Psychiatry Research 209 (2013) 485–493

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Nature adventure rehabilitation for combat-related posttraumatic chronic stress disorder: A randomized control trial

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ARTICLE INFO

Article history:
Received 20 February 2012
Received in revised form
21 January 2013
Accepted 25 January 2013

Keywords:
PTSD
CR-PTSD
Nature Adventure therapy
Experiential learning
Rehabilitation

ABSTRACT

Chronic combat-related posttraumatic stress disorder (CR-PTSD) is a condition with many treatment barriers. Nature Adventure Rehabilitation (NAR) as a second line or as a supplemental intervention has the potential to overcome some of these barriers and incorporate aspects of successful treatment modalities for PTSD within an experiential learning paradigm. In a pre-post controlled trial, CR-PTSD veterans ($n=22$) underwent a 1-year NAR intervention compared to a waiting list (WL) control group ($n=20$). Posttraumatic symptoms (PTS), depression, functional problems, quality of life, perceived control over illness (PCI) and hope were measured by self report measures. PTS, emotional and social quality of life, PCI, hope and functioning improved significantly. Change in PTS was contingent upon change in PCI. The current study is the first to present NAR as a promising supplemental intervention for chronic CR-PTSD. NAR seems to work through a process of behavioral activation, desensitization, gradual exposure to anxiety evoking situations and gaining control over symptomatology.

1. Introduction

Chronic combat-related posttraumatic stress disorder (CR-PTSD) is a condition that appears in a significant proportion of war veterans. Most estimates put the lifetime prevalence of posttraumatic stress disorder (PTSD) between 9% and 31% for those exposed to combat (Center for Disease Control, 1988; Kulka et al., 1990; Southwick et al., 1993a,b; Card, 2000). Significant posttraumatic residues up to 20 years after combat, including high levels of distress, depression, anxiety, obsessive-compulsive tendencies and hostility (Solomon et al., 1989; Solomon and Mikulincer, 2006) have been observed in veterans. CR-PTSD is typically accompanied by multiple comorbid Axis I and II disorders (Southwick et al., 1993a,b; Keane and Wolfe, 1990; Bollinger et al., 2000; Dunn et al., 2004; Axelrod et al., 2005) as well as symptom chronicity (Gold et al., 2000). Furthermore, CR-PTSD is also associated with extreme social maladjustment, including social avoidance or phobia, anger, violent behavior, family discord and interpersonal problems as well as unemployment (Frueh et al., 1996; Chemtob et al., 1997). Chronic CR-PTSD is thus a prevalent, complex psychiatric disorder resulting in considerable emotional distress and impaired social functioning and often constitutes a significant treatment challenge (Davidson, 2000).

There are many challenges and barriers while providing treatment to CR-PTSD clients (Samuel et al., 2005). Among these challenges are engagement problems (Linden, 2008), high intensity anger, strong avoidance and difficulty in regulating emotions (Van der Kolk, 2002). These possible barriers require much effort, both from the clients and therapists to overcome lack of hope, fear and suffering while reliving the trauma (Figley, 1997). A further treatment barrier lies in the way mental health treatment is perceived by many PTSD veterans. Many veterans lack the trust in the mental health system and are afraid of being perceived as 'weak' (Hoge et al., 2004). They also seem to have difficulties in trusting anything government- and army-related (Glover, 1984; Glover et al., 1990; Mason, 1990; Kubany et al., 1994), including therapists working within administrations. Patients worry about confidentiality and fear that improvement in mental health status might lead the army to reduce the percentage of disability payment they receive (Frueh et al., 2007). Furthermore, chronic PTSD is often accompanied by important somatic symptoms, whereby regular verbal therapeutic work, may not always be the most efficient (Van der Kolk, 2002).

Even though there are excellent effective first-line approaches for treating PTSD, such as exposure therapy (ET) and CBT

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0165-1781/$ - see front matter © 2013 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.psychres.2013.01.026

(Foa et al., 2000; Schnurr et al., 2007; Rauch et al., 2009; Yoder et al., 2012), some clients might necessitate additional support and opportunities to apply and generalize newly learned understandings and skills. Indeed ET has been found to have had limited impact on negative symptoms of PTSD (e.g., social withdrawal, interpersonal difficulties) or anger control (Frueh et al., 1995). Because ET is mainly focused on anxiety, avoidance and fear reduction, and because of the chronic and all-encompassing nature of this condition in many combat veterans, its effects do not appear to be broad enough to address the skill deficits, impaired relationships (Frueh et al., 2001) and problems of anger control (Chemtob et al., 1997) manifested by this patients group. Unfortunately, as with exposure therapy, CBT dropout rates may be significant in individuals with high levels of avoidance (Bryant et al., 2003; Marks et al., 1998), depression (Bryant et al., 2003; McDonagh-Coyle et al., 2005) and alcohol use (Van Minnen et al., 2002). Furthermore treatment outcomes have been observed to be negatively affected by multiple previous traumas (Hembree et al., 2004) as well as the use of benzodiazepines (Van Minnen et al., 2002). In addition it might be difficult to 'sell' clients homework assignments (Helblig and Fehm, 2004). Research has also suggested that although CBT or ET can reduce symptomatology, there may not be sufficient clinical gain for veterans (Britvic et al., 2006). Furthermore a meta-analysis has suggested that although there are viable and effective treatments for chronic PTSD, many do not profit from these interventions (Bisson et al., 2007).

As a second line of treatment for those not yet ready to engage, have not improved significantly or have been treatment dropouts of evidence-based approaches such as CBT and ET, Nature Adventure Rehabilitation (NAR), as described hereunder, presents an intervention model that might potentially circumvent many of the described barriers to treatment, has an important somatic component and potentially has many of the ingredients found in the more successful approaches for treating chronic PTSD. NAR is a group therapeutic approach based upon the theoretical framework of experiential learning (Herbert, 1998) and uses activity-based sport interventions in a way that provides opportunity for personal growth. It includes the use of perceived physical and psychological risk as an agent for change and for exploring the meanings of experiences and behaviors in coping with these risks through discussions following the activities. In most cases, NAR happens in a natural environment where participants are faced with a variety of pre-planned tasks and strategies for affecting change (Cason and Gillis, 1994). These tasks are presented in a way that is designed to empower the person, to change negative self-images, to enhance self-efficacy, hope and the ability to enjoy life, and to develop control over symptoms, as well as improving social and emotional regulation skills (Kelley et al., 1997).

The basic working formula of NAR includes placing persons in unfamiliar task-oriented positions, and building incremental challenges for the individual and the group. This is done with the professional crew members who modulate the activities' difficulty levels. The natural environment is used to set the challenges, cooperation between the participants is fostered and the participants' progress is monitored (Herbert, 1998). Although NAR can include many kinds of activities, the most common include trekking, wilderness adventure, camping, rope courses, canoeing, cycling, and sailing-related activities (Lakshmi et al., 2006). Key therapeutic elements include its being inherently health-oriented, instead of pathology-oriented (Antonovsky, 1987). A second and central tenant is that the activities are "participant-centered" requiring active participation (Ewert et al., 2001) in reality-based outcomes (Gillis and Bonney, 1986; Gass, 1993) and as such being empowering and providing for real-life feedback and learning. A third element lies in the principle of "disequilibrium" (Nadler and Luckner, 1992), that is clients are faced with novel situations in which they need to develop new ways of thinking and acting. A related key element lies in the principle of dynamic "adaptation" whereby activities create the need to constantly adapt to changing conditions (Crisp, 1998) potentially creating a dynamic movement of change constantly pulling upon new, flexible and adaptive coping modes. A fifth element includes the creating of cognitive dissonance (Ewert et al., 2001), such as between perceived abilities or self assessment (for example: inability to take risk, low sense of self-efficacy, and self-appreciation) and actual behaviors (pro-social behavior, and risk taking) or/and outcomes (success in doing a task) with the aim to change self-assessment and behavior.

Although most NAR are performed with youth (Hill, 2007), the field has grown to incorporate therapeutic work with adult populations with mental problems. A limited number of sound empirical studies have suggested that NAR in the field of adult psychiatric recreation (Jerstad and Stelzer, 1973; Banaka and Young, 1985; Berman and Anton, 1988) provides useful, potent tools to effect significant changes in mental health-related beliefs, attitudes and skills (Cason and Gillis, 1994; Chakravorty et al., 1995; Kelley et al., 1997). One non-randomized case-controlled study (Lakshmi et al., 2006) assessed the impact of adventure therapy which included a variety of sports and activities during a 8-month period, on a group of 23 patients with schizophrenia. They found that the intervention improved self esteem and functioning at the end of the intervention, as well as at 1-year follow up. One study assessed the impact of 5-day wilderness "outward bound" (OB) small group experiences (n=6–12) with 111 CR-PTSD clients (Hyer et al., 1996). Results of this study suggested that activities were enjoyed, the trust in the therapeutic staff improved, and some clinical improvements could be observed. However, OB did not significantly reduce PTSD symptomatology. As the authors of that study point out, the limited time frame of the intervention with clients with high levels of chronic dysfunctions and symptomatology could be one explanation for the lack of impact. Further explanations could be that the OB experience was too far removed from daily life experiences to have any real-life impact for the participants.

Although the literature on NAR is still unclear regarding the nature of its therapeutic elements, it includes some of the ingredients present in PTSD treatment modalities. First, NAR includes some of the Behavioral Activation (BA) components found to be effective in reducing PTSD as well as depression in PTSD veterans (Wagner et al., 2007; Jakupcak et al., 2010), one of which is exposing individuals to anxiety evoking situations. BA for PTSD is based upon the rationale that individuals with PTSD tend to avoid situations and experiences that may elicit trauma-related memories and associated affect, thereby reducing contact with reinforcers leading to temporary reductions in anxiety which increases and/or maintains anxiety. BA protocols reverse the pattern of avoidance and re-engage the individual with reinforcing activities (Wagner et al., 2007). The experiential, adventurous nature of the activities challenges clients to repeatedly face up to anxiety and fears. With some resemblance to BA procedures, the pace and level of difficulty or exposure to challenges are set up in cooperation with the crew members and each participant is repetitively placed in challenging situations. For example individuals are made responsible for navigating the boat and thereby insuring the safety of the crew. It is different from BA in that at no time does the intervention focus specifically on traumatic anxiety evoking situations, nor are the activities per-se accompanied by goal identification or behavioral analysis of avoidant behavior.

Second, the loss of ability to perform emotional regulation processes is a main feature of PTSD (Hussain and Bhushan, 2011).