therapy because it is more concerned with the analysis and application of operant behavioural principles – the relations among antecedents and behaviours and consequences. Although it is expected that classically conditioned responses will extinguish with time, whether the client engages in approach or goal oriented behaviour is not dependent on this having occurred. BATA has a broader contextual focus than typical exposure therapies. Riggs, Cahill, and Foa (2006) describe how typical exposure therapies emphasise classically conditioned relations and concentrate on exposing the anxiety sufferer to discrete aversive stimuli with the hope
that the extinction outcome will lead to generalised improvement in behaviour in everyday life. In BATA, the therapist helps clients to establish contexts in which the interlocking antecedents and consequences (contingencies) that act upon anxiety-related behaviour are altered such that their natural environment becomes more supportive of ‘healthy’ non-anxious behaviours and less supportive of ‘unhealthy’ anxiety-related behaviours.

Symptom reduction is an important outcome but is not the sole focus of BATA. It is expected that if clients increase approach behaviour and come into contact with people, places, objects and events that were once avoided then they will also report gradual reductions in anxiety symptoms. However, these broader, contextual changes may be a gradual process whereas changes in overt symptom behaviour can occur relatively quickly. Unquestionably, anxiety, by degrees, may continue to be a feature of many clients’ lives during and beyond therapy. Crucially, with BATA, clients’ behaviour should become more under the control of scheduled, goal-related activities and the contingencies of reinforcement operating in the environments where these activities take place. The lesson for clients is to continue to engage in ‘meaningful’ activity regardless of their respondent (anxious) processes. In this way, there is an increased likelihood of reductions in anxiety occurring because of increased, regular contact with fear-eliciting situations - and clients’ actions in important areas of their lives are not interfered with by the habitual avoidance typical of anxiety-sufferers.

Applied forms of psychology have always acknowledged the influence of avoidance on continuing psychopathology (Freud, trans. 1914). In basic science, if a rat receives an electric shock in a chamber, it will act to avoid returning to the chamber (Blanchard & Blanchard, 1968). The rat will decrease its rate of lever pressing in the presence of an auditory conditioned stimulus even if this results in less food (Kamin, Brimer, & Black, 1963). Alternatively, if an electric shock can be avoided by continual
lever pressing, the rat will act to perform this action (Sidman, 1953). This has clear evolutionary advantages in that the ability to effectively respond to stimuli that signal danger may allow the avoidance of actual physical harm.

The tendency for the anxiety-sufferer to engage in avoidance behaviour is a central part of the diagnostic criteria for anxiety-related disorders (APA, 2000) alongside feelings of marked and persistent fear (distress). When the avoidance and distress interfere with routine everyday functioning then essentially the individual fulfils clinical diagnostic criteria. Avoidance contributes to psychopathology because classically conditioned fear is maintained and because effective avoidance strategies lead to a narrow, restricted repertoire of behaviour and experiences that leads the anxiety-sufferer to experience a reducing quality of life. Thus, co-occurring depression is present in 50% of anxiety cases and the onset of anxiety results in a persistent risk for the development of depression (Greer & Trivedi, 2005). Numerous recent studies (Kahn & Garrison, 2009; Plumb, Orsillo, & Luterek, 2004; Tull, Gratz, Salters, & Roemer, 2004) have shown that elevated levels of avoidance are predictive of depression, somatisation, and high levels of general distress co-occurring with anxiety. Countering avoidance is critical in treating anxiety-related disorders.

BATA concentrates on behaviour change that occurs within clients’ natural settings, therefore it does not rely on in-therapy changes translating to change in important areas of the clients’ day to day life for improvements to occur. The use of broadly identified natural contingencies of reinforcement that support behaviour change are likely to be more effective than discrete artificial conditions in maintaining change over time (Kohler & Greenwood, 1986). BATA goes straight to promoting behaviour change within real-life contexts outside of therapy. Notwithstanding that some elements of therapy may hold equivalent functions to those that occur within clients’ day to day settings, BATA does not automatically assume that generalisation of in-session change
to the broader contexts within which clients operate will occur (as in FAP; Kohlenberg & Tsai, 1991). Although the BATA therapist may apply contingencies of reinforcement to support aspects of client in-session behaviour (see Chapter 5), the primary focus is actually on clients’ out of session behaviour.

BATA should be an acceptable therapy for clients. Any exposure-type practices would occur within natural settings determined by clients’ preferred activities. Thus, the anxiety-sufferer is not exposed to aversive stimuli only in order to remove previously established respondent functions. Any added discomfort will occur within contexts that match the verbally stated, short’ medium, and long term goals of the client. The therapist’s task is to guide or coach the client through the therapy process, but the client’s goals are his or her own.

Finally, an important characteristic of BATA is the possibility of ‘behavioural cusps’ (Rosales-Ruiz & Baer, 1997) occurring. As discussed in Chapter 2, ‘cusps’ are behaviour changes that produce large expansions of the individual’s behavioural repertoire, far beyond that expected from the discrete properties of the change itself. These might be the ‘unplanned’ beneficial consequences of the systematic programmed activation in BATA. Thus, this study will attempt to identify and describe potential cusps if they have occurred during each participant’s course of treatment. To date, there has been no discussion or reporting of cusps in the BA literature, or in other forms of clinical behaviour analysis (e.g., ACT; Hayes et al., 1999). As they have not been systematically programmed in the present study, potential cusps cannot be quantified and properly analysed with other behaviour changes (e.g., self-reported anxiety). Nevertheless, the qualitative descriptions herein can provide examples of possible cusps and function to highlight specific behaviour changes that probably were influential in any other change in the main dependent variables (e.g., anxiety, activity).
4.3 The Present Study

A core question in this study was whether increased activation in important life areas was associated with decreased self-reports of anxiety over time. The research also aimed to address several limitations within the extant BA literature and some key features of this study have not been found in prior BA-related research. For example, participants were included in the study if they met criteria for an anxiety disorder but excluded if there were signs of co-morbidity (e.g., depression). Effort went into employing single-case experimental methodology expected of behaviour analytic research including establishing an adequate baseline before beginning treatment, using measures of real-time activity levels, and including a measure of treatment fidelity from a random sample of 33.3% of all treatment sessions. Assessment of treatment integrity based on samples of more than 20% of digital audio recordings made of all treatment sessions is rare in BA-related research and only 36% of studies published between 2000 and 2004 within major psychiatry and clinical psychology journals ‘approached adequacy’ in relation to establishing treatment integrity (Perepletchikova, Treat, & Kazdin, 2007). Treatment integrity is considered essential to the interpretation of results from psychotherapy research (Waltz, Addis, Koerner, & Jacobson, 1993). Without integrity checks it is difficult to show that treatment effects are due to the treatment having been implemented as intended. Further, cross-study comparisons of treatment effects cannot provide evidence of replication if there are no data to show that a protocol was adhered to and if the standard of methods for establishing integrity varies considerably between studies.

The BA approach utilised included only what the author concluded are the essential elements of BA. These were selected because they are common elements of the main contemporary BA models (e.g., BA, BATD) and are supported by principles of operant psychology. Adjunctive treatment elements were excluded (e.g., relaxation
A treatment protocol was developed especially for use in this study and is presented in Appendix I. It was designed to match the format of treatment protocols found in typical clinical handbooks (e.g., Barlow, 2001) and included a procedural account of BATA. A narrative account of BATA in practice based on transcripts from the treatment sessions with the first participant is also in the protocol. It is expected that research therapists will be able to follow the protocol in further investigations of BATA while referring to other BA treatment manuals (e.g., Martell et al., 2001) if necessary.

Finally, a measure was used that attempted to account for any variance in the ‘therapeutic relationship’ that may have occurred during treatment and potentially been associated with clinical outcomes. The therapeutic relationship (or ‘alliance’) is a so-called ‘common factor’ in psychotherapy (Horvath & Luborsky, 1993). The use of this measure is important because the therapist/client ‘relationship’ has been considered influential to change in all forms of psychotherapy and have been claimed to be the pre-eminent ‘cause’ of any therapeutic success (Lambert & Barley, 2001). It has been suggested that specific therapeutic techniques account for only 15% of psychotherapy outcome variance whereas the ‘common factors’ that define the therapeutic relationship (e.g., ‘empathy’, ‘positive regard’) account for 30% (Lambert & Barley, 2001).

Measures of the therapeutic relationship have been completely overlooked in published accounts of pure BA research and often so in accounts of clinical behavioural interventions more generally (Lejuez, Hopko, Levine, Gholkar, & Collins, 2006). Further, practitioners of behaviour analysis in clinical settings will need to show that their technologies are based on established and discrete scientific principles if they are to differentiate themselves from allied workers in the mental health field, including ‘para-psychologists’, who might emphasise the function of difficult to operationalise variables such as the ‘therapeutic relationship’ in order to account for their therapeutic approach and any co-occurring clinical outcomes.
5.1 Participants

Twenty-three adults were recruited from the community via an advertisement in a local community newspaper (Appendix A) asking for “anxiety sufferers” to be involved in a study investigating a new treatment for anxiety. They all completed a comprehensive intake assessment and ten were deemed eligible for participation due to having met the criteria for an anxiety-related disorder according to the DSM-IV (APA, 2000). The DSM-IV uses descriptive topographical criteria to classify clinically-relevant behaviours into diagnostic categories. For example, DSM-IV diagnostic criteria for Generalised Anxiety Disorder:

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).

B. The person finds it difficult to control the worry.

C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms present for more days than not for the past 6 months).

(1) restlessness or feeling keyed up or on edge
(2) being easily fatigued
(3) difficulty concentrating or mind going blank
(4) irritability
(5) muscle tension
(6) sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)
(D) The focus of the anxiety and worry is not confined to features of an Axis I disorder, e.g., the anxiety or worry is not about having a Panic Attack (as in Panic Disorder), being embarrassed in public (as in Social Phobia), being contaminated (as in Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in Somatisation Disorder), or having serious illness (as in Hypochondriasis), and the anxiety and worry do not occur exclusively during Posttraumatic Stress Disorder.

(E) The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

(F) The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism) and does not occur exclusively during a Mood Disorder, a Psychotic Disorder, or a Pervasive Developmental Disorder. (APA, 2000, p. 476).

Diagnosis was confirmed using the Structured Clinical Interview for the DSM-IV Axis I Disorders (SCID-I; First, et al., 1997). The SCID-I includes questions for the respondent that are matched to the various topographical markers of the diagnostic categories of the DSM-IV. The SCID-IV relies on self-report as well as the interviewer’s clinical judgement, and further information can be obtained by using other clinical instruments at the time of interview (e.g., BDI-II). The SCID-I is commonly used within clinical and research settings to determine diagnosis, and the SCID-I manual cites a number of studies which have investigated its reliability with reported kappa values ranging from .70 to 1.00 (First et al., 1997, p. 46). Potential participants were excluded if they also met criteria for another Axis I disorder such as major depressive disorder, bipolar I disorder, schizophrenia, or alcohol dependence.
All participants were given written information pertaining to the study and provided written consent prior to their involvement. Of the ten participants included in the study, three were excluded during the baseline phase; two due to ongoing non-completion of self-monitoring baseline requirements, and one due to self-reported improvements in anxiety-related behaviour. Ultimately, seven participants aged between 38 and 70 years (4 males: M = 51.75 years; SD = 10.71; 3 females: M = 61.66 years; SD = 8.50) received what was termed ‘Brief Behavioural Activation Treatment for Anxiety’ (BATA). Figure 5.1 presents details of the participants who were engaged in the study.

5.2 Experimental Design

The research study employed time-series methodology (Hayes, 1981). A single-case within-subject experimental (A/B/C) design was used for each participant. The A phase was baseline; B was treatment; and C was maintenance/follow-up. Standardised repeated measures were collected during all phases. Participants were only required to self-monitor during baseline and treatment in an attempt to control for the potential therapeutic effects of self-monitoring during the maintenance phase (Barlow, et al., 1984). Each successive case represented a precise clinical replication of the administration of BATA (Barlow et al., 1984).

![Figure 5.1. Participant flow chart.](image-url)
5.3 Procedure

Potential participants who responded via telephone to the community newspaper advertisement (Appendix A) were scheduled to complete the individual intake assessment on-site at Murdoch University. This assessment was conducted by the author, an Honours (psychology) graduate who was in his second year of Doctoral-level clinical-psychology training. Initially, potential participants were provided with an information letter (Appendix B) explaining the features of the study and given the opportunity to ask questions or state any concerns. Once formal consent was obtained with the participant completing a consent form (Appendix C) the SCID-I (First, et al., 1997) was administered along with the Beck Anxiety Inventory (BAI; Beck & Steer, 1993) and the short version of the Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995a). The DASS-21 is publicly available from http://www2.psy.unsw.edu.au/groups/dass/). If participants met DSM-IV (APA, 2000) criteria for an anxiety-related disorder, without also meeting criteria for a non-anxiety-related disorder, they were included in the study. Selected participants were then provided with materials and instructions for self-monitoring and were required to return on-site at weekly intervals for approximately 15 to 20 mins to submit monitoring forms, receive new forms, and complete the standardised measures until the commencement of treatment.

Phase A: Baseline

During baseline, each participant was required to complete daily self-monitoring of anxiety and activity levels using self-monitoring diaries developed for this study (see page 90). The participants were required to return on-site weekly to submit monitoring forms and receive new forms. Also, at each weekly meeting, participants were administered the BAI and the DASS-21. Each meeting was of approximately 15 to 20
mins duration. No treatment was conducted during the weekly meetings and any discussion was perfunctory and limited to the procedural concerns of assessments and self-monitoring. The duration of the baseline varied across participants and was determined by the length of time required to adequately establish stability in the obtained self-monitoring data using times-series analysis procedures implementing the treatment phase (Hayes, 1981). Baseline duration ranged from 16 to 35 days (M = 26.28; SD = 6.07).

**Phase B: Treatment**

The duration of phase B was 84 days. The treatment was termed ‘Behavioural Activation Treatment of Anxiety’ (BATA). The treatment combined what were understood to be the essential principle-based elements of contemporary behavioral activation (BA; Martell, et al., 2001) and brief behavioral activation treatment for depression (BATD; Lejuez, et al., 2001). Each participant received the same treatment presented in a step-wise manner according to the BATA protocol (Appendix I) developed by the author and his supervisor (David Leach) for use in the present study.

Treatment consisted of twelve weekly 60-min individual sessions. All treatment sessions with each participant were audio-recorded using a Digitech™ Digital Voice Recorder. One-third of the recordings of each participant’s treatment sessions were randomly selected and independently rated for treatment integrity. Treatment was delivered by the author on-site at Murdoch University in a standard-size, regularly furnished consulting room.

**Treatment Description**

The aim of BATA was to increase the amount of approach-oriented socially important behaviour in a client’s daily life while producing corresponding decreases in the frequency of habitual avoidance. This was to be achieved by helping clients to bring
their overt behaviour more under the control of life goals and scheduled activities. BATA was delivered in an individual format with 60 min weekly sessions. The key components of BATA are:

- Self-monitoring
- Psycho-education
- Functional Analysis
- Goal-setting
- Activity Scheduling
- Activity Reviewing

**Phase C: Maintenance**

The duration of phase C was 84 days (3 months) and the phase commenced immediately following the completion of the treatment protocol. This phase technically was not a return to baseline due to participants’ not having to complete formal self-monitoring. The aim was to observe participant behaviour independent of the structural variables inherent in the earlier baseline and treatment phases. During maintenance, participants were only required to return on-site for approximately 15 to 20 mins at 1 week, 2 weeks, 4 weeks, 8 weeks, and 12 weeks only for administration of the BAI and the DASS-21.

**5.4 Measures**

**Diagnostic measures**

*The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First et al., 1997).*

The SCID-I is a semi-structured clinical interview that applies DSM-IV (APA, 2000) Axis I diagnostic criteria to the adult interviewee’s verbal responses, thus
providing a diagnosis. Axis I criteria account for the various disorders and conditions a clinician may encounter except for personality disorders and mental retardation which are on Axis II (APA, 2000). The SCID-I is commonly used within clinical and research settings to facilitate diagnosis, and the SCID-I manual includes information supporting the instrument’s validity and reliability. The SCID-I has well-established psychometric properties and acceptable reliability within clinical settings with test-retest coefficients across diagnostic categories ranging from .70 to 1.00 (First et al., 1997). The SCID-I also contains a user’s guide that provides detailed instruction regarding administration, and guidelines and materials to facilitate training in the use of the interview prior to administration.

**Anxiety-Related Measures**

*Beck Anxiety Inventory (BAI: Beck & Steer, 1993).*

The BAI is a 21-item self-report measure of anxiety symptoms and is considered “one of the most widely used and well-researched measures of anxiety” (Antony, Orsillo, & Roemer, 2001, p. 51). The BAI asks respondents to rate on a four-point severity scale the degree to which they have been ‘bothered’ by various anxiety symptoms during the previous week (e.g., “How much have you been bothered by fear of losing control?”) and is administered in 5 to 10 mins. The BAI manual (Beck & Steer, 1993) contains interpretations of raw scores and provides sample mean and normative data from clinical and non-clinical populations.

The BAI has strong, well-established psychometric properties (Beck, Epstein, Brown, & Steer, 1988). Reported test – retest reliability data showed a coefficient of .75 over one week (Beck et al., 1988). The BAI is highly correlated with other measures of anxiety (Antony, Orsillo, & Roemer, 2001). It has been used across a range of populations including young adolescent inpatients (Jolly, Aruffio, Wherry, &
Livingston, 1993) and older adult outpatients (Kabacoff, Segal, Hersen, & Van Hasselt, 1997), and has been used to differentiate anxiety from depression in large community samples (Creamer, Foran, & Bell, 1995).

Depression Anxiety Stress Scales – Short Version (DASS-21; Lovibond & Lovibond, 1995a). The DASS-21 is a 21-item version of the larger 42-item DASS. Each item requires the respondent to rate the degree on a 4 point scale that specific depression, anxiety and stress symptoms (e.g., ‘I found it hard to wind down’, ‘I found it difficult to relax’, ‘I felt down-hearted and blue’) were present during the previous week. The DASS-21 is composed of three separate scales and scores for each are obtained by adding the raw scores corresponding to each scale. Interpretative guidelines are provided in the DASS manual (Lovibond & Lovibond, 1995a).

The DASS and the DASS-21 have strong psychometric properties, correlate highly with other anxiety and depression measures, and normative data are available for both clinical and non-clinical adults aged 20 to 60 years (Antony et al., 2001; Lovibond & Lovibond, 1995a). The DASS-21 also has strong psychometric properties when used with older adults aged 60 to 88 years (Gloster, Rhoades, Novy, Klotsche, Senior, et al., 2008). The main advantage of the instrument is the reduced administration time (5 to 10 mins) which is especially useful in repeated administrations. The shorter DASS-21 maintains strong psychometric properties and is considered a valid and reliable measure equivalent to the longer version (Antony, Cox, Enns, Bieling, & Swinson, 1998; Henry & Crawford, 2005; Lovibond & Lovibond, 1995a). Some have suggested that the DASS-21 “may be preferable to the full 42-item DASS” due to the fact that it reduces the administration time by 50% and holds equivalent psychometric properties to the larger version (Antony et al., 1998, p. 181).
Scores on the DASS Stress scale has been found, above other standard anxiety measures to differentiate generalised anxiety disorder from other types of anxiety disorders (Brown, O’leary, & Barlow, 2001) and is strongly correlated with a primary GAD self-report measure, the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990). The DASS Depression scale is highly correlated with the Beck Depression Inventory and the DASS Anxiety scale is highly correlated with the BAI (Lovibond & Lovibond, 1995b).

**Self-Monitoring Anxiety and Activity Measures**

*The Daily Anxiety Rating Scale (DARS).*

The DARS (Appendix D) is a daily self-monitoring instrument utilising a subjective rating scale (0 = no anxiety to 100 = extreme anxiety), with participants rating the average intensity of their private anxiety during six time periods – waking to 9.00, 9.00 to 12.00, 12.00 to 3.00, 3.00 to 6.00, 6.00 to 9.00, and 9.00 to bedtime. Scores for each time period were summed and divided by the number of periods (i.e., 6) to calculate a daily average. The data generated from the DARS were used to account for variability in the participants’ reported levels of anxiety during the baseline phase. A minimum of 8 data points are required for statistical time-series procedures (Tryon, 1982). As there were not enough data points obtained from the weekly standardised measures for time-series analysis of the participants’ baseline anxiety, the DARS was constructed especially for the present study as a daily quantitative measure of private ‘anxiety’ based on instructions for designing self-monitoring devices (Barlow et al., 1984). The use of such a measure has not been reported in BA research. The cues to self-rate anxiety were the time periods marked on the form. Anxiety was defined to participants as, “the co-occurrence of any two or more of the symptoms listed on the standardised measures that you have completed”. 
The Behaviour Self-Monitoring Diary (BSMD).

The BSMD (Appendix E) is a daily diary for recording minutes of activity during three time periods (waking to 12.00, 12.00 to 6.00, 6.00 to bedtime) under four categories of broad classes of overt behaviour (see Appendix F for operational definitions): 1) self and other (e.g., pet) care, 2) housekeeping, errands, and house maintenance, 3) paid or volunteer work, and 4) interests, hobbies and recreation (e.g., reading, education, visiting friends). Participants were instructed to record the time spent on a particular activity to the nearest 15 minute interval. They were also asked to record whether the reported activity was conducted inside or outside of the home and whether they were alone or with others at the time.

Participants were provided with a Step-Meter® Model Y-2026 pedometer with clear written and verbal operating instructions including a demonstration by the therapist. Participants were instructed to reset the pedometer each morning, wear it all day, and record the total daily distance travelled in their diaries in kilometres each night before bed. This provided a measure of overall daily physical activity that might be correlated with treatment outcomes (Strathopoulou, Powers, Berry, Smits, & Otto, 2006). Similar to the DARS, the BSMD was constructed especially for the present study based on previous instructions for designing self-monitoring devices (Barlow et al., 1984). Again, the use of such a measure has not been reported in BA research.

Therapist-Client Relationship Measure

Barrett-Lennard Relationship Inventory: Observer Form (OS-64; Barrett-Lennard, 1986).

The OS-64 is a 64-item self-report questionnaire which asks respondents to rate on a 6-point scale (-3, No (!), I strongly feel that it is not true, to +3, Yes (!), I strongly feel that it is true) aspects of a particular therapist/client relationship. Items include,
“He/she wants to understand how I see things”, “He/she cares for me”, “He/she expresses his/her true impressions and feelings with me”, and “He/she finds me rather dull and uninteresting”. Each of the 64-items corresponds with one of four scales: ‘level of regard’; ‘empathy’; ‘unconditionality’; and ‘congruence’. Total scores are obtained by summing the raw item scores. Administration is recommended after each three to six hours of therapy (Barrett-Lennard, 1986). Overall, and in relation to each total scale score the “level adequate in helping relationships” is a score of 50% or above the total possible obtained score (p. 456). According to Barrett-Lennard, who developed the scale from a person-centred, non-directive ‘Rogerian’ model of therapy, level of regard is defined as, “the composite ‘loading’ of the distinguishable feeling reactions of one person towards another, positive and negative, on a single abstract dimension” (p. 440). Empathy is “active and purposeful engagement with the other. The region or focus of this engagement….is the communication, experiencing and (felt) meanings of the other” (p. 442). Unconditionality is, “the extent that the regarding person’s response experientially implies that the recipient person is more or less pleasing, worthy, valued, trusted, liked or disliked if he or she manifests certain self-attributes than if or when he or she manifests others” (p. 443). Congruence is, “the degree to which one person is functionally integrated in the context of his relationship with another, such that there is absence of conflict or inconsistency between his total experience, his awareness, and his overt communication” (p. 444). According to Barrett-Lennard, these are the most important and influential variables within the therapeutic relationship that affect therapy outcomes.

Others too have claimed that variables such as these are significant predictors of treatment success regardless of the psychotherapy model applied (Horvath & Luborsky, 1993). However, relationship variables are typically not accounted for in cognitive and behavioural research (Lejuez et al., 2006). The purpose of assessing them in the present
study was to evaluate how participants rated the ‘therapist/client relationship’ during BATA which is a purely behavioural therapy, and whether the ratings co-varied with reported behaviour change across treatment sessions. This has never previously been reported in BA research.

The OS-64 has well-established psychometric properties and good reliability within the typical therapy setting with test-retest coefficients across the sub-scales typically exceeding .80 (Barrett-Lennard, 1986). In the present study, the OS-64 was administered during the treatment phase at 4 weeks, 8 weeks, and 12 weeks. The participants were required to complete the OS-64 between sessions and the questionnaires were left unscored until after the collection of the final administered OS-64 at week 12 and the participants were informed of this procedure. This was an attempt to control for any biased responses such as inflated ratings that might function to attract positive social reinforcement from the therapist during therapy.

**Treatment Integrity Measure**

Treatment integrity (TI; sometimes referred to as fidelity) is the degree to which treatments are implemented as planned. TI focuses on accuracy and consistency in the actual therapeutic model of intervention or technique being used (Peterson, Homer, & Wonderlich, 1982). Establishing TI strengthens possible conclusions regarding the effectiveness of the treatment. Data show that in psychotherapy research about 60% of reports ‘inadequately’ assess TI, 36% ‘approach adequate’, and only 3.5% ‘adequately’ assess TI (Perepetchikova et al., 2007). In a parallel area, 70% of all school-based experimental studies published in the *Journal of Applied Behavior Analysis* between 1991 and 2005 (n = 152) failed to provide TI data (McIntyre et al., 2007). When used, TI measures typically rely on subjective evaluations of ‘adherence’ and ‘competence’ with a rater using a Likert-type scale (e.g., 1 (‘none’) to 8 (‘excellent’). Even then they
may not include specific prescribed techniques such as BATD (Hopko et al., 2005), nor define techniques that characterise particular modes of practice (Hopko et al., 2005; Twohig et al., 2007). For example, the ACT for OCD rating scale has a single item relating to competence (Twohig et al., 2007). These measures are highly subjective and technically only provide ordinal data because the differences between the values are not clear.

Criteria have been proposed for assessing adherence and competency (Waltz, et al., 1993), yet psychotherapy researchers cite a lack of ‘conventional criteria’ as a barrier to establishing TI (Perepletchikova & Kazdin, 2005). Waltz et al. (1993) state that treatment adherence does not necessarily equate to therapist competence, yet current TI measures in some psychotherapy research provide only loose assessments of competency. For example, what is the difference beyond value assignment between a therapist who averages a 6.0 competency rating across treatment sessions compared to a therapist who averages 7.2? Is it really possible for any therapist to display “complete competence” (Hopko et al., 2005, p. 240)? Behar and Borkovec (2003) argue that adherence to the treatment protocol is most important in psychotherapy outcome research and recommended that TI should be based on adherence checks with clear and stringent criteria. Without a stringent assessment of TI, it is clear that evaluation results may vary widely because of variance in the therapeutic method, even when therapies bear the same label. It is possible that attempts to synthesise research findings in coherent statements are marred by significant variations in how treatments of the same name are actually delivered to clients. The present study included a measure of treatment integrity that was specifically developed for this study. It focused solely on the BA therapist’s verbal behaviour and his adherence to the BATA treatment model.
The Coded Recording System for Behavioural Activation Therapy Sessions (CRS-BATS).

The CRS-BATS (Appendix G) was designed as a measure of observed therapist verbal behaviour (TVB) during a BATA session. Applying partial interval time-sampling, the CRS-BATS required raters of a BATA session to listen to 20 sec intervals and classify TVB during that time period using coding sheets (Appendix H) that contained 24 discrete blocks of symbols matching the defined categories of TVB in the CRS-BATS. These categories were of TVB compatible or incompatible with BATA. The use of partial interval time-sampling with categories of ‘prescribed’ and ‘proscribed’ techniques is different from other attempts to establish treatment integrity in BATD (and ACT research) (Hopko et al., 2005; Towhig et al., 2007) because it provides a real-time ratio measurement of therapist behaviour. For example, in BATD (Hopko et al., 2005) the use of prescribed techniques by the therapist is simply rated on a subjective Likert-type scale accompanying technique labels (e.g., ‘psychoeducation’, ‘treatment rationale’, ‘life goal assessment’) without any definitions of the listed techniques. The use of proscribed techniques is identified by a single question, “Did the therapist use any techniques/skills not included in the manual for this session?”, and “If yes, please list”. It is not clear how this information could be quantified and included in an objective analysis of treatment integrity.

In the present study, 33.3% of the digital audio recordings of each participant’s treatment sessions were randomly selected for rating. The recordings were played-back on a Dell Dimension 3100™ desk-top computer. The raters would listen to 20 secs of audio and then play-back would be stopped. The raters would then independently code the TVB using the coding sheet. If a period of TVB was not able to be categorised according to the CRS-BATS (i.e., ‘unclassifiable’) it was recorded as being incompatible with the treatment modality. This would occur if the therapist and the
participants were observed to each speak for 10 secs of the 20 sec time interval or if the TVB was not able to be coded to any of the categories on the coding sheet. If participants were heard to speak for more than 10 secs of the 20 sec interval then a line would be placed through that interval and it would not be calculated as TVB. The CRS-BATS was constructed for the present study based on prior instructions for measuring treatment integrity (Waltz, et al., 1993) and behavioural recording methods (Sulzer-Azaroff & Mayer, 1991).

5.5 Data Analyses

The data were presented in standard graphical form for single-case experimental research (Kazdin, 1982). With self-monitoring data (DARS, BSMD) a visual aid was provided by superimposing a horizontal middle line, based on the phase median, across the baseline and treatment phases. This technique can improve the accuracy of visual inspection and interpretation of single-case data (Fisher, Kelley, & Lomas, 2003; Ma, 2006). To further improve the accuracy of the visual analysis, no-count rates (i.e., 0-mins) were omitted from the graphical display (White & Haring, 1980) but remained within the statistical analysis. Graphs were constructed using Microsoft Word ™ with techniques based on instructions for single-case designs previously reported in the Journal of Applied Behavior Analysis and The Behavior Analyst Today (Carr & Burkholder, 1998; Grehan & Moran, 2005).

Adjunctive non-parametric statistical analyses were applied to the data. A simplified time-series analysis (Jones, 2003; Tryon, 1982) based on Young’s C statistic (Young, 1941) was used to provide statistical analysis of phase A self-monitoring (DARS, BSMD) data and phases A/B/C weekly (BAI, DASS-21) self-report data. Essentially, the C statistic (calculated using Equation 1) compares the overall variability in the data set to the variability that occurs from data point to data point and thereby
identifies whether any systematic movement away from random variation (i.e., a trend) is evident in the data set.

\[ C = 1 - \frac{\sum_{i=1}^{n} (X_i - \bar{X}_i)^2}{2 \sum_{i=1}^{n} (X_i - M_i)^2} \]  

(1)

The ratio of the \( C \) statistic and the standard error produces a standardised score \((Z = C/Se)\) which is used to test for statistical significance. If \( n \) is greater than or equal to 8, the critical \( z \) value for the one-tailed .05 level of significance is 1.64. Equation 2 shows how the standard error of the \( C \) statistic is calculated.

\[ se_c = \sqrt{\frac{n-2}{(n-1)(n+1)}} \]  

(2)

The simplified time-series analysis has particular utility in applied single-case research because it may be applied to a time-series containing as few as 8 values. The time-series analyses were conducted using a program designed for Microsoft Excel™ based on the appropriate equations provided by Tryon (1982) and more recently by Jones (2003).

Baseline/treatment differences in self-monitored data from the DARS and the BSMD were assessed using the split-middle technique (Kazdin, 1982) which has been shown to enhance the accuracy of analysis in single-case research and reduce Type I and Type II error rates (Fisher, Kelley, & Lomas, 2003; Ma, 2006). The technique involves calculating the baseline median and, assuming the baseline data are stable, the null hypothesis is that if the treatment has no effect the data points will remain variable (i.e., 50%/50%) around the treatment median. Binomial testing is then employed to determine the significance of any change (Sheskin, 2000) with the test statistic transformed to a standardised score using the following equation: \( Z = (X/n - p)/\sqrt{pq/n} \). The percentage of treatment phase data points above or below may also be
interpreted as an effect size with scores of .9 and above indicating highly effective, .7 to .9 moderately effective, .5 to .7 mild or questionable, and below .5 considered ineffective (Ma, 2006). Binomial testing was conducted using SPSS ™ Version 11.5.

Treatment integrity was shown as the percentage of time the BATA therapist emitted verbal behaviour both compatible and incompatible with the prescribed treatment modality based on codings of the therapist’s verbal behaviour in 33.3% of each participant’s treatment sessions (see section 5.4 for description of the treatment integrity measure and assessment procedure). Inter-rater agreement was calculated by dividing the number of 20 sec intervals in which the raters agreed on the classification of therapist verbal behaviour (agreements) by the number of agreements plus disagreements and multiplying the result by 100% (Sulzer-Azaroff & Mayer, 1991, p. 65).
CHAPTER 6

CASE 1

6.1 Characteristics

“Jim” was a 63-year-old semi-retired male. At the time of his initial involvement in the study, Jim was receiving a disability pension due to structural physical complaints (back pain) and was engaged in casual paid and unpaid work as a trade assistant/handy man. Jim was living with his female partner of 2 years. He was once married and divorced, and had no children. Jim was a home-owner and lived in an average size home in a northern metropolitan suburb of Perth, Western Australia.

6.2 Intake assessment

At intake, Jim reported having experienced clinical features of anxiety including agitation, an inability to relax, muscle tension, fear of social embarrassment and humiliation, and intense self-attending (“I always feel that people are looking at me”) typically in social contexts. He also reported generalised aspects of anxiety, including persistent, excessive and uncontrollable worry about a number of areas in his everyday life, including personal health, finances, interpersonal relationships, and work (“I worry whether everything will be alright”). Jim reported irregular though longstanding experiences of sudden and reportedly un-cued ‘panic attacks’. He said that the onset of these symptoms occurred subsequent to a traumatic childhood experience and had strengthened throughout adulthood with occasional, though repeated, episodes of depression and alcohol misuse. Jim stated that anxiety had significantly impacted on his life (“It’s interfered with my life in every direction”) especially in the areas of personal-relationships and employment. He reported that after a brief marriage in his 30s he had “walked-out on” his wife because he “couldn’t handle the hurt of feeling the way I did and staying with her”. He had spent the majority of his working life in manual trade
occupations that required little social interaction such as brick-laying. He reported that typically he would avoid all social occasions that required his verbal interactions with others, including his family members. These occasions included family gatherings, speaking on the telephone and public speaking. Jim stated, “All my life I’ve knocked back (social) invites here, there and everywhere”, and said he would promptly escape from many social situations at the earliest signs of anxiety. Jim reported his private that his private “worry behaviour” included patterns of chronic procrastination, with a large amount of time spent ruminating, planning, and making lists in relation to anticipated problems – mostly with unproductive outcomes. Jim stated that he was briefly admitted to a psychiatric hospital at age 27 due to a “nervous breakdown”. Sporadic engagement with GP services had occurred from age 17 subsequent to his experiencing episodes of panic. Thereafter, Jim had a history of occasional anti-depressant medication use though no current use was reported. Jim reported that generally he was in average physical health, and was a non-smoker and consumed 2 to 3 standard drinks of alcohol per week. Jim reported that he had been receiving ongoing medication treatment (Alprazolam® 1.25 mgs/daily) for anxiety from his General Practitioner (GP) for four years, and had been attending a weekly community-based support group for sufferers of a variety of mental illnesses for approximately eight years. He continued his medication routine (unchanged dosage and frequency) and attending his weekly meetings with his support group throughout the treatment phases.

Based on his responses to the semi-structured interview (SCID-I; First et al., 1997), Jim fulfilled DSM-IV-TR (APA, 2000) criteria for 300.23 Social Anxiety Disorder (SAD) and 300.02 Generalised Anxiety Disorder (GAD). At intake, Jim scored 31 on the BAI (severe; Beck & Steer, 1993), 8 on the DASS-21 depression scale (normal), 26 on the DASS-21 anxiety scale (extremely severe), and 26 on the DASS-21 stress scale (severe) (Lovibond & Lovibond, 1995).
6.3 Anxiety-Related Outcomes

Figure 6.1. Case 1: BAI raw scores at baseline, treatment, and maintenance phases.

Note: Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.

Figure 6.2. Case 1: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. Note: Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.
Figure 6.3. Case 1: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.

Figure 6.4. Case 1: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.
Jim’s BAI raw scores are presented in Figure 6.1. Analysis of the scores across phases confirmed a downward trend, $Z = 3.22$, $p < .001$. This change is clinically significant because Jim’s scores moved from above the mean for individuals with SAD ($M = 17.77$) and GAD ($M = 18.83$) to within the range of the non-clinical population (Beck & Steer, 1993). Figure 6.2 shows Jim’s DASS-21 Depression raw scores through all phases. Analysis confirmed a downward trend, $Z = 2.62$, $p < .01$. Figure 6.3 shows Jim’s DASS-21 Anxiety raw scores. Analysis confirmed a downward trend, $Z = 2.62$, $p < .01$. This change is clinically significant because Jim’s scores moved from above the mean for individuals with SAD ($M = 11.66$) and GAD ($M = 11.34$) to within the range of the non-clinical population (Brown, Chorpita, Korotitsch, & Barlow, 1997). Figure 6.4 shows Jim’s DASS-21 Stress raw scores. Analysis confirmed a downward trend, $Z = 2.93$, $p < .01$. This change is clinically significant because Jim’s scores moved from above the mean for individuals with SAD ($M = 17.73$) and GAD ($M = 22.36$) to within the range of the non-clinical population (Brown et al., 1997).

### 6.4 Self-Monitored Anxiety and Activity Outcomes

![Case 1: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.](image)

*Figure 6.5. Case 1: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.*
Jim’s DARS scores are presented in Figure 6.5. Jim completed a 16 day baseline. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.34, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in daily anxiety with 83% of scores below the baseline median point, $Z = 6.11, p < .001$. This represents a mean decrease during treatment of 4.8 points (14.5%) in Jim’s DARS scores.

![Graph of Minutes Spent on Self and Other Care](image)

**Figure 6.6.** Case 1: Minutes spent per day on Self- and Other-Care across baseline and treatment phases.

Jim’s self- and other-care data across baseline and treatment phases are presented in Figure 6.6. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.060, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time Jim spent on self- and other-care with 96% of scores above the baseline median point, $Z = 8.51, p < .001$. This represents a mean increase during the treatment phase of 39 minutes (30%) per day.
Jim’s Housework and Errands data across baseline and treatment phases are presented in Figure 6.7. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.022, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time Jim spent on housework and errands with 62% of data above the baseline median point, $Z = 2.22, p < .05$. This represents a mean increase during the treatment phase of 16 minutes (11%) per day.

Figure 6.8. Case 1: Minutes spent per day on Paid and Unpaid Work across baseline and treatment phases.
Jim’s Paid and Unpaid Work data across baseline and treatment phases are presented in Figure 6.8 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.137, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the amount of time Jim spent on paid or unpaid work with 76% of data below the baseline median point, $Z = 4.81, p < .001$. This represents a mean decrease during the treatment phase of 91 minutes (41%) per day.

![Figure 6.9](image)

*Figure 6.9. Case 1: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.*

Jim’s Interests, Hobbies, and Recreation data are presented in Figure 6.9. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.50, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time Jim spent on interests, hobbies and recreation with 54% of data below the baseline median point, $Z = 0.74, p > .05$. This represents a mean decrease during the treatment phase of 16 minutes (4%) per day.
Figure 6.10. Case 1: Minutes spent per day Out of the Home across baseline and treatment phases.

Jim’s Out of the Home data across phases are presented in Figure 6.10. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.71, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the minutes Jim spent out of the home with 71% of data above the baseline median point, $Z = 3.88, p < .001$. This was a mean increase during the treatment phase of 43 minutes (14%) per day.

Figure 6.11. Case 1: Minutes spent per day Out of the Home with Others across baseline and treatment phases.
Jim’s Out of Home with Others data across baseline and treatment phases are presented in Figure 6.11 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.46, p > .05 \). Compared to baseline, there was a significant increase during the treatment phase in the amount of time Jim spent out of the home with others with 62% of data above the baseline median point, \( Z = 2.22, p < .05 \). This represents a mean increase during the treatment phase of 57 minutes (30%) per day.

![Figure 6.12. Case 1: Distance Walked per day across baseline and treatment phases.](image)

Jim’s Distance Walked per day data across baseline and treatment phases are presented in Figure 6.12. Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.22, p > .05 \). Compared to baseline, there was a significant decrease during the treatment phase in the daily distance that Jim walked with 75% of data below the baseline median point, \( Z = 4.62, p < .001 \). This represents a mean decrease during the treatment phase of 356 meters (12.5%) per day.
6.5 Therapist/Client Relationship

Figure 6.13. Case 1: OS-64 Assessment of Therapy Relationship Variables across the treatment phase.

Jim’s total scale scores across the treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 6.13. Total raw scale scores were converted to a percentage to aid visual analysis. The OS-64 was administered at 4, 8, and 12 week periods during treatment. Analysis shows that the level of regard and congruence scores remained relatively stable across the repeated measurements with an absence of any definitive trends. From week 4 to week 12 there was a 16.7% increase in the rated amount of empathy within the therapist’s approach, and a 22.9% decrease in the rated amount of unconditionality across the same period.

6.6 Behavioural Cusps

Although more difficult to quantify, the participant engaged in activities which could qualify as behavioural cusps when formal activity scheduling commenced at week 3. Activity examples for Jim include him phoning an estranged sibling, attending a medical check-up, organising and attending lunch with his partner, regular dog walking,
celebrating a birthday with family and friends, resolving a long-standing pension-related matter, and reconciling his relationship with a cancer-stricken long-time friend. Engagement in these activities occurred within the context of treatment and were potentially important for the participant’s expanding repertoire of clinically ‘healthy’ behaviours. In this particular case, Jim commenced activity scheduling following the third week of treatment (week 5/day 37) and large decreases across anxiety-related measures are clearly identifiable at that point. When asked at 3-month follow-up to identify the behaviour change which was most important to him during treatment, Jim’s verbal response was “When I began accepting invitations from my family and friends”. This action in retrospect may have proven to have been a ‘cusp’ behaviour.

6.7 Treatment Integrity

All of Jim’s treatment sessions were audio-recorded and 33.3% ($n = 4$) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 93.75% across scored sessions with 97.5% of therapist in-session behaviour compatible and 2.5% incompatible with the treatment modality (BATA). Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

6.8 Post-Treatment Diagnosis

At the end of the treatment phase, Jim reported a significant and consistent decrease in his everyday stress and anxiety levels especially within social contexts. He reported that his worry behaviour had substantially diminished and that he was functioning well in the major areas of his life. After treatment, Jim no longer met DSM-IV criteria for Social Anxiety Disorder and Generalised Anxiety Disorder and this maintained for 3 months indicating that the changes in his behaviour were robust and maintained without contact with therapy.
CHAPTER 7

CASE 2

7.1 Characteristics

“Susan” was a 70-year-old female and a retired school-teacher. At the time of her initial involvement in the study, she was receiving an aged-pension and was engaged in casual unpaid work within her local church organisation in a counselling-type role. Susan was living alone with her husband in an average size home in a southern metropolitan suburb of Perth, Western Australia. She had four adult children.

7.2 Intake assessment

At intake, Susan reported often feeling tense, restless, stressed and irritable. She reported excessive worry, often uncontrollable, regarding general areas of her life, such as her own and her family’s health, interpersonal relationships, household responsibilities, and finances. According to Susan, she often felt tired from worry and stress, was beginning to experience difficulties in concentrating on tasks, and was increasingly concerned about her level of anxiety (“Am I going to become one of those (anxious) people”). In addition, Susan reported having developed two specific fears that she was often worried about: 1) being bitten or knocked down by a dog; and, 2) falling over when walking. Susan also stated that she had experienced irregular panic attacks in the past (“I always think – is this going to happen again?”). She reported that the onset of the general symptoms occurred subsequent to her retirement at age 65, and that the more specific fears of falling and being harmed by a dog had developed subsequent to major knee surgery she had had 18-months prior to her involvement in the study. Susan stated that her anxiety was beginning to significantly impact on her day to day life and that, although she believed “it hasn’t gotten out of hand quite yet”, she wanted treatment before “it got any worse”. In terms of overt behaviour, she reported that typically she
would avoid many occasions that required ambulatory behaviour. These occasions included walking, going to places where stairs might need to be used (e.g., shopping centres), and attending social events that involved conditions she believed increased the likelihood of a fall especially when they took place at night, outdoors, or on ‘uneven ground’. Susan stated, “I often take the easy option” in relation to her avoidance of these conditions. She reported having ceased regular walking near home because of the close proximity to parks, where “dogs are often bouncing around off their leads”. She had even restricted her visits by car to these and other parks visited by dogs and their owners. Susan reported she engaged in behaviour to facilitate escape from situations in the event of a panic attack, such as deliberately sitting in the aisle-seat at movies and sitting near the exits at church.

Susan reported never having experienced, nor having required treatment for psychological problems until relatively recently. She stated her present condition was “something new”. She stated she was in good physical health other than her ongoing requirement to rehabilitate her knee subsequent to surgery. She reported that she was not using any psychopharmacological medication or other substances, and consumed an average of 2 to 3 standard alcoholic drinks per week.

Based on her responses to the semi-structured interview (SCID-I; First et al., 1997), Susan fulfilled DSM-IV-TR (APA, 2000) criteria for 300.02 Generalised Anxiety Disorder (GAD). At intake, Susan scored 14 on the BAI (mild; Beck & Steer, 1993), 6 on the DASS-21 Depression scale (normal), 16 on the DASS-21 Anxiety scale (severe), and 18 on the DASS-21 Stress scale (mild) (Lovibond & Lovibond, 1995).
7.3 Anxiety-Related Outcomes

![Graph showing Beck Anxiety Inventory raw scores for Case 2]

**Figure 7.1.** Case 2: BAI raw scores at baseline, treatment, and maintenance phases.

*Note:* Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.

![Graph showing DASS-21 Depression raw scores for Case 2]

**Figure 7.2.** Case 2: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.
Figure 7.3. Case 2: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. Note: Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.

Figure 7.4. Case 2: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. Note: Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.
Susan’s BAI scores are presented in Figure 7.1. Time-series analysis of Susan’s BAI raw scores through all phases revealed evidence of a downward trend within the data, $Z = 3.72, p < .001$. Figures 7.2, 7.3 and 7.4 show DASS-21 scores through all phases. Analysis of Susan’s DASS-21 raw scores confirmed the presence of a downward trend for Depression scores, $Z = 4.17, p < .001$, Anxiety scores, $Z = 1.84, p < .05$, and Stress scores, $Z = 3.86, p < .001$. The change in DASS-21 Anxiety is clinically significant because Susan’s scores moved from above the mean for individuals with GAD ($M = 11.34$; Brown et al., 1997) to within the range of the non-clinical population.

### 7.4 Self-Monitored Anxiety and Activity Outcomes

![Daily Anxiety Rating Scale Raw Scores](image)

*Figure 7.5. Case 2: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.*

Susan’s DARS scores across phases are presented in Figure 7.5. Susan completed a 21 day baseline. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.11, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in self-monitored anxiety with 81% of scores below the baseline median point, $Z = 5.74, p < .001$. This represents a mean decrease during the treatment phase of 2.1 points (14%) in Susan’s DARS scores.
Figure 7.6. Case 2: Minutes spent per day on Self- and Other-Care across baseline and treatment phases.

Susan’s self- and other-care data across phases are presented in Figure 7.6. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.20, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the amount of time spent on self- and other-care with 77% of scores below the baseline median point, $Z = 5.00, p < .001$. This represents a mean decrease during the treatment phase of 19 minutes (10.8%) per day.

Figure 7.7. Case 2: Minutes spent per day on Housekeeping and Errands across baseline and treatment phases.
Susan’s Housekeeping and Errands data across baseline and treatment phases are presented in Figure 7.7. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.93, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time Susan spent on housekeeping etc. with 54% of data below the baseline median point, $Z = 0.74, p > .05$. This represents a mean increase during the treatment phase of 22 minutes (10%) per day.

![Figure 7.8. Case 2: Minutes spent per day on Paid and Unpaid Work across baseline and treatment phases.](image)

Susan’s Paid and Unpaid Work data across baseline and treatment phases are presented in Figure 7.8 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.20, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the amount of time Susan spent on paid or un-paid work with 88% of data below the baseline median point, $Z = 7.00, p < .001$. This represents a mean decrease during the treatment phase of 35 minutes (78%) per day.
Figure 7.9. Case 2: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.

Susan’s Interests, Hobbies, and Recreation data across phases are presented in Figure 7.9. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.45, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time spent on interests, hobbies and recreation with 77% of data above the baseline median point, $Z = 5.40, p < .001$. This represents a mean increase during the treatment phase of 94 minutes (25%) per day.

Figure 7.10. Case 2: Minutes spent per day Out of the Home across baseline and treatment phases.
Susan’s Out of the Home data across baseline and treatment phases are presented in Figure 7.10. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.02, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time Susan spent out of the home with 68% of data above the baseline median point, $Z = 3.33, p < .001$. This represents a mean increase during the treatment phase of 43 minutes (14%) per day.

![Minutes Spent Out of the Home with Others across baseline and treatment phases.](image)

**Figure 7.11.** Case 2: Minutes spent per day Out of the Home with Others across baseline and treatment phases.

Susan’s Out of Home with Others data across baseline and treatment phases are presented in Figure 7.11 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.66, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time she spent out of the home with others with 62% of data above the baseline median point, $Z = 2.22, p < .05$. This represents a mean increase during the treatment phase of 56 minutes (22%) per day.
Figure 7.12. Case 2: Distance Walked per day across baseline and treatment phases.

Susan’s Distance Walked per day data across phases are presented in Figure 7.12. Analysis of the baseline phase showed an absence of trend within the data, $Z = 1.18, p > .05$. Compared to baseline, there was a significant increase during treatment in the daily distance that she walked with 63% of data above the baseline median point, $Z = 2.40, p < .05$. This represents a mean increase during treatment of 274 meters (14%) per day.

7.5 Therapist/Client Relationship

Figure 7.13. Case 2: OS-64 Assessment of Therapy Relationship Variables across the treatment phase.
Susan’s total scale scores across the treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 7.13. Total raw scale scores were converted to a percentage to aid visual analysis. The OS-64 was administered at 4, 8, and 12 week periods during treatment. Analysis shows that unconditionality and congruence scores remained stable across the repeated measurements with an absence of any definitive trends. From week 4 to week 12 there was a 16.7% increase in the rated amount of empathy with the therapist, a 6.25% decrease in the amount of level of regard, and a 6.2% decrease in the amount of congruence across the same period.

7.6 Behavioural Cusps

Susan engaged in activities which could qualify as behavioural cusps when formal activity scheduling commenced following the third week of treatment (week 7/day 42). Activity examples included recreational walking, visiting her children, hosting friends for dinner, exercising in the local swimming-pool, baby-sitting grandchildren, attending medical appointments, gardening, writing, reading, sending a difficult personal letter to a close friend, and attending her grandchildren’s school functions including school plays. Her engagement in these activities occurred within the context of treatment and was potentially important in relation to changes in her clinically ‘healthy’ behaviours. When asked at 3-month follow-up to identify the behaviour change which was most important over the course of treatment, Susan’s verbal response was, “When I started to do things and go places without worrying about falling”. This activity, in retrospect, may have proven to be a ‘cusp’ behaviour.
7.7 Treatment Integrity

All of Susan’s treatment sessions were audio-recorded and 33.3% \( (n = 4) \) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 93.5% across scored sessions with 88.9% of therapist verbal behaviour compatible and 11.1% incompatible with the treatment modality. Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

7.8 Post-Treatment Diagnosis

At the completion of the treatment phase, Susan reported a significant and consistent decrease in her everyday stress and anxiety. She was experiencing substantially less worry and she had a significant decrease in her fear response to activities that involved walking. She believed she was functioning well in the major areas of her life. Thus, subsequent to treatment, Susan no longer fulfilled DSM-IV criteria for Generalised Anxiety Disorder and this maintained for 3 months indicating that the changes in her behaviour were maintained without contact with therapy.
CHAPTER 8
CASE 3

8.1 Characteristics

“Jason” was a 38-year-old male. At the time of his initial involvement in the study, he was receiving a disability pension due to chronic mental health problems and had been unemployed for a number of years. He was living with his long-term female partner who also was unemployed and received a benefit to care for Jason. Jason and his partner were living in an average size home in a southern metropolitan suburb of Perth, Western Australia.

8.2 Intake assessment

At intake, Jason reported having experienced physical signs of anxiety including an accelerated heart beat, hot flashes, sweating, shaky hands, fast breathing, and feeling fidgety. This occurred in company and when he was alone. He reported excessive worry, often uncontrollable, regarding his future performance on various mundane tasks such as servicing his car, answering the phone, doing the weekly grocery shopping, and about past his performances. He said, “I always feel everything is going to go wrong”. He also reported that he often worried about his health and relationships and whether he would find suitable employment. According to Jason, he tended to “over-react” in everyday situations and that daily obstacles and challenges, including food shopping and everyday social interactions, tended to “set him off”. Jason reported he often observed distressing and unwanted thoughts in the form of internal verbal statements including, “I’m not good enough”, “I’m a waste of space”, and “I’m not like other people”. These typically occurred in social situations. He reported observing images of himself becoming contaminated and ill following physical contact with things in his environment such as dogs, ashtrays, fences, doors, and toilets. He reported worrying
about whether household appliances were switched off and that he had images of significant harm occurring to those close to him due to his negligence.

According to Jason, he would attempt to manage his daily discomfort by engaging in certain activities such as checking doors, locks, appliances, washing his hands, and “chanting to himself”. He stated that in the past he had washed his hands to the point where they became “sometimes red raw, bleeding, and cut”. He had recently started using antiseptic hand-gel which he claimed reduced the physical consequences of excessive hand washing. Jason reported certain routines he had been conducting before he went to bed at night and before leaving the house, including systematically checking ashtrays, locks on doors, appliances, and taps – often up to 40 cycles on every occasion. He stated this often caused lengthy time delays, disrupted his plans for the day, and led to conflict with his partner. He spent the majority of his time indoors at home, and either alone or with his partner. He said he mostly left the house to walk his dog or buy food with occasional social visits. When invitations to social engagements occurred he would agree to attend and then became “preoccupied by negative thinking about the event”. Subsequently, he would avoid most social activities. In social contexts he would often engage in ‘positive’ and repetitive self-talk saying, “I’m a good person”, and construct statements about the intentions of others, or focus his attention on aspects of his private responses such as how he was breathing. Jason reported that his anxiety had developed to the point where, “I don’t want to go anywhere”. He stated, “In a way I do want to go, but at the same time I’m so anxious about going”.

Jason reported an adult history of chronic psychological problems including major depression, anxiety, and occasional psychotic features including hallucinations and delusions beginning at around age 18. He claimed these problems peaked in their severity 4 years prior to his involvement in the present study when he was hospitalised for what he labelled as “a breakdown”. He said he had received various treatments
including cognitive behavioural therapy, electroconvulsive therapy, supportive
counselling, and medication. He also had read several “self-help” books for anxiety and
depression. At the time of intake, Jason reported having been receiving
psychopharmacological treatment during the previous 4 years (Clomipramine® 75
mgs/daily; Alprazolam® 2 mgs/daily). This was ongoing and unchanged through his
involvement in the present study. Jason reported daily nicotine smoking (approximately
40 cigarettes per day) and he consumed 1 to 2 standard drinks of alcohol per day.

Based on his responses to the semi-structured interview (SCID-I; First et al.,
1997), Jason fulfilled DSM-IV-TR (APA, 2000) criteria for 300.3 Obsessive-
Compulsive Disorder. At intake, Jason scored 31 on the BAI (severe; Beck & Steer,
1993), 24 on the DASS-21 Depression scale (severe), 30 on the DASS-21 Anxiety scale
(extremely severe), and 34 on the DASS-21 Stress scale (extremely severe) (Lovibond
& Lovibond, 1995).

8.3 Anxiety-Related Outcomes

![Graph showing Beck Anxiety Inventory raw scores at baseline, treatment, and maintenance phases.]

*Figure 8.1. Case 3: BAI raw scores at baseline, treatment, and maintenance phases.*

*Note:* Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.
Figure 8.2. Case 3: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. Note: Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.

Figure 8.3. Case 3: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. Note: Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.
Figure 8.4. Case 3 DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. Note. Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.

Jason’s BAI scores are presented in Figure 8.1. Time-series analysis of Jason’s BAI raw scores revealed an upward trend within the data through phases, $Z = 1.77, p < .05$. This change is not clinically significant because Jason’s scores remained above the mean expected for individuals with obsessive-compulsive disorder (OCD) ($M = 21.96$; Beck & Steer, 1993). Jason’s DASS-21 raw scores are presented in Figures 8.2, 8.3, and 8.4. Analysis of Jason’s DASS-21 raw scores confirmed the presence of an upward trend for depression scores, $Z = 3.35, p < .001$, an absence of trend for anxiety scores, $Z = 0.02, p > .05$, and an absence of trend for stress scores, $Z = 1.44, p > .05$. The change in DASS-21 depression is not clinically significant because Jason’s scores remained above the mean expected for individuals with OCD ($M = 16.45$; Brown et al., 1997).
8.4 Self-Monitored Anxiety and Activity Outcomes

Figure 8.5. Case 3: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.

Jason’s DARS scores across baseline and treatment phases are presented in Figure 8.5. Jason completed a 28 day baseline. Baseline analysis revealed an absence of trend within the data, $Z = 1.60, p > .05$. Compared to baseline, there was no significant change during treatment in self-monitored daily anxiety with 59% of scores above the baseline median point, $Z = 1.08, p > .05$. This represents a small mean increase during treatment of 1 point (2.5%).

Figure 8.6. Case 3: Minutes spent per day on Self- and Other-Care across baseline and treatment phases.
Jason’s Self- and Other-Care data across baseline and treatment phases are presented in Figure 8.6. Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.20, p > .05 \). Compared to baseline, there was a significant increase during the treatment phase in the amount of time Jason spent on self- and-other care with 81\% of scores above the baseline median point, \( Z = 3.73, p < .001 \). This represents a mean increase during the treatment phase of 63 minutes (26.4\%) per day.

**Note:** Jason’s Paid and Unpaid Work data are not presented due to absolute zero count rates across baseline and treatment phases.

![Chart showing minutes spent per day on housework and errands across baseline and treatment phases.](image)

**Figure 8.7.** Case 3: Minutes spent per day on Housework and Errands across baseline and treatment phases.

Jason’s Housework and Errands data across baseline and treatment phases are presented in Figure 8.7. Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 1.53, p > .05 \). Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent on housework and errands with 59\% of data above the baseline median point, \( Z = 1.08, p > .05 \). This represents a mean decrease during the treatment phase of 18 minutes (7\%) per day.
Figure 8.8. Case 3: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.

Jason’s Interests, Hobbies, and Recreation data across phases are presented in Figure 8.8. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.43, p > .05$. Compared to baseline, there was a significant decrease during treatment in the amount of time he spent on interests etc. with 84% of data below the baseline median point, $Z = 4.09, p < .001$. This represents a mean decrease during the treatment phase of 85 minutes (19%) per day.

Figure 8.9. Case 3: Minutes spent per day Out of the Home across baseline and treatment phases.
Jason’s Out of the Home data across baseline and treatment phases are presented in Figure 8.9. Analysis of the baseline phase revealed an upward trend within the data, $Z = 3.47, p < .001$. Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent out of the home with 62% of data above the baseline median point, $Z = 1.44, p > .05$. This represents a mean decrease during the treatment phase of 54 minutes (15%) per day.

![Figure 8.9](image_url)

**Figure 8.9.** Case 3: Minutes spent per day Out of the Home With Others across baseline and treatment phases.

Jason’s Out of Home With Others data across baseline and treatment phases are presented in Figure 8.10. Analysis of the baseline phase revealed an upward trend within the data, $Z = 3.35, p < .001$. Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent out of the home with others with 62% of data above the baseline median point, $Z = 1.44, p < .05$. This represents a mean decrease during the treatment phase of 79 minutes (27%) per day.
Figure 8.11. Case 3: Distance Walked per day across baseline and treatment phases.

Jason’s Distance Walked per day data across phases are presented in Figure 8.11. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.14, p > .05$. Compared to baseline, there was a significant decrease during treatment in the daily distance walked with 84% of data below the baseline median point, $Z = 4.09, p < .001$. This represents a mean decrease during treatment of 672 meters (16%) per day.

8.5 Therapist/Client Relationship

Figure 8.12. Case 3: OS-64 Assessment of Therapy Relationship Variables across the treatment phase.
Jason’s total scale scores across the (partial) treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 8.12. Total raw scale scores were converted to a percentage to aid visual analysis. Due to Jason’s withdrawal from the study, the OS-64 was only administered at 4 and 8 week periods during treatment. Analysis shows the level of regard, empathy, and unconditionality scores remained stable. However, from week 4 to week 8 there was a 20.85% decrease in the amount of congruence within the therapist’s approach according to Jason. Congruence is, “the degree to which one person is functionally integrated in the context of his relationship with another, such that there is absence of conflict or inconsistency between his total experience, his awareness, and his overt communication” (Barrett-Lennard, 1986, p. 444).

8.6 Behavioural Cusps

Jason engaged in activities which could qualify as behavioural cusps when formal activity scheduling commenced following the third week of treatment (week 8/day 49). Activity examples included regular pet walking, home-based maintenance including cleaning the fish-pond, mowing lawn, and washing the car. He also attempted to engage in job-seeking activities. Jason visited his parents, went to the movies, and listened to ‘calming’ music. During this period, Jason typically reported he was ineffective at generating and verbally stating the activities he planned to engage in and that he often was unable to initiate and maintain engagement in scheduled activities. Figures 8.1 and 8.2 show an increase in self-reported anxiety around the period when Jason was initially prompted by the therapist to increase his engagement in meaningful activity. Due to Jason’s withdrawal from the study subsequent to treatment session 10 there was no opportunity to ask Jason to report whether engagement in any particular activity was observed by him as important to his mental-health status.
8.7 Treatment Integrity

All of Jason’s treatment sessions were audio-recorded and 30% ($n = 3$) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 93.8% across scored sessions with 86.5% of therapist verbal behaviour compatible and 13.5% incompatible with the treatment modality. Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

8.8 Post-Treatment Diagnosis

Jason withdrew from the study between weeks 10 and 11 of the treatment phase. He stated that there had been no change in his anxiety-related behaviour and that he was continuing to experience the same problems of agitation, stress, distressing thoughts, and repetitive behaviours that he had reported at the time of the intake assessment. Jason continued to fulfil the DSM-IV criteria for Obsessive-Compulsive Disorder at that time point.
9.1 Characteristics

“Frank” was a 51-year-old male. At the time of his initial involvement in the study, Frank was employed as a university lecturer, artist, art teacher, and as manager of an art gallery. He was also engaged in post-graduate study at the doctoral level. He was living alone in an average-sized house in a southern metropolitan suburb of Perth, Western Australia, and he had a partner of 1 year. Frank had been twice married and divorced and had two adult children.

9.2 Intake assessment

At intake, Frank reported experiencing chronic “anxiety” and that it had been a “very physical thing”. He reported having observed abdominal discomfort, tightness in the throat area, hot flushes, sweating, and rapid breathing. He stated, “I just feel anxious all the time and I don’t know why”. Frank also reported that when anxious his “mind would be racing” and he would often experience confusion. Also, according to Frank his distress would intensify when he engaged in active worry about his anxiety. He said, “I always wonder will I always be this way”. According to Frank, there were two broad contexts which typically occasioned his anxiety. Firstly, in social situations where there was an expectation on him to perform including lecturing and meeting people for the first time, and everyday social situations including using public transport and making retail purchases. Frank reported that “basically at an underlying level I’m anxious about all social situations”. Secondly, Frank stated that his anxiety was often preceded by the occurrence of everyday events that required him to complete some type of chore, such as paying bills, vehicle refuelling and house cleaning, and that he found these regular day to day tasks particularly aversive as they were, “a complete waste of time”.
In addition, Frank reported that he often engaged in worry about his relationships, work, and his long-term life direction. For example, he stated that he had, “lost who I really am” and, “if I worked out what I wanted to do with my life maybe I wouldn’t feel so anxious”.

According to Frank, he would often engage in various strategies in order to avoid experiencing anxiety or to minimise anxiety if it occurred. Examples included controlling his breathing in social situations and when lecturing, mentally rehearsing scripted responses to use in social situations when making purchases, delaying engagement with everyday tasks (like house cleaning and gardening), procrastinating by substituting the reading of books related to his doctorate for writing his doctorate, and avoiding certain social responsibilities including important discussions with his partner and addressing conflict at work. Frank reported regular patterns of behaviour such as staying up late watching television and ‘surfing’ the internet which consumed large amounts of his time and resulted in his self-described “zoning-out”.

Frank reported an adult history of infrequent but persistent psychological problems including major depression and anxiety. He reported having first experienced anxiety around age 11, and that he had been hospitalised a number of times in his adult life due to depression-related behaviour. Frank reported he had engaged in various forms of therapy, including supportive counselling, cognitive-behavioural therapy, and psychiatric counselling with medication. At the time of intake, he reported having been taking Avanza® 30mgs daily which is an anti-depressant medication. This had been ongoing during the previous 2 years and was unchanged and continued through his involvement in the study. Frank was a non-(nicotine) smoker and he reported consuming 3 to 4 standard drinks of alcohol per day with occasional cannabis use. He reported his physical health as “ok” but stated he had a sedentary lifestyle.
Based on his responses to the semi-structured interview (SCID-I; First et al., 1997), Frank fulfilled DSM-IV-TR (APA, 2000) criteria for 300.23 Social Anxiety Disorder (SAD; generalised) and 300.02 Generalised Anxiety Disorder (GAD). At intake, he scored 20 on the BAI (moderate; Beck & Steer, 1993), 10 on the DASS-21 Depression scale (mild), 16 on the DASS-21 Anxiety scale (severe), and 24 on the DASS-21 Stress scale (moderate) (Lovibond & Lovibond, 1995).

9.3 Anxiety-Related Outcomes

![Beck Anxiety Inventory Raw Scores](image)

*Figure 9.1. Case 4: BAI raw scores at baseline, treatment, and maintenance phases.*

*Note: Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.*
Figure 9.2. Case 4: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. Note: Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.

Figure 9.3. Case 4: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. Note: Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.
Figure 9.4. Case 4: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. Note: Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.

Frank’s BAI scores are presented in Figure 9.1. Time-series analysis of Frank’s BAI raw scores through all phases revealed evidence of a downward trend within the data, $Z = 4.22$, $p < .001$. This change is clinically significant because Frank’s scores moved from above the means for individuals with SAD ($M = 17.77$; Beck & Steer, 1993) and GAD ($M = 18.83$; Beck & Steer, 1993) to within the range of the non-clinical population.

Analysis of Frank’s DASS-21 raw scores confirmed the presence of a downward trend within Depression scores, $Z = 3.45$, $p < .001$, Anxiety scores, $Z = 3.85$, $p < .001$, and Stress scores, $Z = 3.74$, $p < .001$. Figures 9.2, 9.3 and 9.4 show DASS-21 scores through all phases. The change in the DASS-21 Stress Scale score is clinically significant because his scores moved from above the means for individuals with SAD ($M = 16.57$; Antony et al., 1998) and GAD ($M = 22.36$; Brown et al., 1997) to within the range of the non-clinical population.
9.4 Self-Monitored Anxiety and Activity Outcomes

*Figure 9.5. Case 4: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.*

Frank’s DARS scores are presented in Figure 9.5. Frank completed a 28 day baseline. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.68$, $p > .05$. Compared to baseline, there was a significant decrease during treatment in daily anxiety with 77% of scores below the baseline median point, $Z = 5.00$, $p < .001$. This represents a mean decrease during the treatment phase of 8 points (18%) in his DARS scores.

*Figure 6.6. Case 4: Minutes spent per day on Self- and Other-Care across baseline and treatment phases.*
Frank’s Self- and Other-Care data across baseline and treatment phases are presented in Figure 9.6. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.60, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time Frank spent on self- and other-care with 82% of scores above the baseline median point, $Z = 5.92, p < .001$. This represents a mean increase during the treatment phase of 11 minutes (27%) per day.

![Graph](image)

**Figure 9.7.** Case 4: Minutes spent per day on Housekeeping and Errands across baseline and treatment phases.

Frank’s Housekeeping and Errands data across baseline and treatment phases are presented in Figure 9.7 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.22, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent on housekeeping and errands with 52% of data above the baseline median point, $Z = 0.37, p > .05$. This represents a mean increase during the treatment phase of 37.5 minutes (166%) per day.
Figure 9.8. Case 4: Minutes spent per day on Paid and Unpaid Work across baseline and treatment phases.

Frank’s Paid and Unpaid Work data across phases are presented in Figure 9.8 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.04$, $p > .05$. Compared to baseline, there was a significant decrease during treatment in the amount of time Frank spent on paid or un-paid work with 70% of data including zero rates, below the baseline median point, $Z = 3.70$, $p < .001$. This represents a mean decrease during treatment of 97 minutes (25%) per day.

Figure 9.9. Case 4: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.
Frank’s Interests, Hobbies, and Recreation data across baseline and treatment phases are presented in Figure 9.9. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.95, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time Frank spent on interests, hobbies and recreation with 54% of data above the baseline median point, $Z = 0.74, p > .05$. This represents a mean increase during the treatment phase of 28 minutes (7%) per day.

![Figure 9.10. Case 4: Minutes spent per day Out of the Home across baseline and treatment phases.](image)

Frank’s Out of the Home data across baseline and treatment phases are presented in Figure 9.10 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.53, p > .05$. Compared to baseline, there was a significant decrease during treatment in the amount of time he spent out of the home with 76% of data including zero rates, below the baseline median point, $Z = 4.81, p < .001$. This represents a mean decrease during the treatment of 104 minutes (20%) per day.
Figure 9.11. Case 4: Minutes spent per day Out of Home with Others across baseline and treatment phases.

Frank’s Out of the Home with Others data across phases are presented in Figure 9.11 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.01$, $p > .05$. Compared to baseline, there was no significant change during treatment in the amount of time he spent out of the home with others with 52% of data above the baseline median point, $Z = 0.37$, $p > .05$. This represents a mean increase during treatment of 11 minutes (3.5%) per day.

Figure 9.12. Case 4: Distance Walked per day across baseline and treatment phases.
Frank’s Distance Walked per day data across baseline and treatment phases are presented in Figure 9.12. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.39, p > .05$. Compared to baseline, there was no significant change during treatment in the daily distance that he walked with 57% of data below the baseline median point, $Z = 1.29, p > .05$. This represents a mean increase during treatment of 47 meters (1%) per day.

9.5 Therapist/Client Relationship

![Graph showing Participant Ratings of Therapy Relationship Variables across the treatment phase.]

Figure 9.13. Case 4: OS-64 Assessment of Therapy Relationship Variables across the treatment phase.

Frank’s total scale scores across the treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 9.13. Total raw scores were converted to a percentage to aid visual analysis. There is variability in the data. Overall, from week 4 to week 12 there was an 8.5% increase in the amount of level of regard within the therapist’s approach reported by Frank with a peak at week 8. There was a 12.6% decrease in the amount of unconditionality from week 4 to week 12 with an inverse peak at week 8, an 8% decrease in the amount of congruence across the same period with a peak at week 8, and a 2.8% decrease in empathy from week 4 to week 12.
9.6 Behavioural Cusps

Frank engaged in activities which could qualify as behavioural cusps when formal activity scheduling commenced at the third week of treatment (week 7/day 42). Activity examples included gardening, house cleaning, visiting his parents, visiting his children, weekly food shopping, creating a web-site, increase art painting, walking, working on his PhD, engaging in conversations with his partner, dining out, and resolving a long-standing personal matter with his parents. Engagement in these activities occurred during treatment and was potentially important for Frank’s expanding repertoire of clinically ‘healthy’ behaviours. When asked at 3-month follow-up to identify the change that was most important during treatment, he said, “just scheduling things and then doing them”, and “I feel like if I can do these things just by scheduling, then I can do anything I want in my life”.

9.7 Treatment Integrity

All of Frank’s treatment sessions were audio-recorded and 33.3% \((n = 4)\) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 98.1% across scored sessions with 94.5% of therapist in-session behaviour compatible and 5.5% incompatible with the treatment modality. Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

9.8 Post-treatment Diagnosis

At the completion of the treatment phase, Frank reported a significant and consistent decrease in his fear response within social situations. He was experiencing substantially less worry and he believed he was functioning well in the major areas of his life. Thus, subsequent to treatment, Frank no longer met DSM-IV criteria for Social Anxiety Disorder and Generalised Anxiety Disorder and this maintained for 3 months without therapy contact supporting that the changes in his behaviour were robust.
CHAPTER 10

CASE 5

10.1 Characteristics

“Mary” was a 62-year-old female. At the time of her initial involvement in the study, she was retired, receiving a pension and was engaged in unpaid employment as an organiser and administrative assistant within an environment conservation organisation. She was living with her retired husband in an average-sized house in a southern metropolitan suburb in Perth, Western Australia. Mary had migrated to Australia from England three years earlier. She had two adult children who remained living in England.

10.2 Intake assessment

At intake, Mary reported feeling significantly anxious in relation to road and vehicle related activity. She stated that she had never driven independently and did not possess a driving license. She claimed that she had “always been nervous” when travelling in cars and buses, and also experienced fear when walking adjacent to or crossing highly-populated roads and traffic intersections. According to Mary, on these occasions she would experience muscle tension, headache, dryness in the mouth, hot flushes, abdominal discomfort, and restlessness. She reported extensive involvement in patterns of self-talk characterised by forecasting potential life-threatening outcomes, such as a truck colliding with her car, and suitable defensive solutions, such as travelling on less-populated roads. When travelling as a passenger in a car, Mary reported that she would tightly grab anchor points in the car under the seat or the dashboard, lean forward in the seat, and continually scan the environment for other vehicles and cyclists. She regularly looked in the driving mirrors and overtly and
covertly engaged in a running commentary of the travelling conditions. She made statements including, “Ooh. Look at that truck”, and “He’s driving very close to us”.

Mary reported more generalised aspects of anxiety including ongoing and often uncontrollable concerns about finances, health, relationships, work, and her migration to Australia. She reported worrying about “all sorts of things” and that she would worry about her worry. She said, “I always wonder why am I like this”, and “It’s just this feeling that I feel so anxious and I don’t know what to do”. She often had difficulty staying asleep at night and she complained of feelings of irritability and restlessness. She stated that she often worried about being late for, or completely missing, scheduled appointments.

According to Mary’s reports, she would often engage in various strategies in order to avoid experiencing anxiety, or to minimise anxiety if it occurred. Examples included refusing to travel along certain roads, never driving herself, excessive planning of everyday travel routes, declining invitations for social outings and avoiding social activities with her husband, avoiding important work-related discussions at work (e.g., by “acting busy”), and avoiding popular environments like cinemas and theatres. Mary stated, “At the very thought of travel I can feel the anxious feeling in my body. It doesn’t last but by that stage I’ve already decided that I wouldn’t be going anyway”.

Mary reported that she had been fearful of cars and car travel since she was a child though she couldn’t explain why. In relation to her more generalised anxiety, she stated that she began to experience more frequent and intense worry and stress subsequent to her migration to Australia three years prior. She reported experiencing a fall two years ago and this further exacerbated her anxiety symptoms. She had sought referral from a General Practitioner to a Psychotherapist with whom she attended one session. Mary reported her physical health was average although she stated she was
“overweight” and needed to engage in more exercise. Mary was a non-smoker and consumed 7 to 8 standard alcohol drinks per week.

Based on her responses to the semi-structured interview (SCID-I; First et al., 1997), Mary fulfilled DSM-IV-TR (APA, 2000) criteria for 300.29 Specific Phobia (situational) and 300.02 Generalised Anxiety Disorder. At intake, Mary scored 12 on the BAI (mild; Beck & Steer, 1993), 14 on the DASS-21 depression scale (moderate), 6 on the DASS-21 anxiety scale (normal), and 20 on the DASS-21 stress scale (moderate) (Lovibond & Lovibond, 1995a).

10.3 Anxiety-Related Outcomes

![Graph showing BAI raw scores at baseline, treatment, and maintenance phases.](image)

**Figure 10.1.** Case 5: BAI raw scores at baseline, treatment, and maintenance phases.

**Note:** Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.
Figure 10.2. Case 5: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. Note: Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.

Figure 10.3. Case 5: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. Note: Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.
Figure 10.4. Case 5: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. Note: Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.

Mary’s BAI scores are presented in Figure 10.1. Data analysis through all phases revealed a downward trend, $Z = 3.01, p < .001$. This change is clinically significant because Mary’s scores moved from above the expected mean for individuals with specific phobia ($M = 15.8$; Leyfer, Ruberg, & Woodruff-Borden, 2006) and GAD ($M = 18.83$; Beck & Steer, 1993) to within the range of the non-clinical population. Figures 10.2, 10.3 and 10.4 show DASS-21 scores through all phases. Analysis revealed a downward trend for Depression scores, $Z = 2.84, p < .01$, Anxiety scores, $Z = 2.89, p < .01$, and Stress scores, $Z = 3.68, p < .001$. Large changes occurred at the start of activity scheduling at week 3 of treatment (week 9). The change in DASS-21 Anxiety is clinically significant because her scores moved from above the expected mean for individuals with specific phobia ($M = 6.69$; Antony et al., 1998) and GAD ($M = 11.34$; Brown et al., 1997) to within the non-clinical range. The change in DASS-21 Stress is clinically significant because scores moved from above the expected mean for individuals with specific phobia ($M = 13.29$; Antony et al., 1998) and GAD ($M = 22.36$; Brown et al., 1997) to within the non-clinical range.
10.4 Self-Monitored Anxiety and Activity Outcomes

Figure 10.5. Case 5: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.

Mary’s DARS scores across phases are presented in Figure 10.5. Mary completed a 35 day baseline. Analysis of the baseline phase revealed no trend within the data, $Z = 0.004, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in daily anxiety with 71% of scores below the baseline median point, $Z = 3.88, p < .001$. This represents a mean decrease during the treatment phase of 5 points (18.5%) in DARS scores.

Figure 10.6. Case 5: Minutes spent per day on Self- and Other-Care across baseline and treatment phase.
Mary’s Self- and Other-Care data across baseline and treatment phases are presented in Figure 10.6 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 0.24, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent on self- and other-care with 55% of scores below the baseline median point, $Z = 0.92, p > .05$. This represents a mean decrease during the treatment phase of 4 minutes (3%) per day.

![Chart showing days vs. minutes spent on housework and errands](image)

**Figure 10.7. Case 5: Minutes spent per day on Housekeeping and Errands across baseline and treatment phases.**

Mary’s Housekeeping and Errands data across baseline and treatment phases are presented in Figure 10.7 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.46, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent on housekeeping and errands with 57% of data above the baseline median point, $Z = 1.29, p > .05$. This represents a mean increase during the treatment phase of 48 minutes (33%) per day.
Figure 10.8. Case 5: Minutes spent per day on Paid and Unpaid Work across baseline and treatment phases.

Mary’s Paid and Unpaid Work data across phases are presented in Figure 10.8 (zero rates were omitted). Baseline analysis revealed an absence of trend within the data, $Z = 0.39$, $p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent on paid or unpaid work with data evenly distributed (50/50) around the baseline median point, $Z = 0.00$, $p > .05$. This represents a mean decrease during the treatment phase of 8 minutes (6.5%) per day.

Figure 10.9. Case 5: Minutes per day spent on Interests, Hobbies, and Recreation across baseline and treatment phases.
Mary’s Interests, Hobbies, and Recreation data across baseline and treatment phases are presented in Figure 10.9. Analysis of the baseline phase revealed instability within the data, \( Z = 3.13, p < .001 \). Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent on interests etc. with 54% of data above the baseline median point, \( Z = 0.74, p > .05 \). This represents a mean decrease during the treatment phase of 2 minutes (0.4%) per day.

![Figure 10.10. Case 5: Minutes spent per day Out of the Home across baseline and treatment phases.](image)

Mary’s Out of the Home data across baseline and treatment phases are presented in Figure 10.10 (zero rates were omitted). Analysis of the baseline phase revealed instability within the data, \( Z = 3.38, p < .001 \). Compared to baseline, there was a significant increase during the treatment phase in the amount of time she spent out of the home with 62% of data above the baseline median point, \( Z = 2.22, p < .05 \). This represents a mean increase during the treatment phase of 25 minutes (7.8%) per day.
Mary’s Out of the Home with Others data across phases are presented in Figure 10.11 (zero rates were omitted). Baseline analysis revealed an absence of trend within the data, $Z = 0.22, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent out of the home with others with 58% of data above the baseline median point, $Z = 0.37, p > .05$. This represents a mean increase during treatment of 17 minutes (5.5%) per day.

*Figure 10.11. Case 5: Minutes spent per day Out of the Home With Others across baseline and treatment phases.*
Mary’s Distance Walked per day data across phases are presented in Figure 10.12. Analysis of the baseline phase revealed instability within the data, \( Z = 6.09, p < .001 \). Compared to baseline, there was no significant change during treatment in the daily distance walked with 57% of data below the baseline median point, \( Z = 1.29, p > .05 \). This represents a mean decrease during treatment of 245 meters (13%) per day.

**10.5 Therapist/Client Relationship**

![Graph](image)

*Figure 10.13. Case 5: OS-64 Assessment of Therapy Relationship Variables across the treatment phase.*

Mary’s scores from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 10.13. Total raw scores were converted to a percentage to aid visual analysis. Analysis showed decreased scores across treatment, with ‘unconditionality’ sharply decreasing from week 8 to week 12. Unconditionality is “the extent the regarding person’s response experientially implies that the recipient person is more or less pleasing, worthy, valued, trusted, liked or disliked if he or she manifests certain self-attributes than if or when he or she manifests others” (Barrett-Lennard, 1986, p. 443). From week 4 to week 12, there was a reported 6.3% decrease in the ‘level of regard’ from the therapist, a 10.3% decrease in ‘empathy’, an 18.8% decrease in ‘unconditionality’ and a 6.25% decrease in ‘congruence’.
10.6 Behavioural Cusps

Mary engaged in activities which could qualify as behavioural ‘cusps’ when activity scheduling started at week 3 of treatment (week 7/day 42). These included responding to overdue emails, attending language classes, visiting the cinema and theatre, going to dinner, travelling by train and bus alone and with others, travelling by car on populated roads, walking across or adjacent to busy roads and intersections, going to the beach, playing bridge with friends, going shopping, attending classical music concerts, and cleaning and ordering her house. These activities occurred during treatment and were potentially important in expanding Mary’s repertoire of clinically ‘healthy’ behaviours. When asked at 3-month follow-up to identify the change which was most important over the course of treatment, Mary said “I feel like I’ve been doing things which are truly about me and not worrying about anyone else”.

10.7 Treatment Integrity

All of Mary’s treatment sessions were audio-recorded and 33.3% (n = 4) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 95.3 % across scored sessions with 90.7 % of therapist in-session behaviour compatible and 9.3 % incompatible with the treatment modality. Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

10.8 Post-treatment Diagnosis

At the end of treatment, Mary reported a significant and consistent decrease in her fear response in vehicle-related situations. She was no longer avoiding vehicle-related contexts and she was experiencing substantially less worry. Overall she was functioning well in the major areas of her life. Thus, subsequent to treatment Mary no longer met DSM-IV criteria for Generalised Anxiety Disorder or Specific Phobia (situational) and the changes were maintained at 3 month follow-up.
CHAPTER 11

CASE 6

11.1 Characteristics

“Stacey” was a 53-year-old female. At the time of her initial involvement in the study, she was engaged in paid full-time employment as a ‘review officer’ within a state government organisation. She was divorced and had four adult children. She lived with her youngest two daughters in an average-size home in a southern metropolitan suburb of Perth, Western Australia.

11.2 Intake assessment

At intake, Stacy reported having experienced a large amount of stress and that her life had been “out of my control”. She said, “There’s too much going on in my head” and “I feel anxious all the time”. She reported that her physical signs of anxiety included an accelerated heart-rate, “tingling” in her hands, light headedness, chest tightness, dryness in the mouth, difficulty swallowing, and muscle tension. She said that she often “finds it hard to relax” and that she had experienced difficulty concentrating and remaining on-task for long lengths of time. She believed this was especially true when she was feeling anxious. Stacey reported that she had experienced brief and intense panic previously. She complained of past difficulties with self-management and that she had been unable to be assertive with family, friends, and work colleagues.

Stacey reported that her feelings of anxiety would often be occasioned in everyday social situations especially in her workplace. She said that when she had been asked to undertake some particular task by a work colleague or a family member or friend, typically she would acquiesce regardless of her personal preference. She reported that this resulted in her having engaged in least-preferred activities. She complained that she had mismanaged her time and that she would “always feel rushed”
and “not get things done that I want to do”. She reported that in home, work and social settings she had engaged in worry behaviours. These included ruminating and complaining to others about her finances, health, and work-situation. She had spent large amounts of time discussing her relationship with her children. Stacey stated that she had avoided conversations when she anticipated conflict. She avoided publicly stating her wants and needs and disagreeing with others including family members. She hadn’t been able to take concrete steps towards her goals including work and health-related goals. For example, she said that she had recently had her work hours increased and had experienced increased feelings of stress yet she had avoided discussing this with her manager because she was “fearful” of the outcome.

Stacey reported that her first experience of anxiety had occurred in young adulthood. She said she had “suffered for years” and that her condition had gradually worsened over time. She attributed her feelings of stress and anxiety to her marriage which she described as “traumatic” and had involved episodes of financial stress and legal matters relating to her then husband’s business practices. After separating from her husband she experienced a “major breakdown” and was subsequently hospitalised for treatment. One year prior to her involvement in the present study she had spent 2 weeks in a private clinic for treatment of anxiety and depression. For 1 year she had been taking anti-depressant medication (Effexor® 150mgs per day) and this continued unchanged during the study. Stacey stated that she smoked daily and consumed on average 2 to 3 standard drinks of alcohol per day.

Based on her responses to the semi-structured interview (SCID-I; First et al., 1997), Stacy fulfilled DSM-IV-TR (APA, 2000) criteria for 300.02 Generalised Anxiety Disorder. At intake, Stacy scored 13 on the BAI (mild; Beck & Steer, 1993), 0 on the DASS-21 depression scale (normal), 4 on the DASS-21 anxiety scale (normal), and 18 on the DASS-21 stress scale (mild) (Lovibond & Lovibond, 1995a).
11.3 Anxiety-Related Outcomes

*Figure 11.1.* Case 6: BAI raw scores at baseline, treatment, and maintenance phases.  
*Note:* Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.

*Figure 11.2.* Case 6: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.
**Figure 11.3.** Case 6: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.

**Figure 11.4.** Case 6: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. *Note:* Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.
Stacy’s BAI scores are presented in Figure 11.1. Analysis of Stacey’s BAI raw scores through all phases revealed evidence of a downward trend within the data, $Z = 2.59, p < .01$. This change is clinically significant because her scores moved from above the expected mean for individuals with GAD ($M = 18.83$; Beck & Steer, 1993) to within the range of the non-clinical population.

Figures 11.2, 11.3 and 11.4 show DASS-21 scores through all phases. Analysis of Stacy’s DASS-21 raw scores showed an absence of trend within Depression scores, $Z = 0.07, p > .05$, and evidence of a downward trend within Anxiety scores, $Z = 2.52, p < .01$ and Stress scores, $Z = 4.14, p < .001$. The change in DASS-21 Anxiety is clinically significant because Stacey’s scores moved from above the mean for individuals diagnosed with GAD ($M = 11.34$; Brown et al., 1997) to within the range of the normal non-clinical population. The change in DASS-21 Stress is clinically significant because her scores moved from expected above the mean for individuals diagnosed with GAD ($M = 22.36$; Brown et al., 1997) to within the range of the non-clinical population.

### 11.4 Self-Monitored Anxiety and Activity Outcomes

![Figure 11.5. Case 6: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.](image)
Stacy’s DARS scores across baseline and treatment phases are presented in Figure 11.5. Stacy completed a 32 day baseline. The first 4 entries were missing from her diary during the baseline phase. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.29, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in self-monitored daily anxiety with 89% of scores below the baseline median point, $Z = 7.22, p < .001$. This represents a mean decrease during the treatment phase of 14 points (35%) in Stacy’s DARS scores.

![Graph of Minutes Spent on Self and Other Care](image)

**Figure 11.6.** Case 6: Minutes spent per day on Self- and Other-Care across baseline and treatment phases.

Stacey’s Self- and Other-Care data across baseline and treatment phases are presented in Figure 11.6. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.38, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time she spent on self- and other-care with 79% of scores above the baseline median point, $Z = 5.37, p < .001$. This represents a mean increase during the treatment phase of 23 minutes (30%) per day.
Figure 11.7. Case 6: Minutes spent per day on Housework and Errands across baseline and treatment phases.

Stacey’s Housework and Errands data across phases are presented in Figure 11.7. Baseline analysis revealed an absence of trend within the data, \( Z = 0.03, p > .05 \). Compared to baseline, there was no significant change during the treatment phase in the amount of time she spent on housework and errands with 56% of data above the baseline median point, \( Z = 1.11, p > .05 \). This represents a mean increase during treatment of 19 minutes (7%) per day.

Figure 8.8. Case 6: Minutes spent per day on Paid and Unpaid Work across baseline and treatment phases.
Stacey’s Paid and Unpaid Work data across baseline and treatment phases are presented in Figure 11.8 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.20, p > .05 \). Compared to baseline, there was a significant decrease during the treatment phase in the amount of time she spent on paid or un-paid work with 68% of data below the baseline median point, \( Z = 3.33, p < .001 \). This represents a mean decrease during the treatment phase of 102 minutes (26%) per day.

![Figure 11.9](image)

*Figure 11.9. Case 6: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.*

Stacey’s Interests, Hobbies, and Recreation data across baseline and treatment phases are presented in Figure 11.9. Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.55, p > .05 \). Compared to baseline, there was no significant change during the treatment phase in the amount of time Stacey spent on interests etc. with 56% of data above the baseline median point, \( Z = 1.11, p > .05 \). This represents a mean increase during the treatment phase of 54 minutes (19%) per day.
Stacey’s Out of the Home data across phases are presented in Figure 11.10. Analysis of the baseline phase revealed an absence of trend in the data, $Z = 0.71, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the amount of time she spent out of the home with 75% of data below the baseline median point, $Z = 4.62, p < .001$. This represents a mean decrease during treatment of 100 minutes (17%) per day.
Stacey’s Out of the Home with Others data across baseline and treatment phases are presented in Figure 11.11 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.15, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the amount of time she spent out of the home with others with 82% of data below the baseline median point, $Z = 5.92, p < .001$. This represents a mean decrease during the treatment phase of 91 minutes (17.5%) per day.

![Graph](image)

**Figure 11.12.** Case 6: Distance Walked per day across baseline and treatment phases.

Stacey’s Distance Walked per day data across baseline and treatment phases are presented in Figure 11.12. Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.23, p > .05$. Compared to baseline, there was a significant decrease during the treatment phase in the daily distance that Stacey walked with 77% of data below the baseline median point, $Z = 5.00, p < .001$. This represents a mean decrease during the treatment phase of 874 meters (14.5%) per day.
11.5 Therapist/Client Relationship

Stacey’s total scale scores across the treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 11.13. Total raw scale scores were converted to aid visual analysis. Analysis showed the 4 scale scores remained relatively stable from week 4 to week 8. From week 8 to week 12, however, there was a reported 14.5% increase in the ‘level of regard’ displayed by the therapist, a 16.7% increase in ‘empathy’, a 10.4% increase in ‘congruence’, and a 33.3% increase in ‘unconditionality’. Unconditionality is “the extent the regarding person’s response experientially implies that the recipient person is more or less pleasing, worthy, valued, trusted, liked or disliked if he or she manifests certain self-attributes than if or when he or she manifests others” (Barrett-Lennard, 1986, p. 443).
11.6 Behavioural Cusps

Stacey engaged in activities which could qualify as behavioural cusps when activity scheduling started at week 3 of treatment (week 8/day 53). Activity examples included gardening, reading, exercising, walking, lunching with friends, phoning family members, commencing an on-line training course, writing letters, and playing the piano. These activities occurred within the context of treatment and were potentially important in relation to the participant’s expanding repertoire of clinically ‘healthy’ behaviours. When asked at 3-month follow-up to identify the behaviour change that occurred which was most important during treatment, Stacey said “Working out my goals and what I wanted to do, and scheduling it in and doing it”. This action may prove to have been a ‘cusp’ behaviour.

11.7 Treatment Integrity

All of Stacey’s treatment sessions were audio-recorded and 33.3% (n = 4) of sessions were randomly selected and independently scored for treatment integrity. Inter-observer agreement averaged 93.9% across scored sessions with 91.5% of therapist in-session behaviour compatible and 8.5% incompatible with the treatment modality (BATA). Please refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

11.8 Post-treatment Diagnosis

At the completion of the treatment phase, Stacey reported a significant and consistent decrease in her physical symptoms of anxiety. She was experiencing substantially less worry and avoiding few, if any, social situations. She believed she was generally functioning well in the major areas of her life. Thus, subsequent to treatment, Stacey no longer fulfilled DSM-IV criteria for Generalised Anxiety Disorder and this maintained for 3 months.
12.1 Characteristics

“Simon” was a 55-year-old male. At the time of his initial involvement in the study, he was engaged in paid full-time employment as an applied environmental consultant. He was married and had three children. He lived with his wife and children in an average-sized home in a southern metropolitan suburb in Perth, Western Australia.

12.2 Intake assessment

At intake, Simon reported that he had regularly experienced anxiety when engaging in everyday activities. He said that he had been worried about “jobs piling up” and had found it difficult to manage his time. He had been unable to stay on-task at work and when trying to complete home maintenance activities. He stated that this had led to incomplete tasks and he was not able to meet his daily responsibilities. He said that he regularly worried about his interpersonal relationships, work, health, finances, and even about his anxiety. He stated that at times his worry had been uncontrollable. He had been physically restless and had experienced disrupted sleep routines. Simon reported that his physical symptoms had included chest tightness, ‘butterflies’ in the stomach, muscle tension in the neck and back, and “hot headedness”. He said that when anxious he had difficulty relaxing, was “fidgety”, and confused and easily distracted.

Simon reported that his feelings of anxiety occurred at home and work, especially in interpersonal situations when demands had been placed on him by others. For example, when asked to perform a household task by his partner, Simon had experienced physical signs of anxiety and worried about whether he could complete the task. According to Simon this resulted in him “backing right off” and delaying engagement in the task or ignoring the request. He stated that he had often
procrastinated when faced with tasks in the home and at work, although he was unable to directly refuse most requests. This had led to uncompleted tasks. For example, Simon reported having a “pile” of invoices that he needed to draft and send to clients of his business. He had stayed up late at night ruminating about his daily tasks. His worry had also been occasioned by physical sensations such that he was “alarmed” when he noticed the “blood pumping past his eardrums” and his heart beating “hard and fast”. Simon reported that he had often avoided contact with his family by staying up at night and remaining in bed the next morning until they had left the house. When feeling anxious he usually thought “here we go again” and he had to “lie down and do nothing for a while”. Despite his reported procrastination and task delay, Simon said that he had been “doing too much” and he could not “get on top of” his day to day responsibilities.

Simon reported that he had experienced anxiety since late high school and believed it was an “entity” that had “always been with me”. He believed his anxiety was due to a difficult childhood, poor self-management, and his partner’s behaviour towards him. Simon stated that he had relied on meditation, relaxation strategies and “holding back” from engaging in some activities including intimate discussions with his wife. He had made attempts to manage his anxiety so that he “would avoid really losing it”. However, he said that he had spent large amounts of time worrying about his anxiety and his past choices in life. Simon reported that he had engaged in interpersonal psychotherapy in the past but had avoided medication. He stated that he was a non-smoker and a “social drinker” and consumed about 12 standard drinks per week.

Based on his responses to the semi-structured interview (SCID-I; First et al., 1997), Simon met DSM-IV-TR (APA, 2000) criteria for 300.02 Generalised Anxiety Disorder. At intake, he scored 18 on the BAI (moderate; Beck & Steer, 1993), 16 on the DASS-21 depression scale (moderate), 8 on the DASS-21 anxiety scale (mild), and 18 on the DASS-21 stress scale (mild) (Lovibond & Lovibond, 1995a).
12.3 Anxiety-Related Outcomes

Figure 12.1. Case 7: BAI raw scores at baseline, treatment, and maintenance phases.

Note: Scores below 7 = normal, 8-15 = mild, 16-25 = moderate, and above 26 = severe.

Figure 12.2. Case 7: DASS-21 Depression raw scores at baseline, treatment, and maintenance phases. Note: Scores below 9 = normal, 10-13 = mild, 14-20 = moderate, 21-27 = severe, and above 28 = extremely severe.
Figure 12.3. Case 7: DASS-21 Anxiety raw scores at baseline, treatment, and maintenance phases. Note: Scores below 7 = normal, 8-9 = mild, 10-14 = moderate, 15-19 = severe, and above 20 = extremely severe.

Figure 12.4. Case 7: DASS-21 Stress raw scores at baseline, treatment, and maintenance phases. Note: Scores below 14 = normal, 15-18 = mild, 19-25 = moderate, 26-33 = severe, and above 34 = extremely severe.
Simon’s BAI scores are presented in Figure 12.1. Analysis of Simon’s BAI raw scores through all phases revealed evidence of a downward trend within the data, $Z = 4.56, p < .001$. This change is clinically significant because his scores moved from the expected mean for individuals with GAD ($M = 18.83$; Beck & Steer, 1993) to within the range of the non-clinical population.

Figures 12.2, 12.3 and 12.4 show DASS-21 scores through all phases. Analysis of Simon’s DASS-21 raw scores showed a downward trend for Depression scores, $Z = 2.58, p < .01$, Anxiety scores, $Z = 2.12, p < .05$, and Stress scores, $Z = 3.68, p < .001$. The change in DASS-21 Anxiety is considered clinically significant because the scores moved from above the expected mean for individuals with GAD ($M = 11.34$; Brown et al., 1997) to within the range of the non-clinical population. The change in DASS-21 Stress is clinically significant because his scores moved from above the expected mean for individuals with GAD ($M = 22.36$; Brown et al., 1997) to within the range of the non-clinical population.

12.4 Self-monitored Anxiety and Activity Outcomes

![Figure 12.5. Case 7: Daily Anxiety Rating Scale (DARS) scores across baseline and treatment phases.](image-url)
Simon’s DARS scores across baseline and treatment phases are presented in Figure 12.5. Simon completed a 38 day baseline. Analysis of the baseline phase revealed evidence of an upward trend in the data, $Z = 4.11, p < .001$. Compared to baseline, there was a significant increase during the treatment phase in self-monitored daily anxiety with 93% of scores above the baseline median point, $Z = 7.96, p < .001$. This represents a mean increase during the treatment phase of 13 points (46%) in Simon’s self-rated daily anxiety.

![Figure 12.5](image)

**Figure 12.5.** Minutes spent per day on Self- and Other-Care across baseline and treatment phases.

Simon’s Self- and Other-Care data across baseline and treatment phases are presented in Figure 12.6. Analysis of the baseline phase revealed an absence of trend in the data, $Z = 1.37, p > .05$. Compared to baseline, there was a significant increase during the treatment phase in the amount of time he spent on self- and other-care with 64% of scores above the baseline median point, $Z = 2.59, p < .01$. This represents a mean increase during the treatment phase of 29 minutes (19%) per day.
Figure 12.7. Case 7: Minutes spent per day on Housework and Errands across baseline and treatment phases.

Simon’s Housework and Errands data across phases are presented in Figure 12.7. Analysis of the baseline phase revealed instability within the data, $Z = 3.10$, $p < .001$. Compared to baseline, there was a significant decrease during treatment in the amount of time he spent on housework and errands with 67% of data below the baseline median point, $Z = 3.10$, $p < .001$. This represents a mean decrease during treatment of 15 minutes (7.5%) per day.

Figure 12.8. Case 7: Minutes spent on Paid and Unpaid Work across baseline and treatment phases.
Simon’s Paid and Unpaid Work data across baseline and treatment phases are presented in Figure 12.8 (zero rates were omitted). Analysis of the baseline phase revealed a downward trend within the data, $Z = 2.34, p < .01$. Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent on paid or un-paid work with 56% of data above the baseline median point, $Z = 1.11, p > .05$. This represents a mean increase during the treatment phase of 5 minutes (1.5%) per day.

![Figure 12.9](image)

**Figure 12.9.** Case 7: Minutes spent per day on Interests, Hobbies, and Recreation across baseline and treatment phases.

Simon’s Interests, Hobbies, and Recreation data across baseline and treatment phases are presented in Figure 12.9 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, $Z = 1.55, p > .05$. Compared to baseline, there was no significant change during the treatment phase in the amount of time he spent on interests, hobbies and recreation with 51% of data below the baseline median point, $Z = 0.18, p > .05$. This represents a mean decrease during the treatment phase of 25 minutes (8.5%) per day.
Figure 12.10. Case 7: Minutes spent per day Out of the Home across baseline and treatment phases.

Simon’s Out of the Home data across phases are presented in Figure 12.10 (zero rates were omitted). Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 1.20, p > .05 \). Compared to baseline, there was a significant increase during treatment in the amount of time he spent out of the home with 71% of data above the baseline median point, \( Z = 3.88, p < .001 \). This represents a mean increase during the treatment phase of 70 minutes (15%) per day.

Figure 12.11. Case 7: Minutes spent per day Out of the Home with Others across baseline and treatment phases.
Simon’s Out of Home with Others data across baseline and treatment phases are presented in Figure 12.11. Analysis of the baseline phase revealed an absence of trend within the data, \( Z = 0.26, p > .05 \). Compared to baseline, there was a significant increase during the treatment phase in the amount of time he spent out of the home with others with 73% of data above the baseline median point, \( Z = 4.25, p < .001 \). This represents a mean increase during the treatment phase of 128 minutes (50%) per day.

*Figure 12.12. Case 7: Distance Walked per day data across baseline and treatment phases.*

Simon’s Distance Walked per day data across baseline and treatment phases are presented in Figure 12.12. Analysis of the baseline phase revealed instability within the data, \( Z = 2.14, p < .05 \). Compared to baseline, there was a significant decrease during the treatment phase in the daily distance that Simon walked with 71% of data below the baseline median point, \( Z = 3.88, p < .001 \). This represents a mean decrease during the treatment phase of 152 meters (3%) per day.
12.5 Therapist/Client Relationship

Simon’s total scale scores across the treatment phase from the Barrett-Lennard Relationship Inventory: Observer Form (OS-64) are presented in Figure 12.13. Total raw scale scores were converted to a percentage to aid analysis. Analysis showed that there was a reported 16.7% increase in the level of regard displayed by the therapist, 2.1% increase in empathy, 22.85% increase in unconditionality, and a 14.5% increase in congruence from week 4 to week 12. From week 8 to week 12 there was a decrease in the amount of empathy and unconditionality from the therapist as rated by Simon.

12.6 Behavioural Cusps

Simon engaged in activities which could qualify as behavioural ‘cusps’ when activity scheduling started at week 3 of treatment (week 9/day 59). Examples included scheduled family discussions, cycling, swimming at the beach, completing work projects, attending a ‘Simon and Garfunkel’ concert with his wife, attending sport activities with his children, contacting past friends, home maintenance, and photography. These activities occurred as part of his overall treatment and were
potentially important in helping expand Simon’s repertoire of clinically ‘healthy’
behaviours. When asked at 3-month follow-up to identify the behaviour change that was
most important over the course of treatment, Simon replied, “going back into the
water”, “riding the bike”, “spending more time with my wife”, “sorting things out with
my daughter”, and “watching my behaviour”. Any of these actions potentially might
have proven to be ‘cusp’ behaviours.

12.7 Treatment Integrity

All of Simon’s treatment sessions were audio-recorded and 33.3% \( (n = 4) \) of
sessions were randomly selected and independently scored for treatment integrity. Inter-
observer agreement averaged 94.5% across scored sessions with 88% of therapist in-
session behaviour compatible and 12% incompatible with the treatment protocol. Please
refer to Appendix G for items that define ‘compatible’ and ‘incompatible’.

12.8 Post-treatment Diagnosis

At the completion of the treatment phase, Simon reported a significant and
consistent decrease in his physical symptoms of anxiety. He was experiencing
substantially less worry. Although his DARS scores were higher during treatment
compared to baseline, his self-reported anxiety (BAI, DASS-21) decreased significantly.
He stated he was avoiding fewer situations that typically had occasioned his anxiety. He
believed that he was functioning well in the major areas of his life, especially in his
management of his time and day to day responsibilities. Thus, subsequent to treatment,
Simon no longer fulfilled DSM-IV criteria for Generalised Anxiety Disorder. These
gains were maintained for 3 months.
13.1 Treatment Outcomes

This study was composed of 7 replicated, single-case experimental evaluations of behavioural activation treatment (BATA) applied to chronic adult anxiety. BATA was especially created for use in the present study and was based on contemporary models of BA treatment for depression (Lejuez et al., 2001; Martell et al., 2001). The relatively straight-forward aim of BATA was to set goals and schedule activities that brought clients into contact with naturally occurring schedules of positive reinforcement for clinically healthy, socially-valid behaviours likely to have long-term anxiolytic effects. Dependent variables included self-reported and self-monitored anxiety, activity levels, and ratings of the therapeutic relationship. A measure of treatment integrity was included. Clinically significant decreases in self-reported anxiety on standardised measures were shown for 6 out of 7 participants that were maintained up to a 3 month post intervention follow-up. Decreases in self-monitored anxiety (DARS) corresponded with decreases in self-reported anxiety for 5 of those 6 participants. In general, the introduction of BATA corresponded with decreases in reported anxiety. There were also associated increases, relative to baseline, in the activity levels in some key life areas for 6 out of 7 participants. Treatment integrity data showed that in all 7 cases the therapist’s behaviour was reliably rated as highly matching the prescribed techniques outlined in the treatment protocol. Unpatterned and modest changes in the ratings of the type or quality of the therapy relationship occurred across participants and appeared not to be associated with changes in anxiety and activity levels, nor with time spent in therapy.

These data provide preliminary, promising support for the use of BATA with adults who report mostly symptoms of anxiety. They are important because very few
prior attempts to treat anxiety with BA have been reported. There has also been a tendency to confound traditional BA models as described by Martell et al. (2001) and Lejuez et al. (2001) with the use of adjunctive treatment modalities when treating anxiety, such as gradual exposure and relaxation training (e.g., Hopko et al., 2004; Hopko et al., 2006; Lundervold et al., 2006). In this study it would seem that participants’ increased approach behaviours replaced avoidance behaviours and were maintained by naturally occurring contingencies of reinforcement. It is likely that the natural arrangement of response-reinforcer contingencies for approach behaviours led to concurrent decreases in avoidant behaviour and gradual extinction of anxiety responses. Thus, it may be concluded that BATA, without adjuncts such as graduated exposure or relaxation training, can provide an effective model of anxiety treatment for use by clinical practitioners, especially those working from a behaviour-analytic perspective.

The BAI and the DASS-21 as used in the present study are measures of anxiety with strong psychometric properties and are widely used in clinical and research settings to assess anxiety and evaluate treatment outcomes (Antony et al., 2001). Of the 7 participants, 6 showed clinically significant decreases on these measures that were maintained at 3 month follow-up. For 6 participants the changes in BAI and DASS-21 scores corresponded with changes in DARS scores, suggesting that the self-monitored anxiety measure used in this study possessed a degree of concurrent validity. This is important, because the DARS was relied upon to provide a sufficient amount of data for establishing a stable ‘anxiety’ baseline before implementing the treatment phase. The data provide some preliminary evidence that real-time increases in some of the activity-levels recorded were associated with decreases in anxiety. For example, 4 out of 6 participants who reported decreases in anxiety also reported a significant increase in the amount of time they spent out of the home (either alone or with others) during the treatment phase. For 4 out of 6 treatment responders there were also
significant increases in the amount of time spent on self- and other-care. One responder significantly increased the amount of time she walked each day and the amount of time she spent on interests, recreation and hobbies. These are potentially clinically relevant and socially important behaviours and accord with the principles of change underlying BATA. The increased time spent in social contexts might have been especially important because exposure to social conditions is a vital component of reducing social anxiety (Hofmann & Barlow, 2002). Engagement in social activity requires engagement in social behaviours that can and do contact reinforcement. For most people, engagement in social activity requires a degree of self-management, such as attending to time, and the observation of others can contact vicarious contingencies of reinforcement that function to transform established behaviours and result in the learning of new behaviours (Baer & Deguchi, 1985). This study, as far as can be ascertained, is the first to have applied BA to adults with anxiety using an experimental design that included a real-time measure of everyday activity levels.

The data from all participants did not match all of the expected outcomes based on the BATA model. For 2 participants, decreases in anxiety corresponded with decreases in the amount of time spent out of home. Only 1 participant showed an increase in time spent engaged in interests, recreation, and hobbies during the treatment phase. No participant increased the amount of time spent engaged in paid or unpaid work. These findings can be explained in at least two ways. Firstly, a self-monitored molar measure of activity (BSMD) was created for this study that required participants to record their real-time activity levels across broad classes of behaviour in 15 min chunks. This has not been previously attempted in BA research. Although it enabled a comparison of ratio data between A and B phases, a limitation of molar measurement is that it can be relatively insensitive to discrete behaviours that may be related to clinical outcomes (Barlow et al., 1984). During treatment the participants engaged in activities
that were selected to increase access to positive reinforcement for healthy non-anxious behaviours while simultaneously decreasing negative reinforcement for avoidance behaviours. Some of these activities were scheduled and others were spontaneous. Completing these activities might not have altered the overall level of activity within broad classes of behaviour if there had been the substitution of approach behaviour for behaviour that had functioned as avoidance and had it occurred within the same broad class of behaviour, such as ‘interests, hobbies, and recreation’, as defined in the BSMD. Spending time with friends, for example, could function to decrease the habitual avoidance of social situations that had elicited anxiety. In another context, the same activity could function to maintain the avoidance of home-based tasks, such as performing maintenance or cleaning. In this instance, and using the BSMD as a monitoring device, the daily level of time spent on ‘interests, hobbies, and recreation’ might be unchanged. However, engagement in this social activity could have had positive ‘cusp’ like consequences for the participant and long-term consequences for reducing the participant’s anxious responding.

Secondly, if the decreases shown in some activity classes for some participants were being maintained by schedules of negative reinforcement, such as relief from anxiety, then it would be expected that baseline levels of anxiety would be maintained. This was the case for only 1 participant, ‘Jason’, who showed decreases and non-change across all classes of behaviour except for ‘self- and other-care’. This was associated with self-reported increases in anxiety and a withdrawal from the study between treatment weeks 10 and 11. For the other 6 participants decreases in some behaviour classes were associated with self-reported decreases in anxiety to 3 month follow-up. This suggests that, unlike Jason, their actions most likely functioned as approach behaviour under the control of contingencies of positive reinforcement. The intake assessment revealed that all 7 participants had developed a preference for negative
reinforcement as a function of temporary reductions in anxiety. Thus, habitual avoidance was common. In treatment, participants were educated at week 2 about the function of avoidance and throughout the remainder of treatment sessions they were regularly prompted to discriminate the functional properties of their behaviour and to set goals and schedule activities to ‘block’ or provide ‘healthy’ alternatives to avoidance.

13.2 Therapeutic Relationship

The data failed to show a clear correspondence between the participants’ ratings on a widely used measure of the therapeutic relationship and their treatment outcomes. Only for 2 out of the 6 participants who reported decreases in anxiety were there patterned increases in the four scale scores on the Relationship Inventory. Only 1 of those cases gave ratings across all scales after the final treatment session that would be considered indicative of an ‘adequate’ relationship (i.e., > 50%) in a typical therapeutic setting (Barrett-Lennard, 1986). Surprisingly, the data from the other 4 treatment responders generally showed a small decrease in ratings of the therapy relationship at week 12. Moreover, the participant who withdrew from the study between weeks 10 and 11 clearly rated only one variable of the therapy relationship (congruence) lower at week 8 compared to week 4 with the other ratings remaining relatively stable. There was a slight trend with 4 of the 6 treatment responders rating the amount of ‘empathy’ shown by the therapist as higher at week 12 compared to week 4. However, the evidence supporting the importance of high client ratings of therapist ‘empathy’ for treatment outcomes is unequivocal, modest, and generally lacking in scientific rigour (see Lambert & Barley, 2001 for a review). The author of the Relationship Inventory used in this study stated that empathy is a “pivotal but not sufficient relationship condition in therapy” (Barrett-Lennard, 1986, p. 441) and should occur in concert with
the other putative therapeutic relationship variables including ‘congruence’, ‘unconditionality’, and ‘level of regard’.

Generally, the focus on the ‘relationship’ in therapy appears to be based more on precedent and theory than on formally established principles (Goldfried & Davila, 2005) unless when approached from a functional analytic perspective (e.g., FAP; Kohlenberg & Tsai, 1991). Clearly, individual therapy involves a type of relationship between the therapist and the client. There are common factors in most therapist/client relationships including attending to the presenting problem(s), exposure to sometimes distressing content, and non-punishing contact with a trained professional from whom the client has sought help. The challenge is to establish any of these variables as mechanisms of change above all others. The majority of cognitive and behavioural psychotherapy outcome research has not attempted to control for them (Lejuez et al., 2006). However, prior studies have demonstrated that the in-session behaviours of the client, including the content focus and the direction of the dialogue, are a function of the reinforcement provided by the therapist. Truax (1966), for example, analysed a typical Carl Roger’s ‘non-directive’ therapy session and showed that he selectively responded to certain client responses and not others such as to provide schedules of reinforcement contingent on client responses that corresponded with his overall aims of the session. Hence, he was ‘shaping’ the client’s behaviour. This is interesting because traditionally ‘Rogerian’ approaches have not been described in behaviour analytic terms and have been believed to operate according to ‘inner processes’ such as ‘transference’, ‘alliance’, ‘hope’, ‘honesty’, and ‘trust’. Also, the fact that many clients improve without therapy contact suggests that there are out-of-session environmental events that affect psychotherapy outcomes above the ‘therapeutic relationship’ (Lambert & Barley, 2001). Thus, the ‘effect’ of the therapist on client behaviours can be explained by operant principles and changes that occur in the client’s behaviours are also due to real world environmental
changes that correspond with the course of therapy. In contrast to most other therapies, behaviour analysis systematically describes, applies, and measures those environmental events. As noted by Cory (1996) there has been a past view that “the importance of the relationship between the client and the therapist is discounted in behaviour therapy” (p. 309). In the present study, the ‘therapeutic relationship’ was not ignored but measured so its influence on treatment outcomes could be accounted for. The data obtained infer that the putative elements of the therapy relationship were established after 4 treatment sessions of BATA and any subsequent changes that did occur were small and unrelated to treatment outcomes. Further, in most cases, an adequate level of these elements (e.g., empathy, unconditionality) considered ‘essential’ for effective therapy (Barrett-Lennard, 1986) was only just reached (or not at all) according to participant ratings..

13.3 Behavioural Cusps

There were many potential ‘cusp’ behaviours shown by the participants over the course of the treatment phase. Cusp behaviours are those that expose the individual to new ‘reinforcement-rich’ environments that occasion new behaviours or increase existing but under-displayed behaviours (Rosales-Ruiz & Baer, 1997). Among the participants’ behaviours potential ‘cusps’ included contacting friends, going on social outings, recreational walking, attending the local swimming-pool, baby-sitting grandchildren, job-searching, gardening, engaging in (previously avoided) conversations with significant others, travelling by public transport, bike riding, performing household chores, and attending to financial matters. At present, there is no objective measure or assessment of behavioural cusps. Operational guidelines have been proposed for the selection of potential cusps (Bosch & Fuqua, 2001). *A priori* analysis of cusps, however, is impossible. In principle, cusps elicit and transform complex behavioural change. In a functional analysis, we know a cusp has occurred via the
post hoc analysis of the effects that follow the introduction of the target behaviour to the existing behavioural repertoire of the individual. These effects could be the planned or unplanned consequences of treatment.

It is notable that in the present study the 6 participants who responded well to treatment generally showed substantial decreases in self-reported anxiety (BAI, DASS-21) between weeks 3 and 7 of treatment subsequent to the commencement of activity scheduling which is a key strategy of BATA. This suggests that accumulating daily engagement in scheduled activities was functionally related to self-reported anxiety. However, the formal properties of these relations remain unexplained. It might be the case that many of these activities functioned as ‘cusps’ and enabled the participants to act within wider contexts rich in positive reinforcement for healthy, non-anxious behaviours. But, these activities were largely uncontrolled and more widespread and rigorous measurements would have to have been used to formally establish the consequences of cusp behaviours. To properly isolate the effects of cusp behaviour it would have been necessary to identify behaviours in all situations where a particular individual’s healthy, non-anxious behaviours occurred. In behavioural research the experimental analysis of cusps is yet to be conducted.

Kohler and Greenwood (1986) provided examples of evidence that might be used to identify and analyse ‘behavioural traps’, including the ‘post-trap’ displays of generalisation and maintenance of the target behaviour. Perhaps in the present study the emergence of non-anxious behaviour (e.g., increased approach, decreased avoidance) as a generalised operant class provides some preliminary evidence of the cusp-like properties of various activities the participants engaged in during treatment.
13.4 Treatment Failure

Treatment failure is common in applied research (Barlow, 2002). However, the failure of an individual participant to respond to treatment is rarely discussed in published psychotherapy outcome research especially in the context of randomised-controlled trials which focus only on between-group differences (Persons & Mikami, 2002). The participants in this study mostly met DSM-IV criteria for generalised and social anxiety. The participant (‘Jason’) who failed to respond to treatment and withdrew from treatment in session 10 met criteria for obsessive-compulsive disorder (OCD). The participant received 2 fewer sessions of BATA than the others due to his withdrawal, but the trends in his data suggest that there had been little change and this would have continued had he attended the remaining 2 weeks of treatment. OCD is characterised by self-reports of uncontrolled anxiety-provoking thoughts and images. OCD-sufferers tend to report multiple obsessions and compulsions occasioned by apparently ubiquitous stimuli (Steketee & Barlow, 2002). An emphasis on the topographical aspects of OCD might suggest to some that BATA, as delivered in the present study, was ineffective because of its focus on overt behaviour change without attempting to directly modify strong, covert thoughts and images. Thus, BATA might be an ineffective treatment for OCD. According to Wolpe (1989), however, poor outcomes associated with behaviour therapy are likely due to an inadequate functional analysis of the clinical problem rather than any particular topographical characteristics such as the severity of the disorder.

Matching Law informs therapists that there are always concurrent schedules of reinforcement maintaining client behaviour. It has been estimated that up to 15% of all problem behaviour is maintained by multiple reinforcement contingencies (Hanley, et al., 2003). The present study relied on the systematic delivery of a manualised treatment (BATA) in each case to satisfy the requirements for clinical replication (Barlow et al.,
1984). This resulted in restricted flexibility of the therapist’s behaviour. This has been referred to as the ‘merits and challenges’ of using manualised treatments in behaviour therapy (Eifert, Schulte, Zvolensky, Lejuez, & Lau, 1997). For example, BATA focused on the analysis of potential sources of negative reinforcement for anxious behaviour and sources of positive reinforcement for non-anxious behaviour. The protocol did not provide for the analysis of potential sources of positive reinforcement for anxious behaviour including the income provided by government in the form of a disability pension, cheap accommodation provided by family, and social support in the form of concern, sympathy, and the carrying out of everyday responsibilities on behalf of the client by the client’s spouse or partner. Further, the more severe the level of disability the greater the degree of difficulty for the client in contacting naturally occurring reinforcement for clinically ‘healthy’ behaviours as occurs in the case of an individual with limited verbal skills.

This appeared to have been the case with Jason who was receiving a significant amount of social support by the government, his partner, and his family in order to alleviate and cope with his psychological distress. He also had few everyday responsibilities compared to the typical adult, reported having poor social skills (e.g., difficulties in making conversation), and had a very high level of OCD-related symptoms. Unfortunately, a key aspect of Jason’s continuing problems was the reinforcement of his avoidance behaviours by his partner. She herself became more anxious when he targeted change in his ‘independence’ behaviours and she began to refuse to drive him to treatment sessions in the weeks leading up to his withdrawal. Contemporary BA for depression (Martell et al., 2001) recommends including significant others in treatment if indicated by the functional analysis. One of the key aims of the present study, however, was to ensure replication. In clinical practice, the application of BATA could be individualised more to account for a wider range of
contingencies maintaining problem behaviours. This might involve the client’s partner and family as ‘contingency managers’ who could be trained to respond with planned reinforcement to the client’s clinically ‘healthy’ behaviours while also withholding reinforcement for ‘non-healthy’ anxious behaviours. Further, training of more discrete behaviours, including targeted social skills, could improve the likelihood of the client contacting reinforcement once he or she engaged in a particular setting with greater ‘success’. Thus, treatment outcomes might have improved in this case when environmental support for the client’s anxiety-related behaviours was withdrawn when and more reinforcement contingent on healthy, non-anxious behaviours was given.

13.5 Walking Activities

A further notable finding of this study is that increased daily walking activities, as measured by pedometer, were shown to be associated with decreased self-reported anxiety only for 1 participant (case 2, ‘Susan’). Surprisingly, in view of the research linking walking to better mental-health outcomes, participants reported decreased levels of walking with decreased levels of self-reported anxiety. It has been shown that walking, and exercise more generally, can be an effective adjunct to existing front-line psychological treatment of anxiety and depression (Merom, Phongsavan, Wagner, Chey, Marmane, et al., 2008; Strathopoulou et al., 2006). Information gained from the initial intake assessment with Susan might explain the importance of walking behaviour relative to self-reported anxiety in her case. Susan reported that her anxious behaviour had gradually developed subsequent to major knee surgery. She reported an avoidance of walking because according to her it was associated with an increased likelihood of falling. This avoidance had resulted in limited opportunities to naturally rehabilitate her knee, restricted activity outside of the home, and restricted her contact with naturally occurring reinforcement found in ‘healthy’ settings, such as socialising with friends.
She also had reported a strengthening of her fear response to walking especially in challenging contexts such as the uneven grounds of parks and gardens. By significantly increasing her daily walking distances during the treatment phase relative to baseline she was able to alter the contingencies that were maintaining her anxious responding. This also provided her increased access to potential sources of positive reinforcement for other behaviours, such as planning shared activities with friends and spontaneous social interaction. Thus, when applied in context, walking might be potentially important to particular anxiety sufferers. However, generally there appeared to be no relationship between walking and anxiety for all the other participants in this study. This finding needs to be examined in future experimental studies.

13.6 Limitations

Despite the very promising outcomes there were several limitations to the present study that need addressing. Identification of these limitations is important because it places the findings in context and can function to inform future research efforts. In this study the author conducted all intake interviews, assessments, and treatment sessions. Intake involved the use of a semi-structured interview (SCID-I; First et al., 1997) to determine diagnoses. Ideally, two independent interviews by different interviewers or a dual interview should have been conducted with evidence of inter-assessor reliability. This would have limited the possibility of single interviewer biases and lowered the probability of false positive diagnoses. Moreover, repeated measurements ideally are conducted by assessors blind to the experimental condition. This would avoid potential sources of biasing effects on the data, such as the possibility of a therapist reinforcing responses favourable to the treatment model, or a participant’s responses being shaped to attract social reinforcement from the therapist. It might also be assumed that research therapists display unique behaviours that might interact with
the treatment protocol to influence outcomes (Behar & Borkovec, 2003). The use of multiple therapists across participants can provide for a more precise isolation of treatment effects. Thus, caution must be taken before generalising to wider populations and practitioners as treatment in this study was delivered out of necessity by one practitioner. The validity of future BATA research would be enhanced if multiple, independent assessors and therapists were used.

The present study included self-reported measures of anxiety and activity. The anxiety measures (BAI, DASS-21, DARS) were used as indirect measurements of private events (e.g., verbal thoughts, physiological arousal) typically observable only to the participant. These particular instruments required the participant to tact his or her private events as they occurred on average during the previous week. They are psychometrically strong yet caution must be shown when interpreting the resultant data because they rely on subjective verbal responses that might not correspond with actual private behaviour. The inclusion of private events in behaviour analysis has been both objected to (Lamal, 1998) and supported (Friman et al., 1998). The use of this type of measurement in future research could be enhanced if there were independent corresponding data from other sources (e.g., observer reports, physiological assessment). The difficulty for the observer in determining the private events of another remains, yet there are some external signs of anxiety, including restlessness, worrying, and avoidance that are observable and could be rated. Also, some past studies have evaluated anxiety as measured by sympathetic and parasympathetic nervous system indices including heart rate, skin conductance, and vagal control of cardiovascular activity (Barlow, 2002a).

It is unclear what is the best measure of overt activity to use in BA-related research as only one previous BA study has provided activity data that were based on daily frequency counts of completed ‘values-based’ activities (Gaynor & Harris, 2008).
In general, daily diaries have been effectively used in a range of areas including the study of depression (Hopko, Armento, Cantu, Chambers, & Lejuez, 2003; Hopko & Mullane, 2008), eating disorders (Linden, 1980), and marijuana use (Twohig et al., 2007). The activity measure used in this study (BSMD) was designed to provide real-time ratio data of time spent engaged in broad classes of activity during waking hours. If the BSMD was used correctly by the participants with recording occurring in 15 minute chunks then it provided an objective measure of activity. However, these self-monitored data were sometimes not supported by independent reports (e.g., when participant’s partners also rated the amount of time the client spent on particular activities). Ideally, future research could devise a monitoring system that could provide independent accounts of the participant’s activity levels.

In early reports of ‘pleasant events’ scheduling in operant approaches to the treatment of depression (e.g., Lewinsohn et al., 1980) participants were required to rate single daily activities as either ‘pleasant’, ‘unpleasant’ or ‘neutral’ in order to provide the quantitative data for analysis that corresponds with the central treatment aim (increasing pleasant activities). Future BATA research could employ a similar system in which participants are required to rate daily activities as ‘approach’, ‘avoidance’, or ‘neutral’. This would match the central treatment aim of BATA which is to increase positive reinforcement for non-anxious approach behaviour while simultaneously decreasing negative reinforcement for anxious avoidance behaviour. This type of measure might provide an indication of changes in avoidance/approach behaviours and independent observer reports could be used to validate the accuracy of a participant’s recordings.

Variability was evident in some of the weekly self-report baseline data for some participants that might be considered unacceptable. The BAI and DASS-21 baseline data for some participants (i.e., cases 2, 4, 6), for example, appear to show a downward
trend. Treatment proceeded on the basis of stability of the daily measure of self-reported anxiety (DARS). This allowed for formal statistical analysis using a simplified time-series procedure (Tryon, 1982) recommended in single-case research designs (Barlow et al., 1984). Data from the BSMD were analysed using the same method. Practical constraints, such as holding the participants in the baseline phase for an unacceptable long period of time, and post-graduate research time parameters meant that treatment commenced once stability in the DARS was established. Thus, baseline duration ranged from 16 to 38 days across cases.

Relative to baseline, the treatment and follow-up BAI and DASS-21 data for 6 of the 7 participants show a significant downward trend that continued subsequent to the cessation of treatment. In general there were peaks in the data for these participants once treatment began, possibly due to reductions in negative reinforcement for anxious behaviour (i.e., extinction bursts). However, variability was reduced during the treatment and follow-up phase for most participants. Thus, there can be a tentative conclusion that a direct relationship existed between treatment and self-reported anxiety. In the present study, examples of baseline instability suggested that there were weekly or daily changes in the variables that influenced the measured behaviour (anxiety). This might have been a function of repeated measurement of private behaviour such that the time interval between measurements, together with the relative heterogeneity of the participant’s everyday conditions at baseline, resulted in variable self-reported anxiety. BA research typically involves single pre- and post- and follow-up assessment, yet variability is common in the few BA-related studies that have published repeated-measurement single-case data (Gaynor & Harris, 2008; Lundervold et al., 2006; Mulick & Naugle, 2004; Yon & Scogin, 2009), and these studies typically have a much shorter baseline of only 2 to 3 data points.
The intra-individual variability in this study could have been a function of the participant’s self-monitoring behaviour. The self-monitoring requirements were withdrawn during the follow-up phase so that any maintenance of treatment gains could not be attributed to the effects of self-monitoring including ‘reactivity’ (Barlow et al., 1984). Importantly, the data suggest that treatment corresponded with a more invariant and desirable pattern of responding from the participants, such that self-reported anxiety on the key measures (BAI, DASS-21) decreased to non-clinical levels.

As stated earlier, a measure of treatment integrity was used in this study. All 12 treatment sessions for all participants were audio-recorded and 4 sessions were randomly selected for assessment (3 sessions for case 3 due to his withdrawal). Integrity ratings were conducted independently by the author and the Chief Research Supervisor (David Leach) who were rigorously trained in the treatment protocol and in the use of the coding system devised for the present study. The system developed met almost all of the standards recommended for establishing treatment integrity in psychotherapy outcome research (Perepletchikova & Kazdin, 2005) but even then could be improved further if future research used assessors who were not directly involved in the project. This might decrease the potential of biased ratings due to assessors’ affiliation with the research project.

It is also important to note the sample characteristics of this study. The sample of participants consisted of adults who replied to an advertisement in a community newspaper headed, ‘Anxiety sufferers needed’ (see Appendix A). The three females and four males who participated in the study were willing to be involved in the research program and had identified themselves as ‘sufferers’ of anxiety. As such, they were self-selected. There was no opportunity for random allocation to the treatment condition. In general, the participants reported having experienced variant but significant anxiety-related problems for a number of years ranging from 1 to 35. Strict
inclusion criteria based on the results of the structured clinical interview (SCID-IV; First et al., 1997) were used that functioned to isolate the effects of BA among anxiety-sufferers in the absence of any co-existing diagnosable conditions. The duration and severity of anxiety symptoms might have been an establishing operation (Michael, 1993) that altered the controlling function of treatment, such as increasing the power of reinforcers associated with following the therapist’s instructions and completing between-session tasks. Further, 6 of the 7 participants were over the age of 50 years. The operant principles underlying BA have been demonstrated in human and non-human organisms, males and females, disabled and non-disabled, and across all ages (Catania, 1998; Sulzer-Azaroff & Mayer, 1991). Nevertheless, the characteristics of this sample should be considered when generalising the results of this study to other populations.

Finally, although there were no control participants in the present study, the single-case experimental design used enabled each participant to act as his or her own control. The baseline data function to predict the client’s (anxiety) behaviour if the intervention (BATA) were not implemented. As a preliminary investigation, the consolidating aim was to investigate whether BATA could produce successful treatment outcomes for anxiety sufferers and would these outcomes be maintained post treatment. The post treatment follow-up period (3 months) was brief but could not be extended within the parameters of this study, and ideally would be longer in future studies. The design does not provide empirical evidence of the effectiveness of BATA relative to other frontline treatments such as CBT and Behar and Borkovec (2003) noted that, “It is quite unlikely that an intervention would actually be worse than or equivalent to not being in treatment at all” (p. 215). The study of BATA would be enhanced if research could randomly assign participants to competing therapies particularly ACT (Hayes et al., 1999) and CBT (Follette & Ruzek, 2006). Comparative research would provide
evidence of the effectiveness of BATA relative to other therapies and function as a type of component comparison similar to prior studies of BA versus CBT for depression (Dimidjian et al., 2006; Jacobson et al., 1996).

13.7 Strengths

There were some notable strengths in the present study. The dependent variables were operationally defined. Multiple assessment methods were used to evaluate anxiety and activity. Repeated measurement involved the weekly administration of the BAI and the DASS-21, two instruments with strong psychometric properties that are widely used in clinical and research settings to assess anxiety (Antony et al., 2001). A daily self-monitoring measure of anxiety (DARS) was used. This was designed especially for the present study according to the relevant guidelines (Barlow et al., 1984). In 6 of the 7 cases changes in the BAI and DASS-21 corresponded with changes in the DARS. A self-monitored real-time ratio measure of daily activity levels (BSMD) was used. This was designed for the present study and is unique in BA research. Also unique to the present study relative to typical behaviour-analytic research was the inclusion of an established measure of the interpersonal aspects of ‘therapeutic relationship’ variables (Barrett-Lennard, 1986).

Considerable effort went towards providing an operational definition of the independent variable (BATA) in the form of a stepwise treatment protocol manual (Appendix I). The treatment consisted of a straight-forward and relatively small set of components with clear session parameters (i.e., 12 x weekly 60 min sessions) suitable for replication. The delivery of treatment was replicated in each case in the present study. Treatment integrity data were obtained under stringent conditions. Every treatment session for every participant was audio-recorded and one-third of sessions were randomly chosen for independent assessment by two raters using a coded recording system (CRS-BATS; Appendix G) designed to measure therapist verbal
behaviour as it occurs in typical BATA sessions according to the defined categories of verbal behaviour that were either prescribed or proscribed. This approach is recommended to strengthen psychotherapy outcome research (Behar & Borkovec, 2003; Perepletchikova & Kazdin, 2005; Waltz et al., 1993) yet is rarely applied in psychotherapy research in general (Perepletchikova et al., 2007), and under-applied in behaviour analysis specifically (McIntyre et al., 2007). Data for all participants showed a high degree of inter-rater reliability and the therapist’s behaviour and session content corresponded highly with the treatment protocol.

A single-case within-subject experimental (A/B/C) design was used for each participant. Efforts were made to establish a high quality baseline with adequate data for analysis. Across participants the baseline duration ranged from 16 to 38 days (or data points). Barlow et al. (1984) recommended at least three data points be recorded in the baseline phase. The DARS provided a daily aggregate of 6 separate anxiety ratings and these data were used to establish stability in baseline ‘anxiety’ using an appropriate statistical aid (Tryon, 1982). Daily activity data were analysed in the same way. When the participant’s daily anxiety was shown to be stable the second phase (treatment) was implemented. This procedure is an essential element of single-case experimental design (Hayes, 1981) and applied behaviour analysis more generally (Sulzer-Azaroff & Mayer, 1991) and functions to isolate the effects of treatment on the main dependent variables. As far as can be determined this approach has rarely been applied in published BA-related outcome research (e.g., Gaynor & Harris, 2008) and never in the context of extensive baseline measures. The third phase involved follow-up assessment to 3 months. The treatment had ended, including the self-monitoring component, and the participants returned only to complete the BAI and the DASS-21 at 1 week, 2 week, 4 week, 8 week, and 12 week intervals. This provided evidence of whether treatment gains were maintained over time in the absence of treatment and therapist variables.
The study included multiple analytic techniques suitable for single-case research. All data (except treatment integrity) were graphically presented according to the standards of applied behaviour analysis research (Carr & Burkholder, 1998; Grehan & Moran, 2005) to allow for visual inspection of the data. BAI and DASS-21 and baseline self-monitored anxiety and activity data were analysed using a simplified time-series analysis (Tryon, 1982) as recommended for single-case data (Barlow et al., 1984; Jones, 2003). For the self-monitored anxiety and activity data, visual aids were provided to the reader in the form of median lines superimposed over the phase data. Baseline/treatment differences in self-monitored data were assessed using the split-middle technique (Kazdin, 1982; Fisher et al., 2003; Ma, 2006; White & Haring, 1980). Bimodal testing was used to determine the significance of any change (Sheskin, 2000). These analyses were suitable for use with the present data and together were aimed at improving the accuracy and integrity of the analysis and subsequent conclusions. In general, this type of analysis is not unique in applied behaviour analysis. However, it has been absent from previous investigations of the effectiveness of BA.

Finally, the selection of a ‘real-life’ clinical out-patient sample ensured that these outcomes were obtained in real-life settings. For example, the treatment delivery in this investigation matched everyday clinical conditions and was an example (in research) of the ‘scientist-practitioner’ approach to applied clinical psychology (Barlow et al., 1984) taught in many modern university settings. This is important given that the majority of outcome research is based on analogue designs (Linden & Wen, 1990). Practitioners will benefit from knowing that the research on which they are basing their clinical decision making has been conducted in functionally equivalent conditions. There was a degree of homogeneity in the sample (all anxiety sufferers) which might limit generalisability of the findings to a degree (Blanck, Bellack, Rosnow, Rotheram-Borus, & Schooler, 1992). However, in the present study the use of strict selection
criteria was intended and served to isolate the effects of BA on anxiety-related behaviour and assist any future attempts to replicate the findings.

13.8 Implications for Practice and Research

The outcomes of the study have important implications for the practitioner seeking to provide cost-effective treatment for adult anxiety in typical out-patient settings. In Australia, the public have had access to a federal Medicare-funded health rebate scheme since late 2006 that provides rebates of up to 90% of the scheduled fee for 12 individual sessions of private out-patient allied mental health services (including psychotherapy) per calendar year in a sequence of 6 sessions – review – 6 sessions (www.health.gov.au/internet/main/publishing.nsf/Content/health-pcd-programs-amhpm). The most recent published data show that in the year 2007-08, over 375,000 individuals accessed psychologists through this scheme with an average number of 5 therapy sessions per individual (Australian Institute of Health and Welfare, 2009). Thus, practitioners and their clients will benefit from straightforward technologies that can produce clinically-relevant change across relatively brief time-frames. As Yates (1994) noted, the effectiveness of treatment should not only be measured in terms of clinical outcomes (e.g., symptom reduction) but also in terms of temporal, personal, financial, and spatial resources. The findings of this study suggest that BATA can produce clinically relevant outcomes over a short period of time for clients meeting DSM-IV criteria for anxiety.

The study also has implications for practitioners seeking to apply interventions that are based on empirically supported principles. Rosen and Davison (2003) have suggested that psychotherapy ought to proceed on the basis of empirically supported principles (e.g., operant behavioural principles) that are established in data-driven, basic and applied science (see also Herbert, Lilienfeld, Lohr, Montgomery, O'Donohue, et al.,
This contrasts with interventions that appear to be based mostly on clinical precedent and theory (e.g., Sensory Integration Therapy, Ayres, 1979; Eye Movement Desensitisation Reprocessing, Shapiro, 2001) and corresponds to the position paper published by the American Psychological Association Presidential Taskforce on Evidence-Based Practice (APA, 2006) that recommended practitioners maintained an ‘openness’ to data and did not allow ‘theoretical preconceptions’ to replace empirical evidence. As stated by Wilson (1997, cited in Rosen & Davison, 2003, p. 304), “We need to stick to solid science or else risk taking on the impossibly large task: brute force empirical evaluation of each and every treatment that has and will be dreamed up”. The essential elements of BATA as applied in this study are unequivocally principle based. Further, the reductions in anxiety-related behaviour shown in this study were achieved without the use of typical therapeutic adjuncts such as relaxation, exposure or cognitive therapy. This is important for practitioners, especially those working in behaviour-analysis, because it suggests that treatment gains might occur from a more streamlined treatment alternative without applying the full CBT package. BATA also might be considered easier to learn and apply compared to CBT (e.g., ACT; Hayes et al., 1999).

For researchers, this preliminary investigation provides a strong methodology for future single-case designs. Barlow and Nock (2009) have strongly suggested that psychological science will progress ‘most efficiently’ with the inclusion of the reporting of ‘ideographic’ research designs, such as single-case experiments, alongside group-based comparisons. They state that, “the flexibility and efficiency of these designs make them ideally suited for use by psychological scientists, clinicians, and students alike and yet they can provide strong evidence of causal relations between variables” (p. 20). The APA Presidential Taskforce (2006) has also emphasised the inclusion of single-case research in the ‘best research evidence’ that is used to inform evidence-based practice.
The study provides data on which to base future lines of research in the behaviour-analytic study of anxiety, the treatment of anxiety in older adults, the cost-effectiveness of BATA relative to other treatments, the anxiolytic effects of everyday activities, and the occurrence and effects of behavioural cusps. The position paper published by the APA Presidential Taskforce in 2006 specified that more research should be conducted into the psychotherapy outcomes for older adults and the cost-effectiveness of treatment. Future research could incorporate control conditions such as ACT (Hayes et al., 1999) or CBT (Follette & Ruzek, 2006). An interesting study would be to compare BATA as applied in this study with the more complex contemporary models of BA for depression (Martell et al., 2001). Also, BATA could be compared directly to the ‘values-based’ BA that is a component of the ACT protocol (Hayes et al., 1999) and that has been previously applied without direct comparisons in the treatment of adolescent depression (Gaynor & Harris, 2008). Hayes et al. (1999) have defined values as, “verbally construed desired life consequences” (p. 206). Such a comparison between BA and values-based BA could provide evidence regarding the inclusion of values-based strategies in behaviour-analytic approaches (Ruiz & Roche, 2007) in terms of treatment outcomes.

Future research could also improve on the treatment integrity instrument used in the study (CRS-BATS) to include measurements of participants’ in-session verbal behaviour. The data could be used to identify critical changes in verbal behaviour that might be associated with clinical improvements (Hayes et al., 1999; Kohlenberg & Tsai, 1991). This has recently been attempted in a study that investigated the verbal behaviour of a single participant who received 20 sessions of FAP (Busch et al., 2009). However, there is a paucity of behaviour-analytic research regarding clients’ verbal behaviour in typical clinical therapy sessions.
Finally, future research could focus more on identifying and measuring the effects of ‘behavioural cusps’ (Rosales-Ruiz & Baer, 1997) on clinically relevant behaviour. With the emergence of relatively ‘brief’ therapies comes a need for therapists to assist the client in achieving behaviour change that has consequences for him or her that extend well beyond the temporal limits of treatment. Treatments such as BATA that increase the likelihood of identifying ‘cusps’ can meet this need. Yet behaviour-analysis requires that cusps must be shown to have occurred in the corresponding data. The present study has obvious shortcomings in relation to the recording of cusps. However, this should not deter future efforts. Wolf (1978; see also Baer, Wolf, & Risely, 1968) described ‘social importance’ as an ultimate goal of applied behaviour analysis (ABA) even though he “wasn’t sure what ‘social importance’ meant or worse still, how to measure it” (p. 203). His argument was that behaviour analysts should focus on enabling behaviour change that is socially valid to the individual and to the wider society (e.g., parents, spouses, friends), including generalised unplanned outcomes. Cusps match Wolf’s definition of socially valid change. In future BA-therapy outcome research a focus on cusps could provide empirical support for the social validity of behaviour-analytic responses for the generalisation of effects over time, thus addressing key aspects of applied behaviour analysis in the treatment of common clinical problems.

Very recently, there have been calls for more accounts of the application of behaviour analysis in the treatment of ‘everyday’ clinical problems to be reported to expand behaviour analysis beyond its more popular use in specialised populations such as individuals with developmental disabilities (Friman, 2010). Anxiety and depression are the ‘common-colds’ of clinical psychology. This report of BATA therapy supports its use in everyday, ‘typical’ clinical settings and provides an example for the teaching of ABA in regular, generic post-graduate Clinical Psychology training programs.
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Anxiety Sufferers Needed

A team at Murdoch University is investigating a new behavioural approach to the treatment of anxiety in adults. Participants in the study receive 12 free weekly one-hour therapy sessions at the School of Psychology.

The behavioural activation therapy aims to help people gain more control over their lives. Doctoral candidate Jarrod Turner said anxiety was the most common psychological problem in the community. “Research shows that about 30 percent of people will meet the criteria for at least one type of anxiety disorder during their lifetime and nearly 20 per cent of people will experience significant problems with anxiety in any given year”, he said. “Research also suggests anxiety leads to the development of other psychological problems and present anxiety treatments are not always successful”.

Mr Turner said that for many people, the struggle with anxiety was a daily issue. “It interferes with work, play, relationships, family life and general wellbeing”, he said. “The present research aims to help participants gain control of their life. It does this by focusing on anxiety-related behaviour rather than focusing on emotions, thoughts or biology”. Call Mr Turner on 0405 589 307.

*The Melville Times, 16/09/2008.*
Appendix B: Participant Information Letter

Participant Information Letter

Project Title: Behavioural Activation Therapy for Anxiety

My name is Jarrod Turner and I would like to invite you to participate in a research study looking at a new psychological approach to treating anxiety. This study is part of my course for a Doctoral Degree in Clinical Psychology, and is being supervised by Associate Professor David Leach at Murdoch University.

Background.

Research has shown that in some cases the behavioural component of cognitive-behavioural therapy (CBT) (e.g., problem solving, activity scheduling, relaxation training) may be the most important component in treating people’s depression. In fact, some research suggests it is not necessary to directly focus on people’s cognitions (e.g., thoughts, beliefs) to improve their mental health. For example, behavioural activation therapy, which involves identifying and promoting engagement in positive activities in order to help improve a person’s mood and thoughts, has been proven effective in treating depression and given CBT also is most often used to treat anxiety some researchers are beginning to ask whether a purely behavioural approach may be an effective way to treat anxiety. This approach, however, has not been widely investigated.

Therefore, the aim of this study is to investigate whether behavioural activation therapy is an effective approach to treating anxiety.

What does your participation involve?

You have been asked to participate in this study because you experience anxiety. Your participation in this study essentially will involve you consenting to receive individual psychological treatment for anxiety. Initially, you will engage in a 60 minute assessment interview with a supervised trainee clinical psychologist. This will involve a standard set of questions which will ask you about mental health symptoms. Some of these questions may be of a personal nature and may even be distressing to some – but this is a fairly standard psychological assessment.

This is followed by a 2 to 3-week period of pre-treatment assessment which will mostly involve self-monitoring (ongoing daily recording) aspects of your daily behaviour such as anxiety levels and your daily activities. Also, you will be required to wear a pedometer for the duration of the study which will record how many steps you take each day. This self-monitoring is required throughout your entire involvement in the study. Then, you will receive a 12-week therapy package (12 x 1 hour sessions) of behavioural activation therapy administered by the trainee clinical psychologist. The trainee is an advanced Doctoral student with experience in behavioural activation therapy and will be supervised by the research supervisor Associate Professor David Leach. All sessions will be audio-recorded to be reviewed by members of the psychology faculty at Murdoch University to ensure treatment is being carried out competently. These recordings will be destroyed following the completion of the study. Following completion of the 12-weeks of therapy you will be asked to complete self-report forms which will ask questions about your mood and anxiety at 1-month and 2-month follow-up times. A treatment protocol for future clinical work will be developed during the course of this study.

As the entirety of this study is being conducted at Murdoch University, you will be required to travel weekly to the university throughout your involvement in the study. If you are traveling by car, parking costs will be reimbursed.
Appendix B: Participant Information Letter

Voluntary participation, confidentiality and withdrawal from the study.

If you consent to take part in this study, it is important that you do so voluntarily, and with a good understanding of the purpose of the study and the procedures you will be asked to undergo. Please make sure you ask any questions you may have about this study, and that you are satisfied with the answers you receive, before you consent to participate.

Again, your participation in this study is entirely voluntary. We hope you will participate, but if you do not want to, you do not need to explain why to anyone. If you do take part in this study, you are free to drop out at any point, with no questions asked. You will also be able to tell us if you do not want to do things which come up as part of your involvement in this study. We want to ensure that you are comfortable and satisfied with your participation in this study.

Your participation in this study is entirely confidential. Data collected during your involvement is intended to be reported in the published literature as charts and figures, however your identity will be completely confidential. Aspects of your case will be reported (e.g., age, sex, anxiety history), but your name, date of birth, and address will definitely not be included. Made-up names will be used when reporting your case. If you withdraw, for any reason, all information will be destroyed. Following completion of the study all collected data will be securely stored, however any identifying personal information (including audio-recordings) will be destroyed.

Potential benefits.

The therapy you will receive if you consent to participate in this study is provided without financial cost. We hope that the therapy you receive during your involvement in this study will help to significantly decrease your experience of anxiety and improve your overall mental health and wellbeing. Also, because a treatment protocol for future clinical work will be developed during the course of this study and the outcomes for you will be carefully reported, your involvement has the potential to help many others in the future (especially given the high rates of anxiety in the community).

Potential costs.

Occasionally, when people engage in therapy, there is a chance that parts of the process may be upsetting (e.g., answering questions, engaging in activities which increase anxiety). Also, there is a (very rare) chance that someone’s condition may in fact worsen. Because the therapy you are receiving involves a close collaboration between you and the trainee clinical psychologist who will be closely supervised by an experienced psychologist, your psychological wellbeing will be closely monitored at all times. If you feel your symptoms are in fact worsening, we will be happy to refer you to other appropriate mental health services. Also, although you will not be provided with treatment beyond the 12-week course of therapy, we will be willing to assist you in finding suitable support if you feel the need to continue therapy beyond your involvement in this study.
Appendix B: Participant Information Letter

What’s next?

If you have any questions about your involvement in this study please feel free to contact either myself, Jarrod Turner on mbl. 0405589307 or my supervisor Associate Professor David Leach, on ph. 9360 2703. We are happy to answer any questions you may have. When you are satisfied you have a good understanding of what your participation in this study involves, and are willing to participate, please complete the consent form attached to this information letter.

This study has been approved by the Murdoch University Human Research Ethics Committee. If you have any concerns about how this study is to be conducted and you wish to talk to an independent person you can contact the Committee on 9360 6677 or email ethics@murdoch.edu.au.

Thank you for your time,

Jarrod Turner  
Trainee Clinical Psychologist  
School of Psychology  
Murdoch University

Associate Professor David Leach  
Supervisor  
School of Psychology  
Murdoch University

Please note: If you have any concerns or complaints about this study and wish to talk to an independent person, you may contact: Murdoch University Human Research Ethics Committee on 9360 6677 or email ethics@murdoch.edu.au
Appendix C: Participant Consent Form

Consent Form

**Project Title:** Behavioural Activation Therapy for Anxiety

I voluntarily agree to participate in this study.

I have read the information sheet provided and understand the purpose of the study, procedures involved, and what is expected of me. I am also aware of the possible benefits and risks to me from my involvement in the study. The researchers have allowed me to ask any questions I have regarding my participation and I am satisfied these questions have been answered.

I understand that therapy sessions I receive due to my involvement in this study are to be audio-recorded.

I understand that I am able to change my mind or stop my involvement in the study at any time with no questions asked.

I understand that all information provided by me is confidential and my name and identity will be stored separately from any data, and these are accessible by authorised research personal only.

I agree that the results of my participation in this study may be reported, presented, and/or published provided names or any other information that may identify me is not used.

Signature of Participant: __________________________ Date____/____/____

Name of Participant: __________________________

Signature of Investigator: __________________________ Date____/____/____

Name of Investigator: __________________________

Supervisor’s Signature: __________________________ Date:____/____/____

Name of Supervisor: __________________________
**Daily Anxiety Rating Scale**  

**Week starting:**

Using the anxiety scale below, please rate your average level of anxiety during each of these time periods (A). Also, in the space provided make a note of where you were, who you were with, and what you were doing (Setting).

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<th>Anxiety Scale (%)</th>
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<td>No Anxiety</td>
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<td>0..................</td>
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<td>75..................</td>
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<th>Waking to 9am</th>
<th>9am to 12pm</th>
<th>12pm to 3pm</th>
<th>3pm to 6pm</th>
<th>6pm to 9pm</th>
<th>9pm to bedtime</th>
</tr>
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<tbody>
<tr>
<td>A Setting</td>
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**Behaviour Self-Monitoring Diary**

Day: ___________  Date: ___________

Time you got out of bed: _____  Time you put on your pedometer: _____  Time you removed pedometer: _____  Distance (kms) _____

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<tr>
<th>Activities</th>
<th>From waking up to 12.00 midday</th>
<th>From 12.00 midday to 6.00pm</th>
<th>From 6.00pm to bedtime</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>At home</td>
<td>Out of home</td>
<td>At home</td>
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<tr>
<td></td>
<td>Alone</td>
<td>With others</td>
<td>Alone</td>
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<tr>
<td>Self (or other) care.</td>
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<td>Housework &amp; errands.</td>
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<td>Paid or unpaid work.</td>
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<tr>
<td>Interests, hobbies, and recreation.</td>
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Appendix F: Behaviour Self-Monitoring Diary (BSMD) Instruction Form

Guide to completing your activity diary

This Activity Diary is designed to help you to monitor and record your daily activity levels as well as other important information. There is 1 page for every day of the week.

Walking Monitoring

When you get dressed in the morning record: (1) the day and date, (2) the time you got out of bed, and (3) the time you put on your pedometer.

When you get undressed to go to bed at night record: (4) the time you removed your pedometer, and (5) your pedometer reading (i.e., distance travelled).

Recording your activities

Diary layout

Reading from left to right, your day is broken up into 3 time periods (i.e., waking to 12.00 midday, 12.00 midday to 6.00 pm, and 6.00 pm to bedtime) for which to record activities. Directly below these, you will see that you group your activities during those times as being (a) either at home or out of home, and (b) either alone or with others.

Reading from top to bottom, your activities are grouped into 4 main areas: (1) self (or other) care), (2) housework and errands, (3) paid or unpaid work, and (4) interests, hobbies, and recreation. You will find definitions of these classes of activities on the next page.

Filling in the diary

What we want is for you to record your daily activities in 15 minute blocks. That means, for each time period simply register a dash (see example) for every 15 minutes you spend on a particular activity. Some activities may last for only 15 minutes or even less. If you engage in more than one activity in any given 15 minute period only mark one entry in your diary and decide which activity best sums up that 15 minute period. Of course, we don’t expect you to stop your activities to mark your diary every 15 minutes – but we do want as accurate a recording as possible and for your whole day to be accounted for. Therefore, if an activity takes longer than 15 minutes (e.g., grocery shopping – 2 hours), when you complete the activity simply record either 8 dashes or the number ‘8’ in the matching box (e.g., housework and errands/alone/out of home).

Because of this, it may help you to carry your diary with you during the day.
Appendix F: BSMD Instruction Form

Activity Class Definitions

- These definitions can help to decide in which area to record your spent time:

**Self and other care:** This includes time spent on attending to your personal needs including self-cleaning, grooming, and dressing. It can also include time spent on the care of others including pet care and attending to the personal needs of a family member or friend.

**Housework and errands:** This includes regular house-keeping work including cleaning and cooking and can include house-maintenance like repairing taps or clearing gutters. Errands are everyday short journeys and tasks that are required including paying bills, grocery shopping, and car care.

**Paid or unpaid work:** This includes typical paid work as well as volunteer or charity work. It also includes time spent on formal education and training (e.g., university).

**Interests, hobbies, and recreation:** This includes time spent on activities that you enjoy and that are fun and interesting. There may be certain hobbies that you engage in that can be recorded in this category. Also, recreational activity such as exercise and reading can be placed here.

**Note:** These are broad categories. Try your best to record your activities. Most importantly, be consistent. Continue to use the diary in the same way throughout the whole study.
Appendix G: Coded Recording System for Behavioural Activation

Therapy Sessions (CRS-BATS)

INSTRUCTIONS: This scoring form measures ‘therapist verbal behaviour’ (TVB) in the therapy session which you are listening to. TVB is coded (see below) in categories of TVB prescribed and proscribed in behavioural activation (BA) therapy. The occurrence of any of these TVBs is scored by marking a slash through the corresponding symbol during the 20 sec time interval on the coding sheet. Following each 20 second interval make a slash through the coded-symbol which corresponds to the TVB which occurred during that time. If you are unable to categorise the TVB, place a slash through all symbols and note ‘UC’ and the interval will be scored as uncategorisable. If TVB is less than 10 secs of the interval place a slash through all symbols. Note: It is the therapist’s verbal behaviour that you are focusing on (not the client’s) and care must be taken to code independent of client behaviour. Clients may be difficult, elusive, or attempt to lead the therapist towards content technically incompatible with BATA. What is MOST important is that the therapist implements the essential elements of BATA.

Possible Categories of TVB:

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<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tr>
<td>SM</td>
<td>review of client self-monitoring and/or data review</td>
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<tr>
<td>AS</td>
<td>future activity scheduling</td>
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<tr>
<td>GS</td>
<td>setting or reviewing client goals</td>
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<tr>
<td>MD</td>
<td>discussing medication or other drug use</td>
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<td>IP</td>
<td>interpersonal therapy</td>
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<td>CT</td>
<td>cognitive therapy</td>
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<td>discussing avoidance</td>
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<td>ED</td>
<td>psychoeducation</td>
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<td>RA</td>
<td>review of past activities</td>
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<td>RX</td>
<td>relaxation training</td>
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<tr>
<td>EX</td>
<td>exposure</td>
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Definitions:

SM: Discussing and reviewing the past week’s formal self-monitoring (e.g., sleep, walking distance, drug/alcohol use, activities, anxiety, stress and panic) and/or client’s data.

AV: Discussion is oriented toward identifying avoidance and escape behaviour and its function.

AS: Discussing future activities for the participant to engage in between sessions and making strategies (e.g., to do lists) to prompt and support activities (more immediate and specific than longer term goals).


GS: Discussing participant’s short, medium and long term goals.

RA: Discussing past activities participants have engaged in (both scheduled and spontaneous).

MD: Discussion may involve participant usage of medication(s), alcohol, and other drugs (e.g., coffee).

RX: Participant led to practice controlled breathing, PMR, meditation, or the emphasis is on relaxation.

IP: Clear and deliberate focus on client’s interpersonal interactions such as discussions of past and present relationships and exploration of the client/therapist relationship in the absence of BA principles.

EX: Participants led to develop fear/avoidance hierarchy and to practice exposure to specific fearful stimuli in a gradual, prolonged, repetitive way either in/out of session.

CT: Encouraging client to identify negative/dysfunctional thoughts and working to challenge, remove, alter, or in some way change such thoughts.
## Appendix H: CRS-BATS Coding Sheet

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Appendix I: Behavioural Activation Treatment of Anxiety Treatment Protocol

Behavioural Activation Treatment of Anxiety (BATA)

Overview

The aim of BATA is to increase the amount of approach-oriented socially important behaviour in the client’s daily life while producing corresponding decreases in the amount of habitual avoidance which is typical of the anxiety-sufferer. This is achieved by helping clients to bring their overt behaviour more under the control of life goals and scheduled activities and less under the control of in-situ emotional responses. BATA is delivered in an individual format with 60 min weekly sessions.

The key components of BATA are:

- Self-monitoring
- Psycho-education
- Functional Analysis
- Goal-setting
- Activity Scheduling
- Activity Reviewing

The BATA Therapist

The BATA therapist ideally is trained in behaviour analysis and has a comprehensive understanding of operant principles for explaining human behaviour. Also, the therapist should be qualified in dealing with DSM-IV Axis I anxiety-related disorders. The therapist is always trying to analyse the client’s in and out of session behaviour according to its function within context. The therapist is working to identify the reinforcers that maintain clinically-relevant behaviour and its discriminative and eliciting stimuli. Private events such as thinking and feeling are accepted and may be discussed, but always as correlates or separate components of the client’s anxiety. Even
though such variables may seem to operate as antecedents, they are understood to be occasioned by environmental stimuli and under the same controlling variables as overt behaviours. The therapist adheres to the treatment protocol. Given the client’s verbal behaviour has been shaped by the behaviour of others (including therapists of different clinical orientations), it is to be expected that he or she may deviate from the parameters of treatment. This may be in the form of excessive rumination, complaining, or (non-functional) self analysis offering explanatory fictions or ‘mentalistic’ reasoning. Nonetheless, at those times the BATA therapist should simply listen politely and choose the appropriate moment to direct the client back on task.

The BATA therapist should pay attention to his or her verbal behaviour as it may function as reinforcement for the client’s in-session behaviour. This is similar to the therapist stance recommended within functional analytic psychotherapy (FAP; Kohlenberg & Tsai, 1991). Thus, the BATA therapist provides immediate and genuine (natural) social feedback (e.g., praise, smiles) when the client acts in a way consistent with the aims of BATA (e.g., discussing weekly activities, goal setting, offering functional descriptions of behaviour), and withholds possible social reinforcement when the client acts inconsistently with the aims of BATA (e.g., ruminating about distal events). In this way the therapist is shaping the client’s in-session behaviour. In doing so the therapist must be careful not to create an overly punishing environment for the client by indiscriminately forcing the agenda at all times. Punishment is known to lead to unwanted behaviour such as aggression or withdrawal, as does the non-delivery of reinforcement (Catania, 1998). Ultimately, if the client is consistently socially punished for attending treatment sessions then it is likely he or she will discontinue attendance. Instead, the BATA therapist should patiently listen to the client, choose the appropriate times to reinforce the client’s behaviour, and always operate in a respectful and polite manner to orientate the client’s attention to the aims of the treatment protocol.
SESSION 1.

The goals of session 1 are to define the client’s experience of anxiety and provide information regarding the general nature of anxiety, the anxiety disorder that fits the client’s behaviour (e.g., GAD), and the origins of anxiety-related disorders. Firstly, as with every session, the client is asked to complete a standardised measure (e.g., BAI, DASS; both used in the present study). Also, self-monitoring diaries (e.g., daily anxiety, activities) are explained and provided and the client is instructed as to how they are to be collected and when fresh ones are provided. The therapist should refer to Barlow, Nelson, and Hayes (1984) or a similar text for guidelines on self-monitoring including the construction of measures. The therapist should check that the client can follow instructions as to how the diaries are properly completed and address any concerns or questions the client may have. The therapist explains how any obvious patterns of behaviour; antecedent stimuli; functional consequences; or anomalous features within the data that are relevant to client clinical behaviour are to be discussed with client from session 2 onwards. This should take between 5 to 15 minutes.

Therapy begins with the presentation of general information handouts regarding anxiety (Figure 1) and the ‘fight or flight’ response (Figure 2). The client is taken through the points on each hand-out and also provided with verbal information about the prevalence rates of specific anxiety disorders (e.g., GAD), their characteristics, and their course. Next, the client’s own experience of anxiety is carefully defined and categorised into private events (thinking and feeling) and public events (overt behaviour). This is known as the three-response system model for describing anxiety (Barlow, 2002). The therapist asks the client to describe the cognitive, physiological, and (overt) behavioural characteristics of his or her anxiety. This provides an operational definition of anxiety for the therapist and client and begins to orientate the client towards attending to the overt behavioural aspects of his or her anxiety.
ANXIETY

- Anxiety is a typical human emotion which helps to prepare us to deal with potentially challenging events. In fact, some anxiety is good because it motivates us to take action which may be of benefit to us. Anxiety is absolutely normal and no-one will ever be completely free of anxiety.
- In terms of physiology anxiety is similar to fear in that the body’s autonomic nervous system is activated which prepares us to respond to threat by increasing heart rate, blood pressure, muscle tension and breathing rate, for example. At it’s most severe, anxiety may develop into feelings of panic.
- Anxiety is different to a fear response, however, because fear is the immediate reaction to current danger whereas anxiety is apprehension about future events.
- For some people, anxiety becomes severe and persistent and this significantly interferes with their day to day life.
- Anxiety is the most common psychological disorder with nearly 1 third of adults experiencing clinical anxiety at some point in their lives.
- Anxiety is characterised by three components: 1) Thoughts (what we think), feelings (what we feel), and Behaviour (what we do).

**Thoughts** – Fear of not being able to cope with future events. Fear of situations, places, things. Worry about, seemingly, everything in your daily life. Worry about how much you are worrying.


Figure 1. Anxiety Handout for Clients.
Fight or Flight Response

The fight or flight response is a primitive survival reflex that originates in the midbrain. It has evolved on the basis that if something is threatening you, your best chance of survival is either to run away (flight) or stand your ground and defend yourself (fight). To this end your heart rate speeds up, your body floods with adrenaline, blood shunts to the large muscles of your arms and legs and your breathing increases to give you more oxygen, all of which prepares you to flee or else stay and fight.

So whenever we perceive a threat, the fight or flight response kicks in – immediately activates. In prehistoric times, this response was life-saving. When a woolly-mammoth charged you, if you couldn’t escape, your only hope was to kill it or at least fight it off. However, in contemporary society, most of us rarely find ourselves in life-threatening situations, and yet the fight or flight response is often triggered in situations when it is of little or no use to us.

For this, evolution is responsible. We are still designed, in part, to ensure we don’t get killed and we our brain perceives potential danger everywhere: in a moody spouse, a controlling boss, a parking ticket, a new job, a traffic jam, a long line at the bank, a big mortgage – you name it. The threat may even come from within our internal environment, such as a disturbing thought or image. Obviously, none of these things are life-threatening but our brain and body react as if they were. Over time, with the development of anxious apprehension – we may even feel as if we constantly are in a fight or flight state.

Figure 2. ‘Fight or Flight’ Handout for Clients.
To illustrate, the following narrative accounts of BATA were recorded during session 1 between the therapist and participant “Jim” (T and J, respectively):

T: When you experience anxiety, what physical changes or symptoms do you notice? I’ll write your answers on the white-board so we can form a picture of your anxiety experience. (A white-board or large sheet of paper is recommended as a tool for presenting the client’s answers in-session).

J: I never sweat but I get very hot. I get very flushed in the face. I also get a feeling of instability on my feet, like I feel quite unsteady to stand. If I’m in a situation I can’t handle, like a busy shopping centre, I start to get a bit giddy.

T: Do you mean dizziness?

J: Yes. Like when you bend over and then come back up too quick. That’s the feeling.

T: What other feelings go with your anxiety?

J: Overall, I feel like I don’t have control over my body at those times. I’m shaky, dizzy, my heart’s pounding away, my hands tremble. I forget to breathe, even. Or other times, I feel a real shortness of breath.

T: I wonder what thoughts you have when you experience anxiety. When you’re anxious, what are you thinking about?

J: I think that people are looking at me. Like they know that something’s not quite right with me. Or that I look a bit odd. If I’m in a busy place and I start to feel anxious I think that people can see through me and they know there’s something mentally wrong with me.

T: What other thoughts do you have with your anxiety?

J: I worry about money a lot. I think, well, will I have enough money to get by on. Every morning I wake up and I think about that. I get anxious and I think, will everything be alright or will I feel this way for ever.
T: So you’re feeling anxious and thinking, will I always be like this?

J: Yes. And I’m thinking how stupid I am to feel this way for so long.

T: Can I also ask you what you do when you feel anxious or what you feel you have to do?

J: I feel as though I can’t sit still. I need to move, walk away, leave the situation. I think people wonder why I have to just get up and go for a walk so many times but when people are all around me and talking and busy, I just can’t stand it. The other thing I do is clench and unclench my fists. I try to ease the tension out through my hands. And, if I remember I’ll take a few deep breaths to settle me down. I also tend to get nervous and get off track in conversations. I talk too much when I’m anxious and it’s usually irrelevant.

T: And social situations bring these behaviours on?

J: I’ll always use an excuse when I’m anxious. Like I’ve got to go and check on my car or I’ve forgotten my keys. I’ve got a million excuses I use to get away from those situations when I’m feeling anxious.

T: These are my words (writing on board), but I’ll write that when you feel anxious you tend to escape from situations.

J: Yes. I think that covers it well.

This exercise should last for 25 to 35 minutes. At this point the therapist is not really offering interpretations of the client’s behaviour, only providing an objective description of his anxiety based on a client’s self-report. The therapist should be beginning to privately identify functional explanations for the client’s behaviour, yet the aim of session 1 is to clearly define the client’s own anxiety experience and provide general education about anxiety. By the end of the session, the therapist aims to have
oriented the client’s attention toward the overt aspects of his anxiety as it is the public
behaviour of the client which is to be directly targeted for change within BATA.

The development of anxiety in the individual is briefly addressed in the last part
of session 1. Barlow’s *triple vulnerabilities* model for the development of anxiety
(2002) is applied to organise the discussion. Thus, the therapist will mention that
anxiety may develop due to a combination of biological or familial vulnerabilities;
generalised psychological vulnerabilities; and, specific psychological vulnerabilities.
Above all else, this assists both the therapist and client in identifying potential learning
experiences (distal and proximal) that have influenced the client’s present condition.
The client’s responses are taken as facts and the information is used to illustrate the
origins of his anxiety, but not as an explanation for how his anxiety-related behaviour is
maintained in the present. Again, the following exchanges were recorded during session
1 between the therapist (T) and Jim (J):

T: Does anyone in your family experience anxiety?

J: If anyone, it would be my father. I could never pinpoint it as anxiety, but like me he
was quite dysfunctional.

T: What do you mean?

J: Well. He was like he could never sit still. Never finishing anything he started and
quite a difficult man. I think he did suffer mental illness but it was never spoken about
and I think he hid it quite well.

T: Generally speaking, it’s our learning experiences through life that lead to the
development of ongoing emotional problems such as anxiety. This includes those earlier
more distant experiences, like childhood ones, that perhaps began your anxious
responding and the more recent examples of frightening or fear-eliciting, distressing
situations.
J: I would agree with that. There were definitely things that happened that made me worry a lot and feel uncomfortable in myself.

T: Social experiences?

J: Yes. Going way back. I can remember someone at school saying to me I was always a bundle of nerves. I had told my sister once or twice about something terrible that happened to me when I was a child. I may have mentioned that to you before.

At this point, it’s not necessary to prompt the client to detail his past experiences. The only aim is for him to understand that there is an ideographic learning history that has contributed to the development of his condition and lengthy discussions about distal events generally are to be limited to the parameters (e.g., time, content) of the session. Within BATA, the client’s present day context is primary. His current behaviour obviously has been shaped by a past history of reinforcement and punishment. That forms part of the context for his clinical behaviour. As a brief therapy, however, BATA is more concerned with addressing the present day functional relations underlying his clinical (anxiety) behaviour.

The first session ends with a brief review of the content covered within and the therapist asking the client whether he or she has any questions or concerns regarding the completed session or future sessions. Clients are asked to continue their self-monitoring between sessions. The therapist briefly outlines the plan for the next session and the aims of treatment:

T: It’s unlikely that you will ever be completely free of anxiety, however the aim of this treatment is to modify your behaviour to the extent that you are not controlled by your anxiety and when we go through the treatment model next week in some detail, you will see that we will be focusing on your behaviour, the things you do. The principle being that we focus on changing your behaviour first and your thoughts and feelings will
change accordingly. Do you have any questions? I want you to leave here today with as comprehensive an understanding of anxiety as is possible.

J: I do have a better understanding now. Even with my anxiety I still can absorb information. Particularly with my paperwork and forms I can take them home and have a good read of them. I do have a question though. Did you say that my feelings and thoughts come from my behaviour?

T: Essentially, yes, although feelings and thoughts are also behaviour. The important message to take away with you is that we can have a large amount of control over our overt behaviour, despite what we may be thinking or feeling. We have a lot less control over our thoughts and feelings in comparison.

J: So it’s not up to the individual what thoughts come in and out of his head?

T: Our thoughts and our feelings are products of what we do, where we go, who we are with. That’s the context for the private or internal events such as thinking and feeling. That’s why for the remaining treatment sessions we are going to be focusing on your overt behaviour, the things you do each day – to see whether we can get some change in your anxiety.

SESSION 2.

The primary goals of session 2 are to provide the client with a full treatment rationale and description and to explicitly introduce the concept of avoidance. Toward the end of the session, the client is also instructed on goal-setting. As with every session, the client’s self-monitoring diaries are collected and new ones provided. The client also completes the standardised measure(s). After this is completed, the therapist outlines the agenda for the session referring to the document outlining the key points of BA (Figure 3) which was adapted from the work of Dimidjian et al. (2008) to focus on
anxiety rather than depression. The therapist should work through every point included in the outline:

T: What I want to cover today is the actual model of treatment you are about to receive and the principles underlying it. First I will go through, point by point, the treatment model and if you have any questions, comments, or concerns don’t hesitate to raise them with me.

J: That sounds ok to me.

Ten Key Points to Address When Presenting the BA Treatment Model

1. Behavioural activation (BA) is based on the idea that the events in your life and how you respond to such events influence your thoughts and feelings.

2. BA assumes that a major reason why people continue to experience anxiety is that their lives are focused more on ‘anxious’ behaviour rather than ‘non-anxious’ behaviour. That is to say – in response to feelings of anxiety we restrict and limit our day to day activities in order to avoid feeling anxious so we end up living like anxious people.

3. Sometimes it is possible to pinpoint exactly the cause of someone’s anxiety; but at other times it is not, yet there maybe indicators within the person’s day to day life.

4. When experiencing anxiety in life, people often avoid (or escape from) situations, places, or people which they associate with feelings of anxiety – and this means the person’s life is often restricted and limited and they are never really able to fully live their life as they want to.

5. Wanting to avoid uncomfortable feelings is natural and understandable as is avoiding situations which may lead to these feelings. We know, however, that this ‘avoidance’ serves to maintain anxiety in the long term.

6. Herein lies the problem. Although avoiding and/or escaping from certain situations, places and people often works in the short-term because we avoid feeling anxiety, or our anxiety is reduced – this has the effect of maintaining and often strengthening feelings of anxiety as well as impacting on one’s quality of life. In terms of how restricted anxious people’s lives can be, it’s not surprising anxiety often leads to depression.

7. During BA therapy, you and I will work towards helping you become more active and engaged in your life – with fewer restrictions and limits.

8. BA is not just about ‘doing more’ or ‘just doing it’. If feeling less anxious were that easy, you would already have done it. My role as therapist is to analyse your behaviour and evaluate which activities may help decrease your feelings of anxiety and also those which may be serving to maintain or strengthen your anxiety. Together we will work to structure your day to day life so we move you closer to living the type of life you would lead if you were free of anxiety. This is done collaboratively, with absolute respect and dignity shown towards your personal beliefs, values, and freedom.

9. Each session will involve developing practical, achievable steps aimed at helping you to overcome the hold anxiety has over your life.

10. Between sessions, you will work on various tasks that we develop together; these tasks are an essential part of BA therapy and will focus on reconnecting or building parts of your life that allow you to overcome anxiety and bring you closer to achieving life goals which are important to you.

Figure 3: Therapist’s Guide for Presenting the BATA Model.
T: BA assumes that a major reason why people continue to experience anxiety is that their lives are focused more on anxious behaviour rather than non-anxious behaviour. That is to say in response to feelings of anxiety we restrict and limit our day to day activities in order to avoid feeling anxious so we end up living like anxious people.

J: So true.

T: Yes? That makes sense?

J: Very, very true in my case. It’s become part of my life and I just adjust my life around my anxiety. It’s amazing to think what I would really like my life to be about.

T: So at this point in time, the things you do in your life and how things are, they’re not completely how you would like them to be?

J: They’re certainly not and they have never been. Not as long as I can remember.

T: Because?

J: Because I’ve (pause) always responded to the effects of anxiety

T: Although avoiding and/or escaping from certain situations, places and people often works in the short-term….

J: Well I’ve done that all my life. From a young age.

T: Because we avoid feeling anxiety or our anxiety is reduced, this has the effect of maintaining and often strengthening our feelings of anxiety as well as impacting on one’s quality of life.

J: I don’t want to be too subjective, but I can put myself in the category of everything you’ve mentioned so far. My social life, dealing with people, opportunities. The part where you say that people miss out on this and that, well I feel I have missed out on a lot in life (pause) being an anxious person.
T: During BA therapy, you and I will work towards helping you become more active and engaged in your life with fewer restrictions and limits.

J: That would be good.

T: We are focusing on concrete behavioural steps to help you get in contact with what’s important to you.

J: Can I just say that I’ve never really done that. It’s like I’ve just existed. It just becomes like a habit. I don’t really ever do what I truly want.

T: So that is the description of the treatment you are to receive and the underlying principles. Does it sound like something you would be interested in engaging in?

J: It sounds very good. I just hope I can bring it to fruition.

This part of the session should be between 20 and 30 minutes. The client should be given the opportunity to raise any concerns or questions regarding treatment. As above, the client should be asked directly whether he or she is willing to engage in the treatment. In essence, this is contracting with the client and an informed decision is being made. The emphasis within the treatment rationale on avoidance and the broader function of the client’s behaviour is the beginning of an ongoing education regarding functional analysis. The aim here is for the client to be able to apply a self (functional) analysis that serves to prompt behaviour change in important areas, in conjunction with the more formal aspects of the treatment such as activity scheduling. This part of session 2 ends with the client being provided with a hand-out (Figure 4) that summarises the treatment model and rationale in plain language. The therapist reads through the hand-out in session and recommends the client regularly refer to the document throughout the course of treatment. This treatment summary focuses on anxiety and is adapted from a similar item developed by Lejuez et al. (2001).
Anxiety is an uncomfortable feeling of fear or worry that everyone experiences from time to time. Bodily sensations such as trembling, shakiness, fast breathing, and sweating can tell us we are feeling anxious. In fact, anxiety is considered a typical human response which, over time, developed to help us respond to danger or threats to our wellbeing. Anxiety is unavoidable, natural, and for most of us not a problem. For some people, however, anxiety becomes a problem – especially when it interferes with our normal day to day activities and our lives become very restricted and unpleasant a lot of the time. This may be what is happening with you in your life.

Because anxiety is such an unpleasant feeling, we will put effort into avoiding or escaping from any situations where we may either feel very anxious or predict we will feel anxious. We avoid these situations because deep down we believe we cannot cope with our feelings. Or, we will go into situations that make us feel anxious, and quickly look for ways to escape – without allowing ourselves time to relax and enjoy ourselves. This may work in the short-term, by avoiding feelings of anxiety – but in the long term we never allow ourselves the opportunity to reduce our anxiety. In fact, by trying to fix your anxiety in this way – you may have found that your anxiety has grown stronger over time and you may be feeling worried or fearful in all sorts of situations. This may be making it very hard for you to do the things you want to do, be the person you want to be, and live the life you want to live.

You may be waiting for the day to come when you feel less anxious, more in control, and better able to carry out your day to day activities. As you may realise, this is easier said than it is done. If you don’t make clear changes in your life – it may be that your anxiety will persist for a long time. In fact, research tells us the more we attempt to fight our anxiety – the stronger it gets. The idea of the treatment you are about to undertake is that it is the actual activities you do, and the activities you don’t do, which affect your day to day feelings of anxiety. So, what is required of you is to begin to increase your activity levels in all meaningful areas of your life before you can begin to feel less anxious. Although this may be difficult at first, and feelings of anxiety may seem as strong as they ever have, your therapist will help you through this process, at your own pace, and help you to solve any problems that may arise along the way. No one expects you to be completely free of anxiety as you begin to increase the meaningful activity in your day, but the process will, in time, become easier, more rewarding, and achievable.

Figure 4. Client’s Take-Home Treatment Summary
Finally, the client is provided with a goal setting form (Figure 5) and asked to complete the form between sessions. The client is also provided with a verbal rationale for using the form. The goal setting form is similar to those used in the BA treatment manual developed by Lejuez et al. (2001) which itself was based on the form used within the ACT manual of Hayes et al. (1999). The form requires the client to list goals within a range of life areas (e.g., family relations, employment, recreation). The main differences between the goal setting form developed for the BATA treatment protocol are the explicit usage of the term *goals* (instead of ‘*life areas assessment*’ or ‘*valued directions*’) and the addition of written instructions with the following point: “Focus on behaviours (i.e., things you would like to do) rather than how you would like to feel or what you would like to think”. Goal setting is introduced in the following manner:

T: Along with reflecting on what we have discussed during this session, in particular the BA model of treatment for anxiety, this week’s homework is to complete this ‘goal-setting’ form (hands form to client). The initial step that we get you to take is to use this form to list all your goals in these different areas of your life from this point onwards. It doesn’t matter how achievable they might seem at the moment or whether they are long, medium or short term goals. Whatever you come up with, the aim is to simply write them all down on the form and next week we can start to go through them and discuss what you can do to start working towards meeting your life goals. Although a reasonable goal at this point in your life might be ‘I want to be free of anxiety’ or ‘I don’t want to keep having these troubling thoughts’, we are not focusing on those type of goals. We are focusing on things that you can actually do, behavioural changes that you can make, goals that are concrete and tangible. Able to be observed by you and others around you.
J: So it could be anything fanciful? Anything I desire? Work wise, social wise?
T: At this point, anything. As long as your goals are concrete and tangible.
J: I can think of one thing right away. I need to get back to the gym, because I’ve let myself go the pack a bit. For a couple of years there I used to go to the gym every weeknight. I got myself looking and feeling pretty good. I think….actually I don’t know why I gave it away.
T: That’s a good example of a goal that you can record on your form. Either in the ‘recreation’ or in the ‘health and physical wellbeing’ section. In fact, I’ve already heard a few good examples of goals from you today.
J: I never tell people these things though. I’ve always kept my thoughts about my desires hidden away.

❖

T: This is an individual process Jim. It’s about the things that are important to you, the things you want to do, the goals that you want to strive for. We’ll work together in these sessions to identify what changes will help you to live a non-anxious life and also identify those things that you do that might be working to maintain your anxiety. We are looking for you to be approaching more things in your life and avoiding less.
J: You’ve hit the nail on the head. Even coming in to be part of this program is a decision I made to stop avoiding my problems in life and to face up to them. I believe I do have the ability to do things, but I never put it into practice.
T: Hopefully, from this point forward we can work together to help you to put things into practice.
J: I have tried hard in the past, but nothing’s quite worked yet. Sometimes I feel as though I take one step forwards and three backwards.
T: The aim of this treatment is for you to have built strong, concrete steps towards your goals in the time that we have together.
**Goals**

**Instructions:** People engage in therapy to make changes in their lives. Properly identifying goals and working towards accomplishing those goals is of vital importance to making positive change in your life.

In the life areas below, write down as many goals as you can think of. Don’t worry whether they seem achievable or not. Simply write down all your goals. Focus on behaviours (i.e., things you would like to do) rather than how you would like to feel or what you would like to think.

*List your goals*

**Couples/intimate relationships:**

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

**Family relations:**

____________________________________________________________________________________

____________________________________________________________________________________

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**Social relations:**

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**Parenting:**

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**Employment:**

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Figure 5: Goal Setting Form.
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| Health/ physical wellbeing: |
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Well done.

Figure 5. Goal Setting Form.
SESSION 3.

The main goals of session 3 are to review the client’s between-session goal-setting exercise and to introduce the strategy of ‘activity scheduling’. These goals are clearly stated to the client at the beginning of the session. The next step is the collection of the client’s self-monitoring diaries and the provision of new ones. The client also completes the standardised measure(s). As the data are collected across sessions they can be feedback to the client in graphic form:

T: You can see here from these simple graphs of your baseline period that at the times when you are engaged in things that really interest you, what happens to your anxiety?
J: It goes down.

T: Yes. It’s quite clear. And it fits with the BA model. But, what I also found on this other graph was that the more time you spend at home the lower your anxiety is. Which may not be such a good thing because we have spoken about the function of avoidance is to decrease feelings of anxiety. Maybe the data are telling us that when you’re at home you’re not having to face people, go to certain places, enter into situations that make you feel uncomfortable. Even if that means you’re missing out on life a bit.
J: A bit isolated maybe. I guess it’s not helping with my anxiety in the long run.

T: Yes. We spoke last week about how the avoidance actually maintains your anxiety.
J: The harm that it does. I read through the hand-outs you gave me during the week. I know my anxiety goes up when I go to certain places, like shopping centres. If I go I just have to get out of there. Usually I do my best not to go at all.

Following this review, the therapist begins to discuss the goal-setting exercise:

T: Did you manage to complete the goal-setting activity during the week?
J: Yes. I wrote everything down just as it came into my mind.

T: Do you want to start reading them out to me so we can discuss them?
J: I would like to hire a country block and build transportable homes for a business. I would like to do something to help other people voluntarily (client continues to read out goals).

T: Let’s start with the first goal. Can you explain to me what that would involve and why that’s important to you?

The aim of discussing the client’s goals in detail is to identify the steps required in meeting the goal, the potential activities that are associated with the goal, whether the goal is socially ‘valid’, the likelihood of accessing positive reinforcement, and whether there are any potential ‘behavioural cusps’ that might occur as the client is working towards meeting his or her goal.

T: What’s the next goal that you have written down there?

J: I would like to do something to help people voluntarily.

T: Any particular area that you had in mind?

J: I did use to work at the RSPCA animal shelter for 2 years. Cleaning pens and walking the dogs. I love animals. I often think about going back there. It goes through my mind all the time that it did me good when I was helping out there. I’m not sure I have the time though. I’m quite busy at the moment. I’m not sure if I know anyone up there anymore.

T: Do you know how much time do you would need?

J: I used to go there for one afternoon a week for a few hours. Every Friday actually.

T: And, you don’t have that time now?

J: Well, I could probably find it. (Pause) Maybe I just say things like, ‘I don’t have the time’ as a way of justifying my behaviour. My anxiety has been pretty high for some time now. I just can’t get organised. I can’t seem to be able to get off my behind and do what I want to do. It’s just too hard and it can be easier to just put things off.
T: Unfortunately that avoidance means you miss out on quite a bit in life. BA-therapy is like running a series of mini-experiments. Engage in the activity and see what happens for you. It won’t be done without effort and it will come down to what works for you, but hopefully we can collaborate through this process to enable you to be able to do the things you want to do regardless of how you feel.

This example highlights another outcome of the goal-setting exercise which is to observe instances of potential avoidance in the client’s everyday life and apply a pragmatic ‘BA-type’ response in conversation. The client has stated a goal, yet initially offers ‘reasons’ for not attempting to accomplish the goal. The therapist signals ‘avoidance’ and restates the objectives of BA therapy. Also, at this point the client is beginning to demonstrate that he is able to formulate basic functional descriptions of his behaviour including recognising the negative reinforcement that maintains his habitual avoidance.

T: What’s the next goal Jim?
J: I would like to catch up with family, relatives and friends I have ignored for years.
T: If you were to try to get closer to this goal, what would be the first step you would have to take?
J: I’d ring my brother. He rang me for Xmas and I didn’t even ring him back. I’ve avoided him for years. I didn’t even go to his 60th birthday.
T: Do you think you could give him a call this week?
J: I could. I’d feel uncomfortable after all this time. But, I could make the time to give him a call.

In this way, target behaviours for activation (e.g., contacting friends and family) can be drawn from the client’s goals. The goal-setting exercise should account for
approximately 40 mins of session 3. It’s not necessary to hold a detailed discussion of
every goal that the client has generated. Goals can also be discussed in subsequent
sessions. The final 15 mins of session 3 is spent on introducing the strategy of ‘activity
scheduling’, providing the client a Weekly Activity Log (Figure 6), showing the client
how to use the log to schedule activities, and attempting to schedule some activities for
the week ahead:

T: I want to give you the ‘Weekly Activity Log’ to use from this point on. This is to
help you to schedule in activities that you choose to engage in during the week. Can we
use the ‘call to your brother’ as an example? I could demonstrate how to use the log.

J: I would like to give him a call, yes.

T: Ok. Is there a time and day you would make the call?

J: In the evening.

T: Good. And on what day?

J: I think any night of the week would do.

T: If you had to be specific. Which day would you choose?

J: I could ring him Sunday.

T: Good. And, what time?

J: Between 7 and 8.

T: So let’s schedule that in. The activity is ‘phoning brother’, the frequency is ‘1’, the
duration – how long would you talk with him for?

J: It depends on how it goes. Maybe half an hour.

T: Good. So the duration is 30 mins. Then, you can simply place a yes or no in the box
to show whether the activity was completed, then the actual frequency. You may call
him more than once, for example. And, finally record the actual duration of the activity.
Whether it was 30 mins, 10 mins, or 60 mins, etc. The primary aim is to conduct the
activity, the phone call in this case. Try to stick with your scheduling but also observe
where the activity takes you. That’s how you use the activity log to schedule activities. Every session you can return your completed activity log and I’ll provide you with a new copy. Is that clear? The process is small steps, activities that take you closer towards your goals. And, you have just scheduled your first activity which is an important action on your part.

J: That’s good. I think I understand ok. I’ll follow the schedule and next week I’ll tell you how it went. It will be hard. I’ve always felt I was the ‘black sheep’ of the family and compared myself unfavourably to my brother.

T: An important aspect of BA therapy is that we accept what’s happened in the past, but we don’t dwell on it. Your history is important to the degree that it forms part of the context for your present day behaviour. You can’t directly act on the past though, so we look at what you can do differently today and into the future and make a difference that way. Is it’s important to you, then re-engaging with your family and friends might be a good start.

J: I think so too. I’ve put it off for a long time.

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Figure 6. Client’s Weekly Activity Log.
SESSION 4.

As typical, the session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms. Session 4 is a pivotal stage in BATA because it is the first opportunity to assess the client’s programmed between-session activation. The therapist assists the client in describing his or her activation (and avoidance) that might have occurred during the previous week and its associated reinforcing, discriminative, and eliciting stimuli. The therapist and client continue to collaborate in describing the functional relations controlling the client’s everyday behaviours and identifying ways that the client can access positive reinforcement for clinically ‘healthy’ non-anxious behaviour.

T: Looking at your activity log, it appears that you engaged in a number of scheduled activities this week?

J: Yes. I made sure that I phoned my brother and had a talk for about half an hour with him.

T: Very good. When was the last time that you spoke with him?

J: Three years ago.

T: Three years ago?!

J: I’ve been invited down there a number of times. He tries to make me very welcome. He and his wife are very nice people. But I always thought that he was so much better than me with my failures in life. I’ve avoided him for a long time.

T: How was your anxiety leading up to making the call?

J: I actually put it off for two days. Which is what you told me I might do. But I have to tell you. When I rang him I felt so relieved.

T: That’s important to note. So there was an instance of avoidance initially?
J: I did avoid until a couple of mornings. I didn’t phone him at night but in the morning. I could see it at the time. Once I feel anxious I always just back off. The anxiety goes away for a bit. I knew I had to call him though, eventually. Avoiding him hasn’t really helped overall.

T: How was your anxiety when you were picking the phone up to call?

J: It jumped quite a bit. It got very intense. But (pause) the minute I heard my brother talk I felt an enormous relief. And we had a very good conversation. We talked about our old footy days together. We talked about mum and dad. What his kids are up to. What’s going on in my life. So it was good. It was excellent that you recommended it for me.

T: It came from your goals, Jim. It seemed important to you. How did you feel after the call?

J: I felt good. I felt really, really good.

T: It’s fantastic that you went through with it.

J: I was thinking that it’s quite clever to set a task that I felt I had to go through with. Even though I put it off for a while. I was surprised at how well it worked actually. Something so simple.

T: What about the future. Will you make regular calls? Will you try to increase contact?

J: I will keep in touch. He even asked for my phone number, something he has never done before. He wants to be able to call me. We might plan to meet face to face. That makes me happy.

T: That’s a very good outcome.

In this example, the client and therapist were able to describe the functional relations acting on the client’s behaviour using informal terms. Critically, the client is beginning to identify the everyday concurrent schedules of response-contingent negative
reinforcement for his avoidance behaviour and response-contingent positive reinforcement for his approach behaviour. He described how he altered these contingencies by ‘blocking’ avoidance while simultaneously exposing himself to the schedules of positive reinforcement available in his contact with his brother.

T: I see that you have been walking ‘Martin’ (pet dog). How did that go?

J: Good. The first day, Sunday, was a beautiful day and I took him to a big park near my house where there were about 50 other dogs for him to play with. The owners were pretty good. They bring their dogs over to meet him and have a bit of a chat. He gets along ok with the other dogs. It’s good exercise for me as well.

T: That’s good. Looking at your activity log it shows that you have been doing a few different things this week. Walking Martin, some clothes shopping, riding your bike with your girlfriend. But, your anxiety hasn’t really spiked. If anything it’s reduced.

J: That’s right. That’s how I feel. I don’t know whether I’m not thinking about things or what it is. It could be that I’m starting to do the things I want to do. I’ve never really felt in control before, with my anxiety. The things I’ve scheduled this week have been good for me.

T: And you’re spending more time out of the house?

J: That’s right. Most of the challenges I’ve set myself this past week have meant I’ve had to leave the house a bit more.

T: So, in general the more time you are out of home and doing things you have planned, the less anxious you feel?

J: I think that might be true.

Approximately 40 mins should be spent reviewing the client’s between-session activation. The final 20 mins of the session are spent on generating and scheduling
activities for the coming week with the client’s goals as a referent point to prompt conversation.

T: Let’s look at potential targets for activation for this coming week. One of your goals was to restore past relationships with friends and family. Are there any old friends who you might like to contact this week?

J: I do have a friend in mind who I had a bit of a falling out with a number of years ago. He was the best man at my wedding. Now he’s got bone-cancer and his wife has told me that he’s very angry and upset. I stopped seeing quite a few years ago, before he got cancer. I felt like, as I was working on my own mental health, I would be sabotaged every time I would see him. I don’t know why really. I feel like I have to see him though. In fact, I nearly gave him a ring before I came in today.

T: Really?

J: Well I’m on a bit of a roll (laughs).

T: We should try to maintain that momentum.

J: I hope I can keep it up.

T: Can we schedule that phone contact in for this week?

J: That would be a definite. I would actually like to go and see him. I can’t think of a good day though.

T: Why don’t we schedule his phone call in for this Monday, and if you have to move it then we can be flexible.

J: That’s ok for me. I’ll do it.

T: I think this might be very important for you. Maybe contacting old friends is a real target for activation.
J: It’s funny that you mention that. I do have a couple of friends who I know I don’t spend enough time with. They will often call and invite me places. I nearly always find an excuse not to go though.

T: Another of your goals is to improve your fitness. We spoke a little bit about the gym last week. Is that a potential target? Is there anything else?

J: I used to do quite a bit of swimming once upon a time, in the pool. I was very fit.

T: When was the last time you went for a swim?

J: Oh. I’m not sure. Quite a while back. That’s another thing I stopped. Silly isn’t it?

T: This is typical of the anxiety-sufferer. The range of activities becomes smaller and smaller. Very restricted.

J: My world has shrunk like you wouldn’t believe.

T: Is swimming a target for activation?

J: I could go. There’s a good public pool near my house. There’s a lady I do some work for occasionally and I think she goes there nearly every day.

T: Can we schedule it in?

J: I think that might work.

T: Other than how you feel about it, is there any barrier preventing you from going swimming at this pool like costs or transport difficulties?

J: There’s nothing stopping me. Swimming used to be the one time when I wouldn’t worry a hoot about anything. I would go to the pool with the purpose of having a good swim.

T: What effect do you think that regular swimming would have on your anxiety?

J: I think it would make it drop like nothing else. I can almost remember how swimming felt. I think about it now and again. Rather than being all tensed up in front of the TV.

T: For some people this type of activity can have great benefits.
J: Well it has for me in the past.

T: I’ll be interested to hear your reports after you visit the pool.

SESSION 5.

The protocol for this session matches that of session 4. As typical, the session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms. The therapist reviews the client’s between-session activation and helps the client to schedule activities for the week ahead. The therapist continues to publicly formulate the client’s behaviour offering functional-analytic explanations according to the behaviour’s associated reinforcing, discriminative, and eliciting stimuli. Any potential barriers are met with a pragmatic response from the therapist. Increased client activation is the key aim of the therapist’s in-session behaviour.

T: I notice from your monitoring that you’re spending less time drinking tea and coffee in the mornings.

J: Yes. I used to sometimes sit there and drink 5 or 6 cups before I got going in the day.

T: Do you think that this was a form of procrastination. By that term I mean that at those times you were avoiding getting done what you had planned for the day.

J: I think I worked that out myself. I used to look at it as a kind of relaxation. That it helped with my anxiety. I can see now that it actually has the opposite effect because I wasn’t getting done what I needed to. And that made me worry. Your talking about avoidance has convinced me of that. I think I probably knew anyway but just ignored the fact.

T: I’m pleased to hear you talk about the possible function of your behaviours. And, I tend to agree with you. You could reliably put things off by engaging in that behaviour.
That would reduce your anxiety. Paradoxically, the coffee would have had a mild stimulant effect as well. It’s good to see that the level of that behaviour has decreased.

T: Let’s review your activities which I’m pleased to see are many and varied. What activities that you engaged in made a difference for you this week?
J: I got my exercise bike out of the shed and moved some furniture and got that set up in the house. That was the first step. I’ve started to do about 30 mins in the morning and I’m trying to do a bit in the evening.

T: Fantastic. And if you’re exercising in the early morning, then you’re not sitting at the table drinking cups of tea and coffee which was something we targeted for reduction.
J: Yes. I also got my weights out and I’ve started to do some sets each day. I remember from my time at the gym how to put together a small routine. They are not the weight that I used to lift before but I feel I can build my strength up a bit before I get back to the gym. I can start to picture myself coming back to what I was. I’ve actually got a full gym set up in my shed which I haven’t used for some time.

T: Could you set that up this week?
J: I have been thinking about it.

T: Let’s schedule that in.

T: I see the dog walking continues?
J: Yes, I’m walking the dog. I went out three times. Twice with the umbrella, because it was raining, and once with my girlfriend. The weather has been very unpredictable. I do take him down with me to get a paper some mornings but that’s not very far.

T: Are you walking him enough?
J: Maybe I could put a bigger coat on and walk with an umbrella even if it’s raining.
T: It would be interesting to see the effects if you were going on planned walks with him everyday.

J: Well, how about this week I’ll schedule it in as a challenge. Starting tomorrow, I’ll walk with him everyday rain, hail or shine. I’ll do a complete week and come and tell you how it goes.

T: Let’s write this in your activity log.

T: Did you contact any friends this week?

J: I did. I took up an offer to have lunch with a friend of mine who I’ve been putting off for a while. We had a nice lunch. He took me to a café. I suggested we sit outside because the people inside, it was busy, and I thought I might get uncomfortable with too many people around me.

T: So, some minor avoidance?

J: Just a bit. It was all a bit new to me. But we sat outside, he didn’t mind and it was good.

T: And am I right to believe that you calmed down the longer the lunch went on?

J: I did. By the time I left I felt very calm and I felt good about myself. He even insisted on paying.

T: He sounds like a good friend.

J: He is. He’s a nice guy, a good guy.

T: And what other activities have you engaged in this week?

J: I’ve been doing a lot more cooking. Making some pumpkin soup. I’ve been shopping for fresh fruit and vegetables at different times this week.

T: And the swimming and walking down the beach that you had scheduled?
J: That hasn’t eventuated as yet. I’m planning on making some enquiries about the swimming this coming Monday. I’m planning on doing some swimming on my way home from my ‘handy-man’ work that I do.

T: That’s a good plan.

J: I’ll see if I can go 2 or 3 days each week.

T: Do you think you can schedule in to at least contact the swimming centre this week.

J: I will definitely do it. I’ll certainly do it. I’ll do it on Monday. I had asked my girlfriend to check it out for me, but she never did.

T: Perhaps you could take the lead. It can be more helpful not to have to rely on someone else to make these small steps towards your goals. It also might function as avoidance, by putting things off or shifting the effort towards someone who might not be as reliable or as motivated. It may not be at the time, it could be a practical consideration. But, because you have presented with anxiety I’m always trying to work out the function of your behaviour especially in relation to avoidance which is common with anxiety.

J: I appreciate that that’s what we are doing here. And I agree, I shouldn’t let the work I’m doing on my mental health be dependent on someone else in my life.

During the remaining part of the session the therapist continues to review the client’s past week’s activities, schedule activities for the coming week, and identify activities that match the client’s stated goals. The therapist also publicly formulates the possible function of the client’s behaviours. By the session’s end, the client should have scheduled a number of activities for the week ahead using his ‘activity log’.
SESSION 6.

The session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms. The main goals of this session are to review past activities, schedule future activities, ‘check-in’ on the client’s goals, and formulate functional explanations of the client’s clinically relevant behaviours including avoidance.

T: How have you been going with your activities this week?
J: I’ve completed a few activities that I had listed there. I’m a little bit disappointed that I didn’t call an old friend that I had scheduled to contact this week. I put off phoning him for some reason. I think mainly I’ve set my sights too high. I know he moves in different social circles to me now and that gives me a fear. But I also know that he’s a lovely guy and he would be happy to hear from me, so I’m sort of my own worst enemy here.

T: I think this could be an example of avoidance. It might help to discuss the function of that behaviour, even if you choose not to target that particular friend for contact. Let’s come back to this later in the session because I want to hear more about the activities you completed this week.
J: I went to Kings Park. Had a picnic with my girlfriend and a walk around the gardens.
T: Can you tell me about that?
J: It was good. The weather was nice. There were a couple of weddings on when we went there which gave us something to look at. And then we went to Subiaco and had some lunch and some coffee. Which is something I don’t think I’ve ever done. I used to think all the ‘hob-nobs’ went there, but actually I was surprised. I felt ok and it was a nice time.
T: That’s good. I think you’re describing to me a previously avoided situation which you scheduled in, entered into, and found that it had an overall positive effect on you. Anything else?

J: I’ve been walking my dog on a regular basis. And, doing some handy-man work. I like to burn a bit of energy up physically.

In this exchange the therapist is simply requiring the client to describe his activities in the past week. These activities are not randomly selected. They are activities that the client has scheduled as part of his treatment. As such, they are considered ‘clinically relevant’. The client is prompted to describe the functional properties of the situations he has entered into. The aim is for the client and therapist to be able to reliably predict the types of situations that are incompatible with avoidance and that provide reinforcement for clinically ‘healthy’ non-anxious behaviours. By discussing the client’s overt behaviours, the therapist gains a great deal of information about the likely controlling environmental stimuli for both the ‘healthy’ and ‘non-healthy’ behaviours of the client. Further, the therapist is emphasising the importance of external variables and overt behaviour on consequent ‘thoughts’ and ‘feelings’, thus matching one of the central principles of BATA.

T: Are there any activities that you identified in the past week that could help improve things for you and that you might like to schedule in for this coming week?

J: Well, I could take my girlfriend out for a meal. Somewhere apart from McDonalds or anywhere like that. A decent restaurant might be a nice occasion.

T: Should we schedule in a ‘dinner date with girlfriend’? Is that ok?

J: Yes (takes deep breath).

T: Are you ok with this?
J: I’ve always been ‘panicky’ around people, especially indoors. Just the thought of it gets me a bit anxious.

T: I recommend not focusing on your anxiety going into this. Start with scheduling it in, then choose a time and day, a restaurant, and then go through with it. You will only know the outcome once you go through with what I would call, ‘the experiment’. The actual properties of the situation could be far different from what you imagine. And, generally we know that when faced with an anxiety-provoking situation the only way to….

J: The only way to overcome is to challenge it head on, if I’ve put that the right way.

T: If it’s important to you, then yes. We don’t need you to blindly crash through your days. But you can always choose to enter into these environments and see what effect that has in the long-term on your mental health.

J: I’ll take her out this week. I don’t know when and where but I’ll work that out when I leave here.

T: That’s good work Jim. Remember that at some points you will have to actively organise your behaviour to meet your goals. You’re responsible at that point. Although once you’re in the setting, we hope that your behaviours will be shaped up by the natural environment in ‘healthy’ ways.

J: I’m starting to understand that I do need to be more active here.

In this example, the therapist is ‘coaching’ the client to better ‘self-manage’ his behaviour. Ultimately, the client’s behaviours will be shaped by him contacting the naturally occurring schedules of reinforcement within his new and changing environments. Initially, the client must attend to the task of scheduling activities and then conducting ‘mini’ task-analyses of the steps he needs to complete in order to complete the scheduled activity. The main task of the therapist is to help the client to
focus on the various tasks at hand and the actual real-time physical properties of his settings rather than spending time focusing on the client’s associated thoughts and feelings.

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T: &\text{ We’re coming to the half way point in your treatment and it might be helpful for us to review your goals. We might also establish some new goals. We’ve seen some improvement with your activities which is great. I want to ensure that in the second half of treatment that you stay on track. Is that ok?} \\
J: &\text{Sure. I think that already I’ve picked up a few changes in myself that are pretty positive. I wasn’t doing any exercise at all before we started. Now I’m doing my weights and swimming. I’m walking the dog a lot more and more regularly. I’m doing a bit more walking around with my girlfriend.} \\
T: &\text{That’s the type of change we’re targeting. Good work. What other things would you like to be doing Jim?} \\
J: &\text{More socialising.} \\
T: &\text{What socialising have you got planned for this week?} \\
J: &\text{Well I’m taking my girlfriend out for dinner. That’s a definite. I’ll give you the report next week. I’m planning on going to the football with my friend “Charles”. I’ve avoided him 2 weeks in a row, but I’ve set myself to go through with it this week.} \\
T: &\text{I have noticed that it’s come up for a couple of weeks now.} \\
J: &\text{I don’t think I’ve been to a WAFL game for about 40 years.} \\
T: &\text{I’ll be very interested to hear the outcome.} \\
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This pattern of dialogue continues throughout the session. The therapist and client collaborate to review the client’s activities, schedule new activities, discuss goals, and describe the function of the client’s behaviour.
T: So is increased socialising a clear target?

J: It is, yes. I forgot to tell you that I went last week to visit my old friend, “Ray”. He’s the one with cancer who I had a bit of a falling out with. He’s pretty sick. He’s had two blood transfusions. I went straight to his place after I left here last week.

T: And how long since you last saw him?

J: About three or so years. I spent about seven hours with him last Saturday and when I left he put his arms around me and said, “Jim, I don’t want you to go”, “I’ve only got another six months left”. I told him, “Not to think that way”, but from speaking to his wife I know that it’s true.

T: That’s quite something. Really remarkable.

J: He made apologies for our split, but I told him not to blame himself altogether. I had a part to play as well. We’ve been friends a long time. Since I was seventeen. I told him, “I can’t turn my back on you, “Not just because you’re unwell, you’re one of my oldest friends”.

T: Looking over your monitoring now, I see that you recorded quite a spike in anxiety when you first went to meet him.

J: I didn’t know what to expect. When I left here to go see him I didn’t know what I was feeling. I was a bit shaky. I actually pulled over a bit up the road and got some take-away and sat in the car for quite a while wondering if I could go through with it. Then I rang him and told him, “I’m running a bit late”. I had already phoned him to set the day up. I had scheduled that call in but I thought I had better check in with him.

T: It’s very important to recognise that these types of events can cause anxiety in the short term, yet despite the anxiety you can still move forward according to your plans and goals. I notice that for the rest of the afternoon and evening your anxiety ratings were quite moderate.
J: I felt ‘at home’ a while after I had been there. Maybe after about an hour or so. And I
didn’t want to go myself. I didn’t leave there until late. I could have stayed all night.
T: Are you planning on seeing him again?
J: I was going to wait for him to call. He might not want to be seen to be ‘leaning’ on
me though given he’s quite sick.
T: He might be avoiding also?
J: You might be right. I’ll make the point of giving him a call first. I’ll take him out for
the day as well.
T: Can we schedule that in?
J: Yes. I will definitely give him a call this week. I might take him out to the races.
That’s something we used to enjoy.
T: When was the last time you went to the races?
J: Years ago. It’s been a while. Just one of those things.

This example demonstrates the large changes that can occur for the client in a relatively
short period of time and is core BATA protocol. By the mid-point in BATA therapy,
‘Jim’ had re-engaged with an old friend who was dying with cancer. They had not
spoken for over three years. He planned to widen the reinvigorated relationship with
new shared activities in fresh environments potentially rich in reinforcement for his
‘healthy’ behaviours. In this discussion, the therapist and the client were able to review
an activity, schedule a new activity, link the client’s behaviour to his goals, and discuss
the function of anxiety-related behaviours. This type of behaviour (contacting an
estranged friend) could prove to be a ‘cusp’ behaviour, with functional consequences
for the client that extend far beyond the single activity. This type of socially important
and clinically-relevant target behaviour is exactly what the BATA therapist should
always be working towards identifying.
SESSION 7

In session 7 the therapist and the client should be starting to consolidate the gains made in the first 6 sessions of treatment. The client should be showing signs of increased ‘activation’ and decreased ‘avoidance’ behaviours. The client should also be showing an improved ability to publicly formulate functional explanations for his or her clinically-relevant behaviours. As usual, the session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms. Then, the therapist should begin to ‘check-in’ with the client about his or her completed weekly activities.

T: From your monitoring diary I can see that you have been quite busy this past week. Can you tell me about the activities that you have completed?
J: I’ve tried everyday to do some exercise. Like riding on the exercise bike. I’ve been doing quite a bit of handyman work and also I’ve been organising the materials I need to build my project home on the land out in the country I’ve been telling you about. There’s quite a lot of work involved in that if I’m going to complete the project.

T: Are you noticing any differences in your behaviour as you’re attending to your daily activities?
J: I’ve noticed something which stands out a lot. It’s my ‘decision making’. I’m not as rushed as I used to be. I’m planning things before I act and I’m standing back and taking my time now. Before I used to ‘rush in’ and often regret my decisions.

T: And what effect does this planning and deliberating have on your anxiety behaviours?
J: I’m feeling less anxious. It’s not only with shopping for materials, it’s with a lot of different things.
T: What other areas do you notice improvements with your anxiety?

J: When I used to go to an appointment or something, I’d always be in a panic because I was fussing around or not watching the time. I notice now that I’m organising things better, and I schedule things in at a certain time of the day and I stick with the schedule. Before I was ‘all over the place’.

T: So you’re organising your days better?

J: I am. I amaze myself at how much better I’ve been managing things.

In this example the therapist is assessing the client’s between session activation and whether increased activation is affecting the client’s anxiety related behaviours. Along with the increased activation the client is also reporting signs of decreased anxiety and improved self-management. He is deliberately changing external variables such as planning and then scheduling activities in his diary and using clocks and watches in order to gain ‘control’ over his anxious behaviours (e.g., ‘rushed’ decision making, lateness). He talks of completing smaller steps towards accomplishing his much larger goal of building a ‘project home’. One of the key aims of BATA is to help the client to better manage his or her behaviours according to clearly stated short and long-term goals, rather than acting mostly to minimise feelings of anxiety and to avoid the conditions that elicit them.

T: What else have you been doing this past week?

J: I went to the football game with my friend. That was great. We had a really good time. I actually had some conversation with some people there which is something I would normally ‘shy’ away from. Just when I was watching the game, I thought “I may as well strike up a conversation here”. It all happened pretty naturally.

T: How did you feel at those times?
J: I felt good. Confident. I’m never sure about people, but after I finished talking about the game and what not I thought to myself, “Those people are really no different to me”. I normally feel inferior and inadequate socially but that day things felt quite normal for me.

T: And to what do you attribute that to?

J: I think just putting myself in these situations and following through with it and not thinking too much about it.

T: The key to behavioural activation is increasing your learning opportunities by entering into new environments and then you can open yourself up to all sorts of experiences, even everyday ones such as holding conversations with strangers. It’s enjoyable for you and at the same time you’re overcoming that fear of social situations.

J: What you’ve said fits me to a ‘tee’. I had been stopping myself from just letting go and seeing what happens in life.

T: That’s what I mean when I refer to you carrying out the ‘experiment’. Pick your targets for activation and follow through with your plans, then evaluate your outcomes. You might be surprised at the results of all these ‘mini’ experiments you’ve been conducting. The consequences will tend to shape your behaviour one way or the other.

J: I’m starting to appreciate the difference it makes for me when I do different things, even small things.

T: What activities are you going to schedule for this coming week?

J: I’m planning on calling my sister and asking her and her partner and their kids to come over for dinner one night this week.

T: That sounds important.

J: I haven’t been in contact with her as much as I would have liked over the past few years. I had felt that at times I was being judged harshly for my behaviour.
T: Did you avoid contacting her?

J: I did. I would often ignore her calls and I wouldn’t take her up on her invites. That’s pretty silly stuff I suppose.

T: To me it’s not silly. It’s classic avoidance behaviour with a perfectly understandable function of limiting your contact with situations that had made you uncomfortable in the past. The problem is, of course, that you miss out on all the good stuff that comes with that contact.

J: Well, I’m scheduling in to call her and I’m determined that I’m not going to worry about how I feel this time. I’m going to make it happen.

T: That could be very important to you.

J: I have a question for you. Can I be doing too much? I feel like if I keep going I might run out of things to do.

T: Your time management is important. You must continue to attend to the practical aspects of your activation. Essentially though, you appear to be benefiting from an increased range of choice and an increased and varied range of activities in your everyday life. I think that this is the early stages of your recovery and with practice you will find a formula of activities that means you meet your goals and generally be satisfied with how you feel.

J: So I’m trying to improve my quality of life?

T: Exactly. It’s not about cramming as many things as possible into your day. Although that might work for someone else. It’s about finding the combination of activities that works best for you. It’s a mix of quality and quantity.

J: Because I’ve been thinking about joining ‘Toastmasters’ to improve my public speaking. It’s a weekly commitment and I didn’t want to extend myself.
T: That would be suitable for you given your problems with social anxiety and performing in public and could be beneficial. Why don’t you just go to a couple of meetings and see how it goes. Give it time, but if it doesn’t quite work for you then you can always choose to move on. But, it’s very important in the first instance that you keep coming into contact with these new environments as part of this program. Go through with the experiment and then evaluate yourself the outcomes.

The session continues in this form of conversation which is guided by the parameters of BATA. The client is prompted to review past activities, schedule new ones, reflect on his or her goals, and identify the consequences of his approach and avoidance behaviours. The therapist continues to provide an amount of prompting and psycho-education, including offering behavioural explanations for anxiety experiences in response to the client’s reports, in order to help him or her to adhere to the principles of behavioural activation therapy.

SESSIONS 8 to 10

In these sessions the therapist should continue to practice the key elements of BATA. At this point the client should have shown some signs of increased activation and a reduction in avoidance behaviours. If the therapist and client have correctly identified the function of the client’s past anxious behaviours and there has been the emergence of new non-anxious behaviours in the client’s existing behavioural repertoire then it is likely that there has been a corresponding reduction in the overall amount of reported anxiety in the client’s everyday life. The therapist continues to help the client to establish the new alternative ‘healthy’ behaviours. As usual, the session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms.
T: What have your activities been in this past week?

J: I set myself a number of challenges this past week. One in particular, it was my birthday on Thursday and my sister phoned me up because she had organised a ‘get together’ for me with all my family and some of my friends. I was quite proud of myself that I said “yes” and went along to that.

T: Was that something you would have previously avoided?

J: Yes. When I got there I don’t think anyone could quite work out why I had actually turned up. Normally I would ignore the invite or avoid going and they would all just go out anyway as a sort of family get together.

T: Your family expected you to avoid the occasion?

J: Yes. I got congratulated by a few of them for having gone to the party. I even took two old friends along with me who are visiting from interstate and wanted to catch up with me.


J: I feel like it. In some ways I’ve changed dramatically.

T: And was it a positive experience?

J: It was. I had a lot of fun and it was great to catch up with everyone. It’s been a while.

J: I’m starting to see how there are so many things I do which are just avoidance or what you call ‘avoidance behaviours’.

T: Can you provide an example?

J: I had this way of extracting myself from conversations quickly. Just so I wouldn’t have had to keep going and maybe embarrass myself or something. I always said, “I’ll better let you go now”. I noticed I said it on the phone to a friend this week. But he said,
“Why do you have to let me go”? Then I thought, “I don’t”, I can keep talking and I’m ok with it.

T: Are you getting better at noticing moments of avoidance?

J: Yes I am. I think I’ve maybe always known but you’ve made it very clear to me that that’s what going on.

T: What’s on your schedule for this coming week?

J: I’ve got a few social engagements booked. The friend that I told you about with cancer, well I’ll be going around for dinner this week. I’m determined to continue with the exercise. I want to do more actual bike-riding. I need to find some alternate routes though. It can get a bit boring just going the same way every time. I’ve got some more work to do towards my building project. I’ve got a pretty busy week coming up actually.

T: Can you tell me more about what you’re talking about with regards to the bike-riding?

J: I can see the value in the activity. It’s good for my fitness and I’m outdoors for example. But, I know that if I want to keep it up I have to have some variety there to keep things interesting. I think about what you said about having, “lots of choices and a variety of things to do”. I think that maybe I’ve started stuff before and when it’s gotten a bit boring I’ve just stopped instead of modifying it a bit to see if I can maintain that enthusiasm.

T: That’s important to recognise. The activity itself might be very beneficial to your mental health and you might need to continue to adjust conditions as time goes by to maintain its value. That way, you are less likely to stop an activity that is actually pretty good for you in terms of mental health outcomes.
J: I’ve certainly been learning quite a bit as we’ve gone along. I think I knew a bit already but you’ve added to that.

T: At this point in your treatment, if someone asks you to do something, a social situation for example, then you have a choice. You can either avoid the situation or you can accept the invitation and enter into a contract with yourself. In this contract you agree to enter into a situation and then evaluate the outcomes after you have given yourself sufficient time to really contact that particular environment.

J: Yes. I understand that. I think that in the past I acted like I didn’t have a choice. The anxiety was controlling me completely.

T: To avoid has been like an automatic response for you. To pull away.

J: It always has been.

T: In the past nine weeks though, you haven’t been avoiding as much and you’ve been getting quite a lot achieved. And you’re telling me that your anxiety has reduced.

J: It has. It certainly hasn’t gotten any worse. I do feel like I’m getting some control back.

T: Do you think that you’re actions are reflecting the goals that you have set?

J: They are. I did mean to tell you that I have a new goal I came up with this week.

T: Good. What is it?

J: I’m thinking about maybe trying to get a bit more into the workforce. Maybe trying to get some part time work in a hardware store or something similar. I know a lot about tools and building materials and I think I can work well with customers and the like.

T: That’s a great goal.
J: I’ve been on a pension for my back for some time now but I think I can do more. I do my handyman work when I can. I think I’ve been hiding behind my back for a while now. Sort of using it as an excuse not to get out there and mix with society.

T: I agree with you and I think there is a great deal that you could contribute to society. Now we have to identify the steps that it would take you to reach that goal.

These real-time verbatim examples taken from the treatment sessions show how therapy progresses through these latter sessions in treatment. BATA is a brief principle-based treatment. Thus, the therapist does not have to deviate from the key elements of the protocol. The clear communication to the client is that increased activation and decreased avoidance has anxiolytic effects, expands the client’s behavioural repertoire, and can extend the client’s overall quality of life beyond only a reduction in anxiety.

SESSIONS 11 and 12

These are the final sessions of treatment and should be used to review all of the material thus covered in treatment along with the usual review of activities and the scheduling of future activities. The aim of these 2 sessions is to consolidate the gains achieved in previous sessions. The client should be made aware of the changes that he or she has made and the therapist should link those changes to efforts that the client has made to increase activation. The therapist should encourage the client to continue to build patterns of ‘approach’ behaviours beyond the end of treatment and independent of therapy. The therapist should also discuss with the client the possibility of relapses occurring especially if the client begins to avoid contact with sources of reinforcement for ‘healthy’ approach behaviours and reverts to old patterns of avoidance responding.
As usual, the session begins with the administration of the standardised measures, a review of the client’s self-monitoring diaries, and the provision of fresh forms.

T: You’re monitoring diary shows me that you’ve been busy. Is that correct?
J: Yes. I’ve been very busy in fact and I haven’t put down all of my challenges on my activity log because a lot of them have been done on the spur of the moment.
T: So there have been more spontaneous examples of activation?
J: There has. I can see straight away now when I’m doing what I’ve set out to do and when I’m avoiding things for no good reason.
T: Can you give me an example?
J: I had a very difficult talk with my girlfriend this week which I had put off for some time. I got very nervous when I was about to talk to her but I thought, “It’s only my anxiety, I can still go through with this”.
T: And what was the outcome?
J: It was good. There were some things we needed to clear up. I’m as much at fault as she is but at least now we know where each other stand.
T: So you would previously have avoided this?
J: Definitely. I would just sort of ‘stew’ over it and imagine what the conversation would look like. I would never have done it though.
T: Did you schedule that in?
J: Yes. I picked a time and day when we would be together and asked if she would sit down because I had something important to talk to her about.
T: That sounds like a good step.
J: It was a relief and I think it actually helped us a lot.
T: We can never truly know the effect of an activity until we have entered into that activity and made contact with the actual properties of that event or place or environment.

J: I’ve learned that. If I take us back weeks ago to when I first came to you, if you had suggested I just get out and ‘do things’ I would have had that many excuses why I couldn’t. The way you did it though, this program, showed me how my avoidance worked. I had never even thought of my anxiety as avoidance until I came here.

T: And without increased activation it’s likely that your anxiety behaviours would have become stronger, not weaker.

J: I agree with that. My anxiety would not have improved one little bit and I think my mental health was deteriorating anyway as I got older.

T: You’ve come along way but you’ve really just started your recovery. This is a relatively brief therapy. There is more work to come. The challenge for you is to take what you’ve learned, recognise your new ‘healthy’ behaviours and what they do for you, and take that forward.

T: It’s important to acknowledge that not everything will be smooth sailing after we finish here and you might experience some set-backs as you continue to go forward setting yourself challenges and trying to meet your goals.

J: I can see now that if I avoid the physical side of life to help the mental side, it doesn’t work. I need to keep in contact with life, not avoid it.

T: It’s important that when you leave her that you keep focusing on your concrete everyday behaviours. You will need to keep scheduling activities and keep setting goals.

J: You mean just focus on the things I do and don’t worry about what I feel and think?

T: I mean to say that everything that you feel and think is a result of your external environment and the things that you do in the environment. If you want to affect change
in your thoughts and feelings then you need to alter your environment and act differently in the environment.

J: I’ve started to realise that I have a lot of freedom with regards to how I can choose to rearrange my environment. There’s not some ‘power’ or ‘force’ coming into me that says “You have anxiety” or “You don’t have anxiety”. I can wallow in my anxiety or I can make choices and move on with my life.


T: We saw that when you first came here your behaviours were oriented mostly towards avoiding or reducing your anxiety in the short-term. Now we see that at least some of the time your behaviours are oriented towards achieving your goals and completing your scheduled activities. That’s a significant change.

J: It is. Before that I was justifying my behaviour by focusing on my feelings of anxiety.

T: I think that you were trapped in very well established patterns of avoidance.

J: I could write a book on avoidance. I used to procrastinate on everything. Now when I’m asked to do something I try to say, “Yes” instead of “I might”, or “I could”. If I look at something as an important step towards my mental health recovery then I’m going to do it. And I don’t just say I’ll do it, I remind myself by writing it down and scheduling it in.

T: It’s going to be a challenge for you for some time until your ‘healthy’ non-anxious behaviours become more common and fully replace your ‘old’ anxious behaviours. You will have to put effort into pushing yourself along until your environments are such that your new behaviours are being supported more naturally.

J: I realise that. I don’t think I’ll go backwards. I’ve got a good foundation and I’ve had a good ‘kick-start’ here. I wont take it for granted and become complacent.
T: Good. Because you’re still going to have to set goals, to plan and schedule activities, to enter into situations that might make you uncomfortable but that are important to you in the longer term.

J: I realise that this program is like teaching. This is education. I’ve learned a lot while I’ve been here and it’s up to me to keep putting that learning into practice. I know I can’t change the past. It’s pointless going there. I have to look forward.

T: With time and practice your new behaviours and the people, places and things that you contact will likely become more natural and less anxiety provoking. What we have done in this treatment is to take a structured approach towards changing your behaviour.

J: It has helped a great deal. I was terrible at getting myself organised before I came here.

T: The other final point I want to make, which I can’t stress enough, is that the places that you go to, the people you are with, and the things you do have an enormous influence on how you will feel and how you will think.

J: It has a huge bearing. I was doing too much of the one thing which was avoiding and cutting myself off from the world. That was the most comfortable thing but it wasn’t very helpful to me.

T: We had to assume at week 1 that practically everything you were doing was in someway functioning to maintain your anxiety.

J: I was looking for short term relief but not looking at the longer term. I think back to when I made contact with my brother and how difficult that was. Now when I talk to him I feel very comfortable.

T: In that example you actively blocked anxiety and you took a strong concrete step towards your goals. That’s the key. Set goals, schedule activities, and plan your behaviour.
CONCLUDING NOTE

These session by session examples of therapist/client dialogue were taken from an actual clinical case and reflect the typical course of BATA. This protocol was designed to show the fundamental principles of BATA and the main techniques and materials used in session by the therapist and those provided to the client. The protocol is designed to be delivered systematically. However, following session 4 the remaining sessions should include a combination of the key elements of BATA including psycho-education, goal setting, activity scheduling, activity reviewing, and functional analysis.

USEFUL REFERENCES


