Brief Behavioural Activation Treatment of Chronic Anxiety in an Older Adult

Jarrod S. Turner and David J. Leach
Murdoch University, Australia

A 64-year-old male who met criteria for social and generalised anxiety was treated using a brief behavioural activation (BA) approach. The intervention was delivered in twelve weekly 60-minute individual sessions. The effects of the intervention were assessed using a simple A-B-C phase change with repeated measurement design. Change in reported anxiety was recorded across phases. Decreased scores in self-reported anxiety measures were obtained and significant clinical improvement was maintained during a 4-month no treatment maintenance phase. This preliminary investigation suggests BA could be an efficient and effective treatment for anxiety and that replications are warranted.

Keywords: behavioural activation (BA), anxiety, elderly, single-case

The behaviour-analytic study of psychopathology may be both valid and achievable when private events such as feeling anxious or depressed are examined from a functional perspective (Ferster, 1973; Friman, Hayes, & Wilson, 1998). For instance, the function of escape and avoidance behaviour has been emphasised within recent behavioural models of depression (Kanter, Cautilli, Busch, & Baruch, 2005). In this model, depressed individuals show a class of responses defined by common properties 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, Addis, & Jacobson, 2001). Lejuez, Hopko, and Hopko (2001) have argued that depressed behaviour can be explained by application of the matching law (McDowell, 2005) suggesting that response allocation (i.e., avoidant/approach behaviour) is a function of the relative reinforcement associated with each response. Thus, concurrent reinforcement schedules of negative reinforcement of avoidant behaviour and decreased response-contingent positive reinforcement of approach behaviour maintain depression. Recent accounts of behavioural activation (BA) therapy have involved strategies, such as activity scheduling, that decrease avoidant behaviour as well as increase approach behaviour, leading to a greater likelihood of response-contingent positive reinforcement (Dimidjian, Martell, Addis, & Herman-Dunn, 2008). Prior research has suggested BA alone is as effective as cognitive-behavioural therapy in the treatment of depression (Jacobson, Dobson, Truax, Addis, Koerner, et al., 1996) and BA is now considered an empirically supported treatment for depression (Cuijpers, van Straten, & Warmerdam, 2007). Rarely, however, has BA therapy been applied with clients reporting mainly anxiety problems.

Address for correspondence: Jarrod S. Turner, School of Psychology, Murdoch University, South Street, Murdoch, Western Australia 6150, Australia. E-mail: jarrod.s.turner@gmail.com

Anxiety shares functional similarities with depression because individuals reporting behaviours typically classed as anxious respond according to a relatively high frequency of negative reinforcement where avoidant behaviour is commonplace (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Thus, BA 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 access to 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 also result in approach behaviours that include behavioural cusps that are defined by Rosales-Ruiz and Baer (1997, p. 534) as 'behaviour change that has consequences for the organism beyond the change itself, some of which may be considered important'. At least two comparable models of BA therapy exist with duration varying from 12 to 24 sessions (Dimidjian, et al., 2008; Jacobson, et al., 1996) to briefer 10 to 12 session protocols (Lejuez, et al., 2001) with both having proven effectiveness in the treatment of depression (Spates, Pagoto, & Kalata, 2006). The purpose of the present study was to investigate whether a brief BA therapy for anxiety composed of elements of typical BA for depression (e.g., Lejuez et al., 2001; Martell et al., 2001) would result in lower levels of self-reported anxiety for a male participant who met criteria (American Psychiatric Association (APA), 2000) for social anxiety disorder with generalised anxiety.

Method

Participant and Setting

A semi-retired 64-year-old male ('Jim') who responded to an advertisement in a community support group newsletter for interested participants consented to receive brief BA treatment as part of an experimental program designed to evaluate its utility for people experiencing high levels of anxiety. The participant met criteria for social anxiety with generalised anxiety according to the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition-Text Revision (DSM-IV-TR) (APA, 2000). Diagnosis was confirmed using the Structured Clinical Interview for the DSM-IV Axis I Disorders (SCID-I) that is commonly used within clinical and research settings to determine diagnosis (First, Spitzer, Gibbon, & Williams, 1997).

At interview, Jim reported experiencing typical clinical features of anxiety including feelings of agitation, an inability to relax, muscle tension, and feeling scared and self-conscious ('I always feel that people are looking at me') especially in social contexts. Generalised anxiety symptoms were also reported, including persistent excessive and uncontrollable worry about a number of areas in his everyday life such as personal health, finances, interpersonal relationships, and work ('I worry whether everything will be alright'). Jim reported irregular though longstanding experiences of sudden and often uncued 'panic attacks'. He reported that the onset of these symptoms occurred subsequent to a traumatic childhood experience and the symptoms had strengthened throughout adulthood with occasional, though repeated, episodes of depression and alcohol misuse. Jim stated that anxiety had a significant impact on his life ('It's interfered with my life in every direction') especially in the areas of personal relationships and employment. 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 that he would promptly remove himself from any unplanned social situation at the earliest signs of anxiety. Also, Jim reported 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 ('I'm not good at getting organised in life').

Jim had been receiving ongoing psychopharmacological treatment (Alprazolam® 1.25 mgs/daily) for anxiety by his General Practitioner (GP) for four years and had been attending a weekly community-based support group for sufferers of mental illness for approximately eight years. He said that he had been 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 antidepressant medication use (selective-serotonin reuptake inhibitors) though no current use was reported. Jim reported being a nonsmoker and occasionally consuming moderate levels of alcohol (i.e., 1 to 2 drinks). All BA treatment sessions were conducted in the Applied Psychology Clinic at Murdoch University by the first author.

Measurement

A variety of measures were used in this study. The main dependent variables were self-reported anxiety, stress and depression. In addition, self-monitoring was used to measure daily activity levels.

Anxiety Measures

The *Beck Anxiety Inventory* (BAI; Beck & Steer, 1990) is a 21-item questionnaire designed to identify symptoms of anxiety and has strong psychometric properties.

The *Depression Anxiety Stress Scale-21* (DASS; Lovibond & Lovibond, 1995) is a 21-item questionnaire consisting of three 7-item self-report scales that identify symptoms of depression, anxiety and stress and has strong psychometric properties (Henry & Crawford, 2005).

The *Daily Anxiety Rating Scale* (DARS) is a self-monitoring instrument utilising a subjective rating scale (0 = *No anxiety* to 100 = *Extreme anxiety*), with the participant rating anxiety intensity 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.

Activity Measures.

The Behaviour *Self-Monitoring Diary* (BSMD) 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 broad classes: (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). Jim was instructed to record the time spent on any class of activity in 15-minute chunks. He also was asked to record whether the reported activity was conducted inside or outside of his home and whether he was alone or with others at the time. Jim was given a Step-Meter® Model Y-2026 pedometer to wear and was instructed to reset the pedometer each morning, wear it all day, and record the total in his diary in kilometres each night before bed. This provided a measure of overall daily physical activity that may be correlated with treatment outcomes (Strathopoulou, Powers, Berry, Smits, & Otto, 2006).

Procedure

After giving informed written consent, Jim was initially interviewed using the SCID-I, administered the DASS-21 and the BAI, and provided with self-monitoring forms for the DARS and BSMD and a pedometer plus a list of instructions regarding their correct use for the duration of the study. Study phases consisted of baseline (16 days), treatment (84 days), and maintenance (112 days). During baseline (A), the participant self-monitored his activity and anxiety levels and returned once to the clinic to be provided with new forms and to complete the DASS-21 and the BAI. Baseline data were analysed using a simplified time-series analysis (Tryon, 1982) to identify nonrandom variations (i.e., trends).

During treatment an emphasis was placed on helping the participant to establish environmental (e.g., social) contexts that were less supportive of avoidant behaviour by increasing his overall levels of approach behaviour. Jim's in-session accounts of his overt anxious behaviours were reformulated to illustrate to him how they functioned as avoidance in his natural settings. Overt behavioural change was the focus of treatment and there was no attempt to directly attend to, challenge, or replace Jim's private thoughts or feelings. Jim was asked to cease self-monitoring subsequent to the completion of the treatment phase (B) to maintain the integrity of the maintenance phase (C). Follow-up measurements were conducted at 1 week, 2 week, 4 week, 8 week, and 16 week intervals during maintenance. At these times, Jim was required to return to the clinic only for the administration of the BAI and the DASS-21.

The treatment phase involved 12 weekly 60-minute individual sessions of abbreviated BA. All sessions began with administration of the BAI and DASS-21, collection of the DARS and BSMD, and the provision of new self-monitoring forms. The first session involved a description of anxiety, including typical cognitive, affective, and behavioural correlates, and a more specific discussion of social anxiety and generalised anxiety disorders. This content was informed by the text of Barlow (2002). Jim also was asked to identify the discrete characteristics of his anxiety. The second session involved a detailed description of the BA approach to treatment with a specific emphasis on the function of avoidance. Toward the end of the session, Jim was provided with a goal-setting form (adapted from Hayes, Strosahl, & Wilson, 1999, & Lejuez et al., 2001) to complete between sessions. The aim of this exercise was to begin to orientate Jim's behaviour toward activity that was meaningful to him. The third session involved a review of Jim's goal-setting form and collaborating with him to schedule activities that he would attempt to complete during the upcoming week. Sessions four to eleven followed a standard pattern of reviewing activities and scheduling activities. Through this review it was possible to help the participant identify sources of reinforcement within his environment that could function to maintain his goal-oriented (i.e., approach) behaviour. Jim's behaviour was always discussed in terms of learning principles especially operant conditioning (Catania, 1998). The final session involved an activity review and a discussion of Jim's learning experiences during the course of treatment as relevant to the BA approach.

Along with traditional visual analysis, adjunctive nonparametric techniques were used for statistical data analysis. Combined baseline, treatment and follow-up BAI and DASS-21 scores were analysed using time-series analysis (Tryon, 1982) to identify any trends in the data. Baseline/treatment differences in self-monitored data from the DARS and the BSMD were assessed using a simple split-middle method (White & Haring, 1980) that has been shown to enhance the accuracy of

analysis in single-case research (Ma, 2006). 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. 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). Bimodial testing was then used to determine the significance of change (Sheskin, 2000) with the test statistic transformed to a standardised score using the following equation: $Z = (X/n - p)/(\sqrt{pq/n})$. Binomial testing was conducted using SPSS ™ Version 11.5.

All treatment sessions were audio-recorded and 33.3% (n = 4) of sessions were randomly selected and independently scored for treatment integrity by the first and second author using a coded-interval recording sheet that included categories of therapist verbal-behaviour both compatible and incompatible with the specific treatment modality (i.e., BA). Using partial-interval time-sampling, the listener was required to categorise therapist verbal behaviour across 20 second intervals. Interobserver agreement averaged 93.75% across scored sessions with 97.5% of therapist verbal behaviour compatible and 2.5% incompatible with the treatment modality.

Results

BAI and DASS-21 scores are presented. Time-series analysis revealed no evident trends in daily self-monitored anxiety and activity levels during baseline. There were insufficient baseline data points (i.e., < 8) for analysis of the BAI and DASS-21 scores, thus daily self-monitored anxiety data were used to establish a stable baseline. Figure 1 shows BAI scores through the baseline, treatment and maintenance phases.

Analysis of BAI scores through all phases confirmed the presence of a downward trend, $Z = 3.22$, $p < .001$. Figures 2, 3 and 4 show DASS-21 scores through all phases. Analysis confirmed the presence of a downward trend for depression scores, $Z = 2.62$, $p < .01$; anxiety scores, $Z = 3.27$, $p < .001$; and stress scores, $Z = 2.93$, $p < .01$.

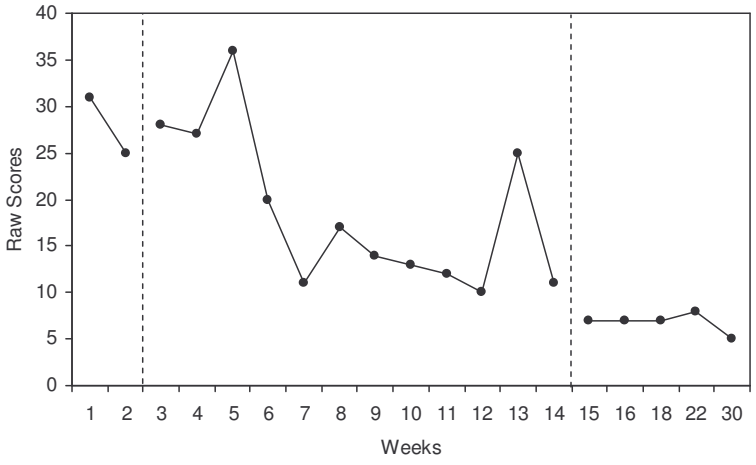

FIGURE 1

The participant's Beck Anxiety Inventory raw scores at baseline, treatment, and maintenance phases.

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

Compared to baseline there were significant decreases during the treatment phase in daily anxiety, with 83% of scores below the median point, Z = 5.89, $p < .001$. Compared to baseline there were significant increases during the treatment phase in time spent on self/other care, with 96% of scores above the median point, Z = 8.21, $p < .001$; time spent out of home, with 70% of scores above the median point, Z = 3.57, $p < .001$; and housekeeping, with 64% of scores above the median point, Z = 2.5, $p < .01$.

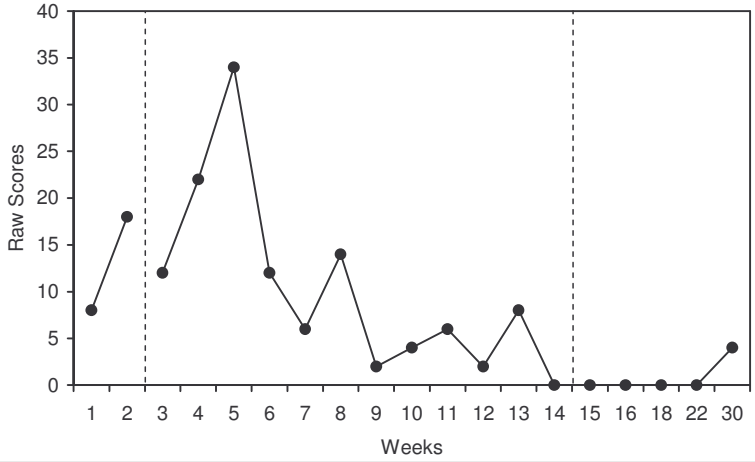

FIGURE 2

The participant's DASS 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.

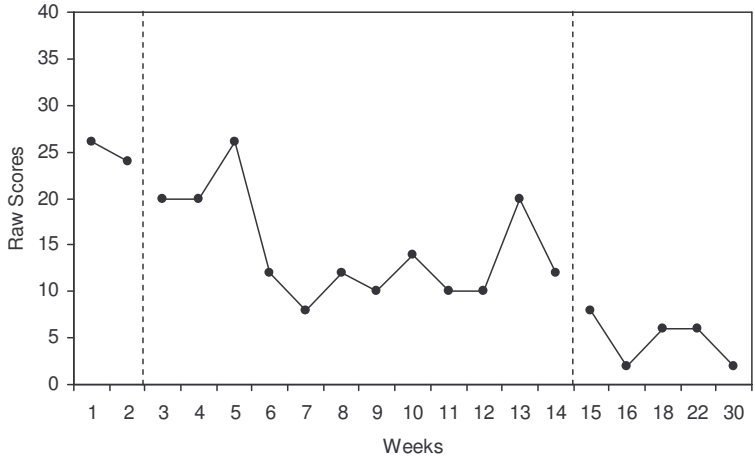

FIGURE 3

The participant's DASS 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.

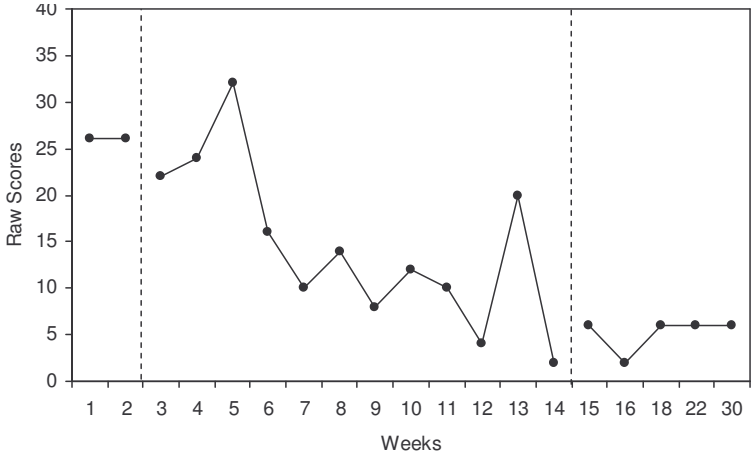

FIGURE 4

The participant's DASS 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.

Although more difficult to quantify, the participant engaged in activities that could qualify as behavioural cusps when formal activity scheduling commenced at week 3. Bosch and Fuqua (2001) suggested a behaviour may qualify as a cusp if it: (a) provides access to new reinforcers, contingencies, or environments; (b) facilitates subsequent learning; (c) competes with inappropriate behaviours; (d) is important to others; and (e) has social validity. Activity examples include phoning an estranged sibling, attending a medical check-up, organising and attending lunch with his partner, walking the dog, celebrating a birthday with family and friends, resolving a long-standing pension-related matter, and visiting a cancer-stricken long-time friend. Because these activities were not formally programmed (i.e., they simply were chosen by the participant week to week) they do not meet desirable standards of experimental control. Thus, the relationship between engagement in these activities and decreases in anxiety is undoubtedly correlational at best (Rosales-Ruiz & Baer, 1997). Nonetheless, engagement in the activities occurred within the context of treatment and was potentially important in relation to the participant's mental health status. In this particular case, Jim commenced activity scheduling following the third week of treatment (week 5) and large decreases across anxiety-related measures are clearly identifiable at that point. When asked at 4-month follow-up to identify the behaviour change that was most important over the course of treatment, Jim replied 'When I began accepting invitations from my family'. In the initial clinical interview Jim had identified long-term social avoidance as central to his experience of anxiety.

Discussion

The results provide evidence for the effectiveness of brief BA for the treatment of anxiety with this participant. The aim of brief BA is to facilitate overt behavioural change with an emphasis on reducing behaviours that function as avoidance. Significant decreases were observed for all anxiety-related measures and there were significant changes in some areas of overt behaviour such as self-care and time spent

out of home. Posttreatment, the participant reported no significant distress or impairment within any area of daily functioning and thus no longer met DSM-IV-TR criteria for social or generalised anxiety. These findings are important because very few prior attempts to treat anxiety with BA have been reported. There also has been a tendency to confound traditional BA models as described by Jacobson et al. (1996) with the use of adjunctive treatment modalities when treating anxiety, such as gradual exposure and relaxation training (e.g., Hopko, Lejuez, & Hopko, 2004; Hopko, Robertson, & Lejuez, 2006). In this study it would seem that the participant's increased approach behaviour was maintained by naturally occurring positive reinforcement. It is likely the natural arrangement of response-reinforcer contingencies for approach behaviour led to concurrent decreases in avoidant behaviour and gradual extinction of the anxiety response. Thus, it may be concluded that brief BA, without adjuncts such as graduated exposure or relaxation training, may provide a cost effective model of treatment for use by clinical practitioners, especially those working from a behaviour-analytical perspective.

There are limitations that need to be considered. First, caution must be taken before generalising to wider clinical populations and clinical practitioners as only one participant was involved with treatment delivered by one practitioner. A second limitation is that behavioural monitoring relied only on self-report and the study did not have an independent measure of treatment outcome. However, there were strengths to this study. A stable baseline was established before treatment, and repeated measurement during and after treatment provided adequate data for both visual and statistical analysis. Follow-up measurement was included to show the durability of treatment effect. Importantly, reliable data on treatment integrity were obtained and reported as was an operational definition of the treatment modality. Further, attempts were made to identify treatment components, such as activity scheduling, which may have been critical to change.

In the context of a controlled, single-case clinical trial, the results for this anxious participant indicate significant clinical improvement over a surprisingly short period of time. Subsequent to his involvement in the study, Jim sent a letter of appreciation that, in part, read 'Having lived most of my 64 years with a confused and tormented mind that caused me to avoid almost every social invite I received and also frightened me away from a good career opportunity I now believe that with the insight I have gained, especially the need for more positive activities in my life, I can look forward with hope during the remainder of my life'. Presently, brief BA therapy is being replicated across a series of single-case studies with a range of participants referred for clinical anxiety.

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