

Behavioral Activation for Treatment of PTSD and Depression in an Iraqi Combat Veteran with Multiple Physical Injuries

Aaron P. Turner and Matthew Jakupcak

VA Puget Sound Health Care System and University of Washington, USA

Background: Physical injury and psychological trauma associated with combat in the wars in Iraq and Afghanistan frequently lead to a constellation of symptoms including pain, post traumatic stress disorder (PTSD), and depression. **Method:** This single case study describes the application of a behaviorally-based psychotherapy known as behavioral activation for the treatment of post traumatic stress disorder (PTSD) and depressive symptoms in a recent combat veteran with multiple physical injuries sustained from a blast injury. Treatment was provided concurrently with other rehabilitation services and consisted of weekly individual sessions for 4 months, followed by monthly sessions for 4 months. **Results:** Clinically significant reductions in PTSD and depressive symptoms were noted between baseline and 1 year follow-up. **Conclusion:** Preliminary evidence from this case suggests that behavioral activation may be a promising treatment for PTSD and depression, and can be readily tailored to individuals with physical limitations such as pain and mobility restriction. Treatment can be provided in the context of concurrent interdisciplinary medical and rehabilitation care.

Keywords: Behavioral activation, PTSD, depression, rehabilitation, veteran.

Introduction

Conflicts in Iraq and Afghanistan continue to present a host of challenges to rehabilitation professionals seeking to address the healthcare needs of returning military personnel. The majority of injuries sustained in combat are the result of blast exposure, which may impact multiple body systems. Advances in body armor and acute trauma care have improved mortality rates following initial injuries, but as a result patients who might not have survived during previous wars often face complex physical and mental health issues.

Blast injuries received from a variety of sources, including improvised explosive devices, may result in a variety of co-occurring symptoms. Recent reports reviewing patients seeking rehabilitation services in the US Department of Veterans Affairs (VA) note the most commonly identified mental health concerns include symptoms of post traumatic stress disorder (PTSD) and depression, and among the most common physical complaints is pain (Sayer et al., 2008).

The co-occurrence of these high-prevalence issues may serve to complicate both medical and mental health treatment. Avoidance behaviors associated with PTSD and physical pain may have additive and interactive effects that maintain each disorder (Otis, Keane and Kerns,

Reprint requests to Aaron P. Turner, VA Puget Sound Health Care System, Rehabilitation Care Service, S-117-RCS, 1660 S. Columbian Way, Seattle, WA 98108, USA. E-mail: aaron.turner@va.gov

© British Association for Behavioural and Cognitive Psychotherapies 2010. This is a work of the U.S. Government and is not subject to copyright protection in the United States.

2003). Further, physically injured patients with prominent depression, pain-related disability, and PTSD-numbing symptoms may not fully respond to cognitive behavioral treatments for PTSD (Taylor et al., 2001). Thus, strategies that simultaneously target depression, emotional numbing, and avoidance behaviors may improve treatment response in veterans with significant physical injuries.

Behavioral activation (BA) is brief and pragmatic intervention designed to reconnect individuals to rewarding and meaningful experiences. Functional analysis and collaborative problem solving are used to overcome common barriers, including anhedonia and anxiety-based patterns of avoidance. Re-engagement in meaningful activities is facilitated by encouraging individuals to make systematic approximations toward concrete goals that correspond to their personal values (Martell, Addis and Jacobson, 2001). BA finds its conceptual roots in traditional behavioral interventions intended to identify and promote reinforcement (Lewinsohn, 1974) and has been an early-treatment component of many cognitive behavioral therapies (Beck, Rush, Shaw and Emery, 1979). Within the past two decades, evidence from psychotherapy dismantling studies has renewed interest in BA by demonstrating that it may serve as an effective stand-alone treatment for depression, and that the cognitive components of CBT, namely challenging dysfunctional thoughts and schemas, may not be necessary (Jacobson et al., 1996). This finding has been confirmed by rigorous subsequent evidence (Dimidjian et al., 2006).

There is preliminary support for BA as a treatment for military-related PTSD (Jakupcak et al., 2006) and PTSD resulting from physical trauma (Wagner, Zatzick, Ghesquiere and Jurkovich, 2007). Similar to depression, the application of BA for PTSD differs from other cognitive behavioral therapies for PTSD as the primary emphasis is the promotion of re-engagement in meaningful activities in order to increase quality of life, rather than the explicit promotion of exposure to anxiety cues (i.e. exposure to traumatic memories) or the evaluation of cognitive interpretations of the traumatic events. In this way, BA uses an “outside in” approach to increasing functioning in important domains.

The following report describes a case study of BA for the treatment of PTSD and depressive symptoms in an Iraq combat veteran with physical injuries. It highlights the feasibility of transporting an empirically supported behavioral intervention typically delivered in mental health settings to a population with rehabilitation needs, and the value of providing mental health treatment in the context of medical care.

Method

Participant

Mr P. is a 22-year-old male soldier initially admitted to a Veterans Administration inpatient rehabilitation unit with injuries sustained from an improvised explosive device while on combat duty in Iraq. Mr P. presented with multiple severe fractures requiring several orthopedic surgeries. He was referred to rehabilitation psychology for assessment of PTSD and depression.

PTSD. Mr P. reported significant combat exposure from two tours of duty. Most importantly, while on patrol his squad was exposed to a blast by an improvised explosive device that threw him from his armored vehicle and killed or injured fellow soldiers. He had frequent intrusive and disturbing memories of this attack, with pronounced hypervigilance, irritability, and an exaggerated startle response. He reported difficulties with sleep due to

pain in his left leg, but also because of recurring traumatic nightmares. Mr P. was diagnosed with PTSD by the treating psychologist (AT) and independently by a consultation service psychiatrist.

Depression. Mr P. endorsed daily depressed mood, stating that he was the squad leader for his group and was responsible for keeping his troops safe. He repeatedly articulated grief and guilt about the death of his fellow soldiers and became tearful when discussing the attack. He reported poor appetite and fatigue, but noted his mood was improving.

Mr P. did not report a history of mental health difficulties prior to combat deployment and an initial workup for head injury produced no significant findings. In accordance with his treatment preference, no psychiatric medications, other than zolpidem (a sleep aid), were introduced during the course of therapy.

Measures

PTSD was measured using the PTSD Check List (Blanchard, Jones-Alexander, Buckley and Forneris, 1996; Weathers, Litz, Herman, Huska and Keane, 1993). The PCL is a 17-item self-report measure intended to quantify PTSD symptoms and their severity. Total scores range from 17 to 85. It has well established psychometric properties and has been shown to correlate highly with clinician-administered assessment instruments (Blanchard et al., 1996).

Depression was evaluated using the PHQ-9 (Kroenke, Spitzer and Williams, 2001). The PHQ-9 is a brief self-report screening instrument designed to identify a major depressive episode or other depressive symptoms consistent with DSM-IV criteria. Total scores range from 0 to 27. It has well established validity and utility in identifying depression in medical populations (Kroenke et al., 2001).

This report was produced with consultation from the local human subjects review committee and was submitted with the permission of the participant.

Procedures

Mr P. participated in approximately weekly treatment for a period of 4 months following his inpatient rehabilitation. Treatment was initiated 2 months after his initial injury and return to the US. Intervention was based upon the BA protocol for depression developed by Jacobson and colleagues (Dimidjian et al., 2006), but was also adapted to highlight the role of PTSD symptoms in the development of patterns of avoidance. His sessions were tapered to monthly for the next 4 months to consolidate treatment gains. Finally, he completed two subsequent follow-up appointments until he was one year post-injury. Physical therapy, focused initially on weight bearing and later upon walking, was conducted concurrently during the year.

Treatment

Re-establishing routine. Mr P. noted difficulty adjusting to the slower pace of life while not deployed in a combat zone and further reported feeling “adrift” without the structure and expectations of regular military duties. In the absence of a prescribed schedule, he found himself physically inactive, with an erratic sleep schedule. During periods of inactivity he reported more frequent disturbing recollections of trauma, guilt surrounding his combat

experiences, and worry about his future. As a result, primary emphasis was placed upon establishing a structured daily routine that included exercise and consistent sleep patterns. This goal reflected his value of maintaining discipline and self-control.

Focused activation: re-accessing reinforcement. Behavioral Activation sessions focused on a central theme of “getting life back on track” by identifying activities bringing mastery and pleasure. Examples of specific goals identified by Mr P. included exercise, reflecting his value of physical fitness and self-reliance, re-connecting with his fellow soldiers, reflecting his value of loyalty, investigating college classes and career options, reflecting his value of professionalism and professional development, and increasing social activities consistent with his interest in returning to a “normal” life.

Identification of avoidance. Behavioral activation also focused upon problem solving and overcoming barriers to engagement in life. Specific emphasis was placed upon patterns of avoidance that interfered with desired behavioral goals. Several specific behavioral patterns were noted during the course of treatment and served as treatment targets. For example, Mr P. was initially reluctant to go out in public due to embarrassment about PTSD symptoms. When in the community, he was often hypervigilant, and had a tendency to respond to being startled with automatic military behaviors (e.g. dropping to the ground following a loud sound). This pattern of avoiding community activities interfered with his personal values of self-reliance and returning to a normal life.

Second, Mr P. was discouraged by his physical limitations and avoided situations where he felt he might be the object of critical attention or pity. This pattern of avoiding participation in social activity was discussed in contrast to his value of returning to a normal life. Third, Mr P. initially avoided positive and rewarding activities out of guilt for his fellow soldiers who were still deployed and unable to enjoy the comforts easily available to him, behavior that was again inconsistent with his value of returning to a normal life.

Throughout treatment Mr P. was encouraged to identify behavioral obstacles and patterns of avoidance as TRAPs (Triggers, Responses, Avoidance Patterns) and work toward problem solving a behavior that got him back on TRAC (Trigger, Response, Alternative-Coping). After completing 4 months of weekly BA therapy, Mr P had met or made significant progress on several of his personal goals (physical fitness, social contact, and returning to a normal life). He had become proficient at identifying avoidance behaviors and developing active coping alternative behaviors in line with his personal values.

Results

PTSD symptoms

As shown in Table 1, Mr P. experienced a decline in PTSD symptoms from outpatient baseline to treatment completion (PCL = 51 vs. PCL = 23). To evaluate whether this change was meaningful, two criteria were used. First, we calculated a reliable change index (RCI) using the definition established by Jacobson and Truax (1991). RCI values above 1.96 suggest the magnitude of change between observations on an instrument exceeds the expected measurement error associated with the instrument. The RCI for our study participant was 7.02. Second, we examined established scale interpretations. A score of 50 or above on the PCL is commonly used to indicate the presence of PTSD (Weathers et al., 1993). By this definition,

Table 1. Psychological and physical symptoms

	Baseline	2-month follow-up	12-month follow-up
PTSD (PCL)	51	33	23
Depression (PHQ-9)	11	12	2
Weight bearing pain	8	5	0
Ambulation	Wheelchair	Crutches	No assistive device

our participant began treatment with symptoms exceeding the clinical threshold for PTSD and ended treatment well below that level.

As a secondary analysis, PCL symptoms were divided into categories reflecting the DSM-IV symptom clusters from which they were derived (re-experiencing, avoidance, and arousal). Of specific interest was the question of whether a behavioral intervention with no systematic and explicit focus upon the cognitive aspects of trauma and trauma-related memories might affect intrusive symptoms. Notably, symptom reduction was found across all three categories, with the proportional reduction in re-experiencing symptoms somewhat exceeding the corresponding reduction in avoidance symptoms (60% vs. 42%).

Depression symptoms

Mr P. also experienced a notable decline in depressive symptoms from outpatient baseline to treatment completion (PHQ-9 = 11 vs. PHQ-9 = 2; see Table 1). Again, using the Jacobson and Truax (1991) reliable change index, changes in depression exceeded those expected by measurement error (RCI = 3.84). Using standard scale interpretations (Kroenke et al., 2001), our participant's initial score reflected the presence of mild but significant depression, and the final score reflected a near absence of depressive symptomatology, with the exception of disrupted sleep. Interestingly, the most prominently endorsed symptom of depression at baseline was cognitive: "Feeling bad about yourself – or that you are a failure or have let yourself or your family down", which was reported at the frequency of "nearly every day" but was endorsed "not at all" at the final follow-up.

Pain and ambulation

As Mr P. recovered from physical injuries and surgeries, he also experienced reductions in physical pain and improvements in his ambulation. At baseline, his report of pain upon weight bearing using a 10-point Likert-type scale (higher reflecting greater pain) fell from 8 to 0. He progressed from a wheelchair, to crutches, to walking without an assistive device (see Table 1).

Discussion

This case highlights the utility of behavioral activation as a treatment for Iraq or Afghanistan veterans with PTSD and depressive symptoms concurrent to physical injury and pain. Results suggest that treatment focused on the pursuit of behavioral goals that is tailored to identifying and overcoming practical obstacles associated with avoidance may represent an important

intervention option. Identification of the “active components” of this treatment, whether improving access to reinforcement, indirect exposure and habituation to anxiety cues, or more likely both, remains an important question for future research.

Recently returning veterans are likely to be first diagnosed with a mental disorder in a primary or specialty medicine clinic (Seal, Bertenthal, Miner, Sen and Marmar, 2007) and pain and comorbid psychiatric symptoms are common among veterans with blast injuries (Sayer et al., 2008). As suggested in this case and reflected in the literature, referral to specialty mental health programs (Seal et al., 2008) may represent a barrier for participation for some individuals. BA strategies are consistent with rehabilitation goals (Skolasky, Mackenzie, Wegener and Riley, 2008) and can be delivered in rehabilitation settings (Wagner et al., 2007) for veterans with significant physical injuries who require coordinated, interdisciplinary care. BA strategies are also consistent with active coping strategies promoted in military training and may be more acceptable to veterans who perceive stigma associated with emotion-focused therapies.

Although promising, the results of this single-case report should be considered preliminary. We are unable to isolate the unique contribution of the intervention in the context of a host of factors, including physical recovery, spontaneous improvement over time, and the receipt of other medical care. The outcome measures employed in this report are well validated and widely utilized, but nonetheless represent brief screenings subject to the limitations of self-report. Future research is needed to test the feasibility and efficacy of delivering BA as a treatment for PTSD in rehabilitation and other medical settings.

Acknowledgements

This research was supported by the Department of Veterans Affairs Rehabilitation Research and Development Service Career Development Awards (B3319VA and B4927 W) to Aaron P. Turner.

References

- Beck, A. T., Rush, A. J., Shaw, B. F. and Emery, G. (1979). *Cognitive Therapy of Depression*. New York: Guilford.
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C. and Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy*, 34, 669–673.
- Dimidjian, S., Hollon, S. D., Dobson, K. S., Schmaling, K. B., Kohlenberg, R. J., Addis, M. E., Gallop, R., McGlinchey, J. B., Markley, D. K., Gollan, J. K., Atkins, D. C., Dunner, D. L. and 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, 658–670.
- Jacobson, N. S., Dobson, K. S., Truax, P. A., Addis, M. E., Koerner, K., Gollan, J. K., Gortner, E. and Prince, S. E. (1996). A component analysis of cognitive-behavioral treatment for depression. *Journal of Consulting and Clinical Psychology*, 64, 295–304.
- Jacobson, N. S. and Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59, 12–19.
- Jakupcak, M., Roberts, L. J., Martell, C., Mulick, P., Michael, S., Reed, R., Balsam, K. F., Yoshimoto, D. and McFall, M. (2006). A pilot study of behavioral activation for veterans with posttraumatic stress disorder. *Journal of Traumatic Stress*, 19, 387–391.

- Kroenke, K., Spitzer, R. L. and Williams, J. B.** (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*, 606–613.
- Lewinsohn, P. M.** (Ed.) (1974). *A Behavioral Approach to Depression*. Oxford, UK: Wiley.
- Martell, C. R., Addis, M. E. and Jacobson, N. S.** (2001). *Depression in Context: strategies for guided action*. New York: Norton.
- Otis, J. D., Keane, T. M. and Kerns, R. D.** (2003). An examination of the relationship between chronic pain and post-traumatic stress disorder. *Journal of Rehabilitation Research and Development*, *40*, 397–405.
- Sayer, N. A., Chiros, C. E., Sigford, B., Scott, S., Clothier, B., Pickett, T. and Lew, H. L.** (2008). Characteristics and rehabilitation outcomes among patients with blast and other injuries sustained during the Global War on Terror. *Archives of Physical Medicine and Rehabilitation*, *89*, 163–170.
- Seal, K. H., Bertenthal, D., Maguen, S., Gima, K., Chu, A. and Marmar, C. R.** (2008). Getting beyond “Don’t ask; don’t tell”: an evaluation of US Veterans Administration postdeployment mental health screening of veterans returning from Iraq and Afghanistan. *American Journal of Public Health*, *98*, 714–720.
- Seal, K. H., Bertenthal, D., Miner, C. R., Sen, S. and Marmar, C.** (2007). Bringing the war back home: mental health disorders among 103788 US veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. *Archives of Internal Medicine*, *167*, 476–482.
- Skolasky, R. L., Mackenzie, E. J., Wegener, S. T. and Riley III, L. H.** (2008). Patient activation and adherence to physical therapy in persons undergoing spine surgery. *Spine*, *33*, E784–791.
- Taylor, S., Fedoroff, I. C., Koch, W. J., Thordarson, D. S., Fecteau, G. and Nicki, R. M.** (2001). Posttraumatic stress disorder arising after road traffic collisions: patterns of response to cognitive-behavior therapy. *Journal of Consulting and Clinical Psychology*, *69*, 541–551.
- Wagner, A., Zatzick, D., Ghesquiere, A. and Jurkovich, G.** (2007). Behavioral activation as an early intervention for posttraumatic stress disorder and depression among physically injured trauma survivors. *Cognitive and Behavioral Practice*, *14*, 341–349.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A. and Keane, T. M.** (1993). *The PTSD checklist: reliability, validity, and diagnostic utility*. Paper presented at the Annual Meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.