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Review

Whatever happened to the soldiers? Nature-assisted therapies for veterans diagnosed with post-traumatic stress disorder: A literature review

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ABSTRACT

Nature-assisted therapy (NAT) has become more common and recognized in both practice and research. The literature often describes how NAT gradually emerged in the UK and the US offering rehabilitation of soldiers suffering from traumatic experiences after active service in WW I and WW II. The main question of this review is to investigate what happened to this patient group? Consequently the aim is to systematically review: The literature; the evidence level; the health outcomes; and the transmissibility of the therapy programmes and results for practitioners. The review describes the development and status of practice and research concerning NAT for veterans with post-traumatic stress disorder (PTSD).

The systematic review included a seven-step literature search. Relevant data sources were scrutinized in order to retrieve literature meeting the predefined inclusion criteria. Due to the limited amount of peer-reviewed literature, non-peer-reviewed literature was also included in the review.

The final selection yielded eleven peer reviewed and nine non-peer-reviewed publications. Three can be characterized as RCT studies, while the remainder is qualitative case studies. Eight themes emerged from the systematic analysis of the qualitative case studies. This review found that a large amount of projects offering NAT to veterans suffering from PTSD exist in many parts of the world and they present no adverse negative results.

Recommendations for future practice and research are posed.

Introduction

The risk of exposure to trauma has been part of the human condition since we evolved as a species, but the history of progressing from the description of a range of symptoms to the development of a specific diagnosis, is relatively new. First in 1980, the American Psychiatric Association (APA) added post-traumatic stress disorder (PTSD) to the third edition of its *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) (Binneveld, 1997).

Soldiers with battle trauma (shell shock) were treated in military mental hospitals during and after World War I (WW I). As part of the treatment, corps of volunteers helped set-up gardens, constructed greenhouses, and planned garden programmes (Selhub and Logan, 2012). The value of these programmes in the military hospitals was observed. In 1918, the US military initiated horticultural programmes as additional care for veterans with shellshock (later known as PTSD) and horticultural work became a separate therapy-activity developed from occupational therapy (Thyson, 2007; Selhub and Logan, 2012).

Establishment of the PTSD diagnosis

Approximately 9 million soldiers died with a correspondingly large number of wounded during WW I (Horne, 2012). Descriptions of veterans with symptoms of mental illness referred to as 'shell shock' emerged in medical literature in the last years of WW I (Crocq and Grocq, 2000). For the doctors, it was challenging to decide whether the post-traumatic symptoms were simulated by the soldiers, with the objective of escaping the frontline, or if they could be explained pathoanatomically, or had a psychological origin (Crocq and Grocq, 2000). Thus, the interpretation of shock shifted from being something requiring a literal wound to being based on traumatic experience. It took most of a century and two world wars before the shame and stigma attached to this type of

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mental illness was accepted as a possible trauma of being in war (Ekins and Steward, 2011; Horne, 2012).

The first diagnostic manual which was developed by the Veterans' Administration, provided an incentive to the APA to develop its own manual: *The first Diagnostic and Statistical Manual of the APA*, or DSM-I, which appeared in 1952. This manual included a category called 'gross stress reaction' defined as a stress syndrome and a reaction to extreme mental stress. In the first revision of this manual from 1968, the diagnosis of gross stress reaction was omitted. Consequently, between 1968 and 1980, no official diagnosis for stress disorders was available, although the same symptoms appeared in the Vietnam War (Andreasen, 2004, 2011). At that time, there was an understanding of the principles of preventing psychiatric casualties, which was successfully applied with a correspondingly low level of acute psychiatric casualties. The increasing diagnosing of veterans with shell shock in the 1970s ultimately led to the adoption of PTSD as a diagnostic category in 1980 in DSM-III (Crocq and Grocq, 2000; US Department of Defence). The World Health Organization's (WHO) International Classification of Diseases (ICD) is the standard diagnostic tool for epidemiology, health management, and clinical purposes, and a classification system for diseases and other health related disorders. The definitions by both the APA and WHO use the same name for the diagnosis, PTSD, although the criteria vary slightly. In the DSM-V (latest version), the definition of trauma includes both objective and subjective aspects, while the ICD only includes objective criteria. Both diagnostic references are used in this review.

Current situation

For soldiers serving (or previously serving) in the army, the prevalence of PTSD may be as high as 14–15% (Gates et al., 2012), and the number of veterans diagnosed with PTSD is constantly growing globally. Gates et al. (2012) refer to results which show that 226,000 individuals serving in OEF (active Operation Enduring Freedom, Afghanistan and Operation Iraq freedom) had been diagnosed with PTSD by 2007. Atkinson et al. (2009) predict in their model that the number of affected will have increased to 313,000 by 2023. The picture is the same for troops in the UK (Ministry of Defence, UK 2013).

Different types of treatments such as cognitive therapy, medical treatment and technology-based treatments e.g. Virtual Reality Therapy, are offered to the veterans, but there is a lack of sufficient evidence to draw conclusions about their efficacy (Cukora et al., 2009). In psychotherapy, prolonged exposure treatment, eye movement desensitization, mindfulness and cognitive processing therapy are recommended in treatment care (Rauch et al., 2012). Medical treatments are provided in relation to particular problems such as anxiety or unrest (Cukor et al., 2010). When no single treatment has been proven effective as 'a cure' for veterans with PTSD, the risk of suicide, drug and alcohol abuse increases (Hyman et al., 2012).

Nature-assisted therapy (NAT) for veterans suffering from PTSD today

When examining the practice of the broad field of NAT (see Table 1), it seems to be offered to veterans with PTSD, especially in countries that have extensive experience with treating veterans. A quick search on Google for veterans, PTSD, NAT and different terms for NAT returned approximately 285,000 references to homepages, blogs and books. NAT appears to be a common therapy offered separately or adjunctively to medical and psychological treatment. Examining the practice thus reveals that this form of therapy is widely and globally applied.

Annerstedt and colleagues (2011) conducted a systematic review of controlled and observational studies where they explored the effect of NAT for patients with well-defined diseases, as a single treatment, or together with other evidence-based treatment options. They found evidence for a positive effect of nature on physical and mental health for different groups such as people suffering from obesity, schizophrenia, dementia, physical disabilities and cancer. However, they identified only one study which focused on veterans with PTSD, and found no significant improvement in the quantitative part of the study, but positive qualitative responses. This highlights the need for a deeper exploration of the possible effects of NAT on veterans with PTSD.

Aim of this review

The main question underlying this review is: What happened to the 'original' patient group regarding nature-assisted therapy? The review is an attempt to describe the development and status of practice and research concerning nature-assisted interventions for veterans with PTSD. The aim is to systematically review: the literature; the accessible research; the research evidence level; the health outcomes for the veterans; and the transmissibility of the therapy programmes and results for practitioners.

Definitions of central concepts

Nature-assisted therapy (NAT)

Many terms have been used to describe the targeted therapy with nature. This review uses the term NAT inspired by Annerstedt and Währborg (2011), Stigsdotter et al. (2011) and is defined by Corazon et al. (2010) as a therapeutic intervention targeting the need of a special population, where the natural environment is specially designed or specially chosen for the specific therapeutic activity.

Based on this definition various types of natural environments and therapeutic interventions are included, ranging from wild nature to designed gardens, as well as wilderness therapy and horticultural therapy.

Post-traumatic stress disorder

PTSD is a psychiatric condition causing serious changes in the individual's life; physically, mentally and socially. Both DSM-V and ICD apply a history of exposure to a traumatic event, which provides a certain number of symptoms from each of three symptom clusters with sub-groups: (1) avoidant/numbing (associated thoughts, feelings, conversations are avoided); (2) intrusive recollection (images, thoughts, perceptions or dreams); (3) hyper-arousal (sleep disruption, nightmares, irritability or anger).

Veterans

In this paper, the terms 'veteran' or 'soldier' refer to military veterans defined as people, who have been in the armed forces during a war (Cambridge Dictionaries). We do not distinguish between whether the veteran still has contact with the military or not, as long as the PTSD diagnosis can be connected to a trauma which was experienced while serving in the military.

Methods

Search procedure

The literature search was carried out in several steps. First, an initial search of social media (Google, Yahoo, Facebook, and Twitter) was made in order to obtain an overview and a broad vocabulary for