

Augmenting Behavioural Activation Treatment with the Behavioural Activation and Inhibition Scales

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Background: Although behavioural activation therapy is effective for depression there is always room for improvement, and also the need to extend this treatment modality to anxiety disorders. **Method:** A search was conducted for an easy to apply and effective method of achieving these aims. **Results:** To both enhance the effectiveness of behavioural activation treatment for depression and facilitate its extension to anxiety disorders, it is proposed that the Behavioral Approach/Activation System (BAS) and Behavioral Inhibition System (BIS) be incorporated. BIS/BAS Scales are easy to administer and evaluate ensuring that there is minimal added complexity. Overall, BAS, BAS subscale (Drive, Reward Responsiveness, and Fun Seeking) and BIS scores provide valuable information pertaining to a person's approach and avoidance responses. This general information, plus that derived from specific scale items, can be used to guide more focused and effective behavioural activation strategies. Brief case examples are provided to demonstrate how the BIS/BAS Scales can be applied. **Conclusion:** BIS/BAS Scales offer an easy to apply and effective means of enhancing behavioural activation therapy for depression and extending this treatment modality to anxiety disorders.

Keywords: Behavioural activation treatment, behavioural approach system, behavioural inhibition system, avoidance, reinforcement.

Introduction

Behavioural activation treatments are based on earlier behavioural formulations of depression, positing a deficiency of response contingent reinforcement of non-depressed behaviour (Hopko, Lejuez, Ruggiero and Eifert, 2003). Although largely eclipsed for several years by cognitive therapy that places cognitions in the primary role, behavioural treatments for depression have made a comeback. The two main versions consist of Behavioral Activation (BA) and Behavioral Activation Treatment for Depression (BATD) (Hopko et al., 2003; Jacobson, et al., 1996; Lejuez, Hopko and Hopko, 2001). Depression is seen as arising from low levels of positive reinforcement or high levels of aversive control in the case of BA (Jacobson et al., 1996). BATD is based on matching theory stating that depressive relative to non-depressive behaviour is directly proportional to the relative value of reinforcement obtained for these two categories of behaviour (Lejuez, Hopko and Hopko, 2001). BA consists of many strategies, such as mental rehearsal, periodic distraction, mindfulness training, and

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skills training, that proponents of BATD do not see as being core to behavioural activation treatments (Hopko et al., 2003; Jacobson et al., 1996; Lejuez et al., 2001).

Modern behavioural activation treatments are based on the premise that behaviour change is primary, and cognitive change can and does follow from behavioural change; opposite to the sequence posited by cognitive therapists (Hopko et al., 2003). For example, it has been found that adding automatic thought modification to behaviour activation does not improve outcomes, and behavioural activation therapy is as effective as cognitive therapy for altering negative thinking and dysfunctional attitudes (Jacobson, et al., 1996). The perspective that behavioural change might be primary, with cognitive changes following from it, is gaining support in many areas of psychopathology (Hopko et al., 2003). For example, behavioural activation in the form of increased physical and mental activity, irrespective of specific cognitions, has been identified as the key component of hypomania, enabling it to effectively override or interrupt depressive behaviour (Bowins, 2008).

Although behavioural activation treatments are effective for depression (Hopko et al., 2003) there is always room for improvement with any treatment modality, and also the need to extend it to anxiety disorders, particularly considering how both depression and anxiety often occur together in a real life clinical setting. Behavioural activation treatments have been almost exclusively focused on depression, with any anxiety application secondary to depression (Hopko et al., 2003). Interestingly, naturally occurring behavioural activation in the form of hypomania has been found to be as effective for social anxiety as for depression (Bowins, 2008), suggesting that formal behavioural activation might be successful in this regard. Behavioural activation treatments are designed to be time limited and adding complexity might potentially reduce their efficacy. Hence, any addition to behavioural activation therapy must be easy to apply, enhance relevant information, and advance the therapeutic intervention. The Behavioral Approach/Activation System (BAS) and Behavioral Inhibition System (BIS) fulfil these criteria, and also facilitate the extension of behavioural activation treatments to anxiety disorders.

Applying BAS and BIS to behavioural activation treatments

BAS and BIS are very ancient general motivational systems, with the former approach oriented and based on positive appetitive incentive, and the latter regulating sensitivity to threat and non-reward cues, and guiding inhibition or avoidance responses (Gray, 1982; Kasch, Rottenberg, Arnow and Gotlib, 2002). BAS is closely associated with depression (Kasch et al., 2002). BAS and BIS scales have been designed, including three BAS subscales: BAS Reward Responsiveness (BAS-RR), BAS-Drive, and BAS-Fun, and a single more extensive BIS scale (Carver and White, 1994). Comparing 62 patients with Major Depressive Disorder (high Hamilton Depression Inventory scores and low Global Assessment of Functioning Scale scores) to 27 matched non-depressive controls, Kasch et al. (2002) found that the depressed subjects scored significantly lower on BAS than the non-depressed controls. The clinically depressed subjects also obtained lower scores on all three BAS subscales. BAS-RR and BAS-Drive subscale scores further predicted the course of depressive symptoms over an 8-month period.

Kasch et al. (2002) indicate that lower responsiveness to reward, and a decreased motivational drive to pursue rewarding stimuli, serve to maintain a depressive episode by making it less likely that a depressed person will seek out positive stimuli or engage in

pleasurable activities. In addition to BAS, BIS has been linked to depressive states (Kasch et al., 2002). For example, Kasch et al. (2002) found that their depressed participants had significantly higher BIS scores. High BIS is also associated with anxiety disorders (Gray, 1982). BAS inhibition appears more specific to depression, whereas BIS activation is present in a broader range of psychiatric conditions (Kasch et al., 2002).

While BAS and BIS are both conceptually and practically relevant to behavioural activation treatment, how might they be incorporated? Their addition must be easy to apply, informative, and provide useful therapeutic strategies. The BIS/BAS scales facilitate this application. They consist of 24 items with a 4-point rating (very true for me, somewhat true for me, somewhat false for me, very false for me) (Carver and White, 1994). The entire scale is typically completed effortlessly in 5–10 minutes. Four items assess BAS-Drive, four BAS-Fun Seeking, five BAS-RR, and seven BIS. Scores are derived for the subscales and also overall BAS and BIS. The BAS subscales assess different aspects of behavioural activation: Drive behavioural motivation; Reward responsiveness affective responding; Fun Seeking both affective responding and behavioural motivation (Carver and White, 1994).

Information provided by the BIS/BAS scales is very pertinent to the treatment of depression and anxiety states, with the BIS component providing the ideal segue for extending behavioural activation treatment to anxiety disorders. At a general level, a high BIS score indicates that the person is very inhibited with avoidance dominating over approach. This profile will play a prominent role in initiating and maintaining both depression and anxiety states. Likewise, a low BAS overall score indicates that approach behaviour to secure reinforcement is deficient. Even greater information value is to be found in the specific scale scores and their relationship to each other. For example, if a person scores low on BAS-Drive and high on BAS-RR, then the problem is motivation to acquire rewards (Carver and White, 1994). Once the reward is achieved, the person is responsive to the reinforcement effect. A reverse profile suggests that motivation is adequate but there is non-responsiveness.

Case studies

A couple of brief cases illustrate the application of the BIS/BAS scales to behavioural activation treatment. The first demonstrates how the BIS/BAS scales can be used to treat concurrent depression and anxiety, and how significant reward responsiveness can be. A 30-year old male, Tim, employed in the financial investment field, presented with both depression and social anxiety. He scored reasonably well on BAS-Drive, the mid range of BAS-Fun Seeking, low on BAS-RR, and high on BIS. His motivation for reward was solid and he was exposed to some sources of potential reinforcement including friends, family members, and co-workers. The problem largely consisted of inhibited behaviour such that he did not engage those around him and came across as distant and detached. As a result he was non-responsive to the social rewards potentially available. He had placed value on social activities, as clearly illustrated by placing 8 in the 15 desired activities (part of the BATD protocol).

The next step in applying the BIS/BAS scales is turning to the specific items making up the given scale. In the case of Tim, BIS items reflecting sensitivity to criticism and disapproval showed that he avoided engagement for fear of doing something wrong. These items include “Criticism and scolding hurts me quite a bit”, and “I feel worried or upset when I think or know somebody is angry at me.” The DSM-IV-TR criteria for Social Anxiety Disorder emphasize

marked and persistent fear of social or performance situations in which the person is exposed to unfamiliar people and possible scrutiny (First, Frances and Pincus, 2002). The BIS items listed focus on excessive anxiety and distress over social appraisals tapping into this key aspect of social anxiety.

Avoidance, while providing short-term relief, intensified both the depression and anxiety. Getting Tim to overcome the avoidance blocking actual engagement with friends, family members and co-workers, led him to realize that their response was not negative, and in fact was more negative when he did not engage. He then became more responsive to these social sources of reinforcement and his depression and anxiety gradually receded. A follow-up session at one year indicated that he recovered fully with no relapse of depression or anxiety. Scores on the BIS scales tapping into social anxiety shifted from high to low and scores on the BAS-RR scales moved higher, consistent with the clinical observations. Continuing social engagements almost certainly assisted in his sustained recovery.

Providing an example of how the BIS/BAS scales can facilitate the application of behavioural activation treatment to anxiety states in the absence of depression, a middle-aged male computer software programmer, Brendon, presented with both generalized and social anxiety, and significant procrastination on work assignments. His score on the BIS scale was very high, whereas the overall BAS and BAS subscale scores were quite solid. Consistent with anxiety, his behaviour was inhibited and avoidance dominated over approach. Generalized anxiety was evident in high agreement to the BIS items: "If I think something unpleasant is going to happen I usually get pretty worked up"; "I worry about making mistakes"; and "I feel worried when I think that I have done poorly at something important". The DSM-IV-TR criteria for Generalized Anxiety Disorder (GAD) include excessive anxiety and worry about a number of events or activities such as work or school performance, and difficulty controlling the worry (First, Frances and Pincus, 2002). The BIS items listed capture expressions of anxiety and worry consistent with DSM-IV-TR criteria for GAD. These criteria also include tension, and restlessness or feeling keyed up (First et al., 2002), represented by feeling "worked up" in the one BIS item. Social anxiety was revealed by high agreement to the scale items assessing this dimension.

Brendon was guided in ways to approach sources of anxiety that are not objectively dangerous, such as work assignments and social engagements, without first modifying cognitions. As he discovered that there is really nothing to fear, and instead experienced rewards such as praise and positive social contact, his anxiety diminished and approach behaviour progressed. Over the several months that he was followed, Brendon embraced challenging work assignments he previously would have procrastinated about. He also joined Toastmasters to improve his presentation skills and overcome social anxiety when in the company of new people. Brendon indicated that he found engaging in activity and approaching situations that are not clearly dangerous to be much better than fearing and avoiding as he had done for so long. His employers noted these changes and promoted him, something long overdue. Brendon also reconnected with friends he had been avoiding and began dating. Follow-up administration of the BIS/BAS Scales revealed a marked drop in behavioural inhibition on the items relevant to generalized and social anxiety.

It is recommended that the BIS/BAS scales be administered at the start of behavioural activation treatments to provide a more complete picture of the person's sensitivity to reward and punishment, typical approach and avoidance behaviour, responsiveness and motivation for rewards, and the role of anxiety. Beyond the overall BIS and BAS scores, subscale and

specific item scores provide valuable information. It is suggested that the overall BIS and BAS scores be considered first, followed by the subscales, and then responses to specific items. Applying the BIS/BAS scales to patients with depression and anxiety provides a much more comprehensive understanding of their motivations for approach and avoidance responses, and facilitates behavioural activation interventions, so increasing approach behaviour and reducing avoidance responses.

Conclusion

BAS and BIS align very well with behavioural activation treatment. Overall, BAS, BAS subscale and BIS scores can greatly enhance information regarding a patient's limitations in approaching sources of reinforcement and the extent of their behavioural inhibition. Specific items on the BIS/BAS scales can guide focused interventions to more effectively replace avoidance with approach behaviour, thereby enhancing access and responsiveness to positive reinforcement. The BIS scale component both conceptually and practically facilitates the extension of behavioural activation to the treatment of anxiety disorders. In line with limiting the complexity of any additions to behavioural activation treatment, BIS/BAS scales are very easy to apply. With further application of these scales more knowledge will be gained regarding how BAS and BIS can assist with behavioural activation treatment.

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