

Behavioural Activation Therapy: Philosophy, Concepts, and Techniques

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Behavioural Activation (BA) therapy is a stand-alone evidence-based treatment for depression and also is being applied to anxiety with promising outcomes. Essentially, BA involves structured therapy aimed at increasing the amount of activity in a person's daily life, so that he or she comes into contact with sources of positive reinforcement for clinically healthy behaviours. Originally, contemporary BA was developed as a behaviour therapy treatment condition in a study that compared BA to Cognitive Behavioural Therapy (CBT). Over time, many variants of BA have appeared in the published literature, which included techniques that might be viewed as being incompatible with the original intended treatment model and more similar to generic forms of CBT. The purpose of this article is to provide researchers and practitioners with a description of what we consider to be the distinctive and essential elements of BA therapy.

■ *Keywords:* behavioural activation (BA), behaviour therapy, depression

Behavioural Activation (BA) therapy has received increasing attention within the field of clinical psychology subsequent to the publishing of a seminal report that showed that BA alone was as effective as the more componential Cognitive Behavioural Therapy (CBT) treatment of depression (Jacobson et al., 1996). Essentially, BA is a structured behaviour therapy that focuses on increasing behaviours 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. BA is now regarded as an empirically supported frontline treatment for depression (Barlow, 2008; Mazzucchelli, Kane, & Rees, 2009; Sturme, 2009), equivalent to and even outperforming CBT and anti-depressant medication treatments (Dimidjian et al., 2006). The most important distinction between BA and frontline psychological treatments such as CBT (e.g., 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, Addis, & Jacobson, 2001) has been practised 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, Hopko, & Hopko, 2001) and Behavioural Activation (BA; Martell et al., 2001) — that are commonly applied in clinical settings. Also, recent accounts have shown the potential effectiveness of using straightforward

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BA for the treatment of anxiety-related disorders (Jakupcak, Roberts, Martell, Mulick, Michael, et al., 2006; Turner & Leach, 2009; Turner & Leach, 2010).

However, increased applied research into the area of BA has also shown the development of BA treatment protocols that include many therapy techniques (e.g., mindfulness, positive thinking, relaxation training, and in vivo exposure) that could be viewed as incompatible with the original intended aim of BA. As such, contemporary BA is in danger of simply becoming another 'eclectic' common garden-variety CBT package. This would miss the main appeal of BA, aside from its effectiveness, being its inherent parsimonious and pragmatic structure. Thus, the aim of this article is to provide what we believe to be the essential philosophical, conceptual, and technical characteristics of contemporary BA, to assist those practitioners and researchers who are interested in this emerging area of clinical psychology.

Philosophical Roots

Contemporary BA therapy 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 & 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 depression) 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).

Conceptual Characteristics

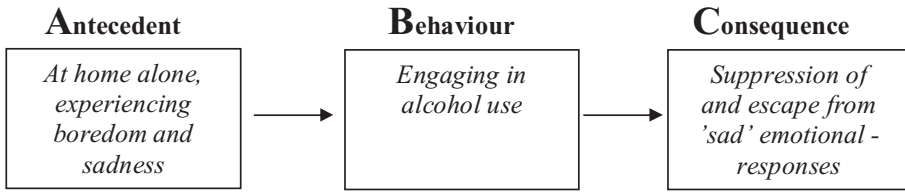
Hayes (1978) stated: 'Ways of talking about the world . . . emerge which encompass general rules, principles, or laws. These relate not so much to specific ways of doing things as to a general *theoretical* or *conceptual* system' (p. 26). Within behaviour analysis, new findings are organised according 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).

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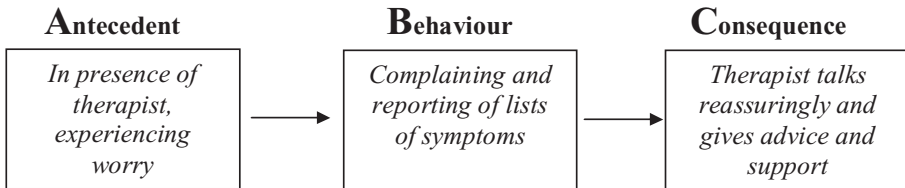
Although Skinner (1953) displayed considerable prescience in his early writings and discussed clinical concerns, including anxiety, depression, and drug addiction, it was Skinner's postgraduate student Ferster (1973) who provided a behavioural explanation of depression that is most often referred to 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 antidepressant 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 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 antidepressant 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 scores), increased engagement in pleasant events, and decreased engagement in unpleasant events. Thus, decreases in nondepressed 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.). More recently, BA techniques have focused on decreasing depressed behaviour by increasing opportunities for nondepressed behaviour in order to contact reinforcement and thereby produce corresponding improvements in mood and overall quality of life (Martell et al.).

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:



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

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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 organising 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; 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-minute 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 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 nondepression-related activity, such as working and socialising, matches the proportional rate of reinforcement for depression-related activity compared to nondepression-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, nondepressed 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 et al., 2008), smoking (Gifford et al., 2004), excessive alcohol use (Fournier, Ehrhart, Glindermann, & 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.

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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 nonverbal 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-Ruiz & Baer, 1997) and an a priori identification of cusps may be time consuming and (ultimately) fruitless.

Bosch and Fuqua (2001) have expanded on Rosales-Ruiz 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 nonwork 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 that 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.

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

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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 described here are what we consider to be those essential to both BA and BATD.

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 outpatient 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 2 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.

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' (American Psychiatric Association, 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 or anxious 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, Martell, Addis, & Herman-Dunn, 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 'nonhealthy' behaviours (see Mallot, 1989, for discussion of 'rule-control'). This might lead to the depressed individual increasing alternative behaviours that could have an antidepressant 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 et al., 2008).

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 antidepressant properties (e.g., going to the movies, eating icecream), 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.

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, Strosahl, & Wilson, 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., 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. that 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, labelling 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). 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. First, 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). Second, 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).

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 restarting 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).

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., p. 273) along with the preferred frequency and duration of engagement (e.g., walking around park, three occasions, 30 minutes 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 nonengagement 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 encouraged 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, Rush, Shaw, & Emery, 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.

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.

Discussion

This article describes what we consider to be the essential philosophical, conceptual, and technical characteristics of behavioural activation (BA) therapy. BA and its variants increasingly are being applied and evaluated by practitioners and researchers in the field of clinical psychology. It is considered an evidence-based frontline treatment for depression and is also being successfully applied to anxiety. To maintain the integrity of BA, its distinction within related therapies (e.g., CBT), and the retention of its behaviour-analytic roots, it is important that there is an acknowledgment of its core components which, as so far as has been established, stand as the mechanisms of change. As BA is a therapy based firmly on longstanding principles of psychology (e.g., operant conditioning), practitioners and researchers can be confident that if they apply BA as it was originally intended, then they will be applying a treatment modality supported by historical and solid empirically-supported principles.

References

- Abramowitz, J.S., Franklin, M.E., Zoellner, L.A., & Dibernado, C.L. (2002). Treatment compliance and outcome in obsessive-compulsive disorder. *Behavior Modification*, 26(4), 447–463.
- Addis, M.E., & Martell, C.R. (2004). *Overcoming depression one step at a time: The new behavioral activation approach to getting your life back*. Oakland, CA: New Harbinger Publications.
- American Psychiatric Association. (2000). *American Psychiatric Association: Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Arlington, VA: Author.
- Anderson, C.M., Hawkins, R.P., Freeman, K.A., & Scotti, J.R. (2000). Private events: Do they belong in a science of human behavior? *The Behavior Analyst*, 23, 1–10.
- Armento, M.E.R., & Hopko, D.R. (2009). Behavioral activation of a breast cancer patient with coexistent major depression and generalized anxiety disorder. *Clinical Case Studies*, 8(1), 25–37.
- Barlow, D.H. (2008). *Clinical handbook of psychological disorders* (4th ed.). New York: The Guilford Press.
- Barlow, D.H., Hayes, S.C., & Nelson, R.O. (1984). *The scientist practitioner: Research and accountability in clinical and educational settings*. New York: Pergamon Press.
- Baum, W.M. (1989). Quantitative prediction and molar description of the environment. *The Behavior Analyst*, 12, 167–176.
- Beck, A.T., Rush, A.J., Shaw, B.F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.
- Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Manual for the BDI-II*. San Antonio, TX: The Psychological Corporation.
- Biglan, A., & Hayes, S.C. (1996). Should the behavioral sciences become more pragmatic? The case for functional contextualism in research on human behavior. *Applied and Preventive Psychology*, 5, 47–57.
- Borrero, J.C., Crisolo, S.S., Tu, Q., Rieland, W.A., Ross, N.A., Francisco, M.T., & Yamamoto, K.Y. (2007). An application of the matching law to social dynamics. *Journal of Applied Behavior Analysis*, 40, 589–601.
- Bosch, S., & Fuqua, R.W. (2001). Behavioural cusps: A model for selecting target behaviors. *Journal of Applied Behaviour Analysis*, 34, 123–125.
- Bosch, A., Miltenberger, R.G., Gross, A., Knudson, P., & Breitweiser, C.B. (2008). Evaluation of extinction as a functional treatment for binge eating. *Behavior Modification*, 32(4), 556–576.
- Bottonari, K.A., Roberts, J.E., Thomas, S.N., & Read, J.P. (2008). Stop thinking and start doing: Switching from cognitive therapy to behavioral activation in a case of chronic treatment-resistant depression. *Cognitive and Behavioral Practice*, 15, 376–386.
- Busch, A.M., Kanter, J.W., Callaghan, G.M., Baruch, D.E., Weeks, C.E., & Berlin, K.S. (2009). A micro-process analysis of functional analytic psychotherapy's mechanism of change. *Behavior Therapy*, 40, 280–290.
- Carr, E.G., Carlson, J.I., Langdon, N.A., Magito-McLaughlin, & Yarbrough, S.C. (1998). Two perspectives on antecedent control: Molecular and molar. In J.K. Luiselli & M.J. Cameron (Eds.), *Antecedent control: Innovative approaches to behavioral support* (pp. 3–28). New York: Paul. H. Brookes.
- Catania, C. (1998). *Learning* (4th ed.). Saddle River, NJ: Prentice Hall.
- Chiesa, M. (1994). *Radical behaviourism: The philosophy and the science*. Boston, MA: Authors Cooperative.
- Clark, D.M. (1999). Anxiety disorders: Why they persist and how to treat them. *Behaviour Research and Therapy*, 37, 5–27.
- Conger, R., & Killeen, P. (1974). Use of concurrent operants in small group research: A demonstration. *Pacific Sociological Review*, 17, 399–416.
- Dimidjian, S., Hollon, S.D., Dobson, K.S., Schmalzing, K.B., Kohlenberg, R.J., Addis, M.E., . . . Jacobson, N.S. (2006). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *Journal of Consulting and Clinical Psychology*, 74(4), 658–670.

- Dimidjian, S., Martell, C.R., Addis, M.E., & Herman-Dunn, R. (2008). Behavioural activation for depression. In D.H. Barlow (Ed.), *Clinical handbook of psychological disorders, fourth edition: A step-by-step treatment manual* (pp. 328–364). New York: The Guilford Press.
- Durand, V.M., & Merges, E. (2001). Functional communication training: A contemporary behavior analytic intervention for problem behaviors. *Focus on Autism and Other Developmental Disabilities*, 16, 110–119.
- Ferster, C.B. (1973). A functional analysis of depression. *American Psychologist*, 28, 857–870.
- Fisher, W.W., & Mazur, J.E. (1997). Basic and applied research on choice responding. *Journal of Applied Behavior Analysis*, 30, 387–410.
- Fournier, A.K., Ehrhart, I.J., Glindermann, K.E., & Geller, E.S. (2004). Intervening to decrease alcohol abuse at university parties: Differential reinforcement of intoxication level. *Behavior Modification*, 28(2), 167–181.
- Frederickson, L.W. (1975). Treatment of ruminative thinking by self-monitoring. *Journal of Behavior Therapy and Experimental Psychiatry*, 6, 258–259.
- Gaynor, S.T., & Harris, A. (2008). Single participant assessment of treatment mediators: Strategy description and examples from a behavioral activation intervention for depressed adolescents. *Behavior Modification*, 32, 372–402.
- Gifford, E.V., Kohlenberg, B.S., Hayes, S.C., Antonuccio, D.O., Piasecki, M.M., Rasmussen-Hall, M.L., & Palm, K.M. (2004). Acceptance-based treatment for smoking cessation. *Behavior Therapy*, 35, 689–705.
- Gollwitzer, P.M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503.
- Hammen, C.L., & Glass, D.R. (1975). Expression, activity, and evaluation of reinforcement. *Journal of Abnormal Psychology*, 84, 718–721.
- Hanley, G., Iwata, B., & McCord, B. (2003). Functional analysis of problem behavior: A review. *Journal of Applied Behavior Analysis*, 36, 147–185.
- Harmon, T.M., Nelson, R.O., & Hayes, S.C. (1980). Self-monitoring of mood versus activity by depressed clients. *Journal of Counseling Psychology*, 29, 636–644.
- Hayes, S.C. (1978). Theory and technology in behavior analysis. *Behavior Analyst*, 2, 25–33.
- Hayes, S.C. (1993). Analytic goals and the varieties of scientific contextualism. In S.C. Hayes, L.J. Hayes, H.W. Reese, & T.R. Sarbin (Eds.), *Varieties of scientific contextualism*. Reno, NV: Context Press.
- Hayes, S.C., & Brownstein, A.J. (1986). Mentalism, behavior-behavior relations, and a behavior-analytic view of the purposes of science. *The Behavior Analyst*, 9, 175–190.
- Hayes, S.C., & Hayes, L.J. (1992). Some clinical implications of contextualistic behaviourism: The example of cognition. *Behavior Therapy*, 23, 225–249.
- Hayes, S.C., Strosahl, K., & Wilson, K.G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.
- Heidt, J.M., & Marx, B.P. (2004). Self-monitoring as a treatment vehicle. In W.T. O'Donohue, J.E. Fisher, & S.C. Hayes (Eds.), *Cognitive behavior therapy: Applying empirically supported techniques in your practice* (pp. 361–367). Hoboken: John Wiley & Sons.
- Hernstein, R.J. (1961). Relative and absolute strength of response as a function of frequency of reinforcement. *Journal of the Experimental Analysis of Behavior*, 4, 267–272.
- Hopko, D.R., Bell, J.L., Armento, M.E.A., Hunt, M.K., & Lejuez, C.W. (2005). Behavior therapy for depressed cancer patients in primary care. *Psychotherapy: Theory, Research, Practice, Training*, 42, 236–243.
- Iwata, B.A., & Dozier, C.L. (2008). Clinical application of functional analysis methodology. *Behavior Analysis in Practice*, 1, 3–9.
- Jacobson, N.S., Dobson, K., Traux, P.A., Addis, M.E., Koerner, K., Gollan, J.K., . . . Prince, S. E. (1996). A component analysis of cognitive-behavioural treatment for depression. *Journal of Consulting and Clinical Psychology*, 64(2), 295–304.

- Jacobson, N.S., & Gortner, E.T. (2000). Can depression be de-medicalized in the 21st century: Scientific revolutions, counter revolutions and the magnetic field of normal science. *Behaviour Research and Therapy*, 38, 113–117.
- Jacobson, N.S., Martell, C.R., & Dimidjian, S. (2001). Behavioral activation treatment for depression: Returning to contextual roots. *Clinical Psychology: Science and Practice*, 8, 255–270.
- Jakupcak, M., Roberts, L.J., Martell, C., Mulick, P., Michael, S., Reed, R., . . . McFall, M. (2006). A pilot study of behavioral activation for veterans with posttraumatic stress disorder. *Journal of Traumatic Stress*, 19(3), 387–391.
- Kohlenberg, R.J., & Tsai, M. (1991). *Functional analytic psychotherapy: Creating intense and curative therapeutic relationships*. New York: Plenum.
- Kohler, F.W., & Greenwood, C.R. (1986). Toward a technology of generalization: The identification of natural contingencies of reinforcement. *The Behavior Analyst*, 9, 19–26.
- Lamal, P.A. (1998). Advancing backwards. *Journal of Applied Behavior Analysis*, 31, 705–706.
- Lejuez, C.W., Hopko, D.R., & Hopko, S.D. (2001). A brief behavioral activation treatment for depression: Treatment manual. *Behavior Modification*, 25, 255–286.
- Lewinsohn, P.M. (1974). A behavioral approach to depression. In R.M. Friedman, & M.M. Katz (Eds.), *The psychology of depression: Contemporary theory and research*. New York: Wiley.
- Lewinsohn, P.M., & Graf, M. (1973). Pleasant activities and depression. *Journal of Consulting and Clinical Psychology*, 41, 261–268.
- Lewinsohn, P.M., & Libet, J. (1972). Pleasant events, activity schedules, and depressions. *Journal of Abnormal Psychology*, 79, 291–295.
- Lewinsohn, P.M., Sullivan, J.M., & Grosscup, S.J. (1980). Changing reinforcing events: An approach to the treatment of depression. *Psychotherapy: Theory, Research and Practice*, 17(3), 322–334.
- Locke, E.A., & Latham, G.P. (2002). Building a practical useful theory of goal setting and task motivation. *American Psychologist*, 57(9), 705–717.
- Malott, R.W. (1989). The achievement of evasive goals: Control by rules describing contingencies that are not direct acting. In S.C. Hayes (Ed.), *Rule-governed behavior: Cognition, contingencies, and instructional control* (pp. 269–322). New York: Plenum.
- Malott, R.W., & Garcia, M.E. (1987). A goal-directed model approach for the design of human performance systems. *Journal of Organizational Behavior Management*, 9, 125–159.
- Martell, C.R., Addis, M.E., & Jacobson, N.S. (2001). *Depression in context: Strategies for guided action*. New York: W.W. Norton.
- Mazzucchelli, T., Kane, R., & Rees, C. (2009). Behavioral activation treatments for depression in adults: A meta-analysis and review. *Clinical Psychology, Science and Practice*, 16, 383–411.
- McDowell, J.J. (2005). On the classic and modern theories of matching. *Journal of the Experimental Analysis of Behavior*, 84, 111–127.
- McFall, R.M. (1970). Effects of self-monitoring on normal smoking behavior. *Journal of Consulting and Clinical Psychology*, 35, 135–142.
- Michael, J. (1975). Positive and negative reinforcement: A distinction that is no longer necessary: or a better way to talk about bad things. *Behaviorism*, 3, 33–44.
- Moore, J., & Cooper, J.O. (2003). Some proposed relations among the domains of behavior analysis. *The Behavior Analyst*, 26, 69–84.
- Mulick, P.S., & Naugle, A.E. (2004). Behavioral activation for comorbid ptsd and major depression: A case study. *Cognitive and Behavioral Practice*, 11, 378–387.
- Plante, D.T., & Winkelman, J.N. (2008). Sleep disturbance in bipolar disorder: Therapeutic implications. *American Journal of Psychiatry*, 165, 830–843.
- Ramanowich, P., Bourret, J., & Vollmer, T.R. (2007). Further analysis of the matching law to describe two- and three-point shot allocation by professional basketball players. *Journal of Applied Behavior Analysis*, 40, 311–315.
- Ramnero, J., & Torneke, N. (2008). *The ABCs of human behavior: Behavioral principles for the practicing clinician*. Oakland, CA: New Harbinger Publications.

- Rehm, L.P., & Adams, J.H. (2004). Self-management. In W.T. O'Donohue, J.E. Fisher, & S.C. Hayes (Eds.), *Cognitive behavior therapy: Applying empirically supported techniques in your practice* (pp. 354–360). Hoboken: John Wiley & Sons.
- Rosales-Ruiz, J., & Baer, D.M. (1997). Behavioral cusps: A developmental and pragmatic concept for behavior analysis. *Journal of Applied Behavior Analysis*, 30, 533–544.
- Santiago-Rivera, A., Kanter, J., Benson, G., Derosé, T., Illes, R., & Reyes, W. (2008). Behavioral activation as an alternative treatment approach for Latinos with depression. *Psychotherapy, Research, Practice, Training*, 45, 173–185.
- Skinner, B.F. (1953). *Science and human behavior*. New York: The Free Press.
- Skinner, B.F. (1966). What is the experimental analysis of behavior? *Journal of the Experimental Analysis of Behavior*, 9, 213–218.
- Stokes, T.F., & Baer, D.M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis*, 10, 349–367.
- Sturmev, P. (2009). Behavioral activation is an evidence-based treatment for depression. *Behavior Modification*, 33, 818–829.
- Sulzer-Azaroff, B., & Mayer, G.R. (1991). *Behavior analysis for lasting change*. Orlando, FL: Holt, Rinehart and Winston.
- Turner, J.S., & Leach, D.J. (2009). Brief behavioural activation treatment of chronic anxiety in an older adult. *Behaviour Change*, 26(3), 214–222.
- Turner, J.S., & Leach, D.J. (2010). Experimental evaluation of behavioral activation treatment of anxiety (BATA) in three older adults. *International Journal of Behavioral Consultation and Therapy*, 6(4), 373–394.
- Twohig, M.P., Shoenberger, D., & Hayes, S.C. (2007). A preliminary investigation of acceptance and commitment therapy as a treatment for marijuana dependence in adults. *Journal of Applied Behavior Analysis*, 40, 619–632.
- Verdellen, C.W.J., Hoogduin, C.A.L., Kato, B.S., Keijsers, G.P.J., Cath, D.C., & Hoijtink, H.B. (2008). Habituation of premonitory sensations during exposure and response prevention treatment in Tourette's syndrome. *Behavior Modification*, 32(2), 215–227.
- Waltz, T.J., & Follette, W.C. (2009). Molar functional relations and clinical behavior analysis: Implications for assessment and treatment. *The Behavior Analyst*, 31(1), 51–68.
- White, K.S., & Barlow, D.H. (2002). Panic disorder and agoraphobia. In D.H. Barlow (Ed.), *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.; pp. 328–379). New York: The Guilford Press.
- Young, J.E., Weinberger, A.D., & Beck, A.T. (2001). Cognitive therapy for depression. In D.H. Barlow (Ed.), *Clinical handbook of psychological disorders* (3rd ed.; pp. 264–308). New York: The Guilford Press.