Effectiveness of PTSD treatments for military service members and veterans

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Abstract

The core concept of the current review was a description and a discussion of the current situation of treating PTSD among military service members and veterans. This paper is focused solely on combat-related PTSD. It explores guideline recommended interventions for such PTSD, its implication, and efficacy based on the examination of the variety of researches being done around the world.

Keywords: PTSD, veterans, combatants, military, stress reaction, treatment

1 Introduction

Throughout the history, humans have always been exposed to traumatic events by engaging in warfare. The twenty-first century is not an exclusion. It has emerged as a time of violence and fear when different populations across the globe are witnessing socio-political and armed conflicts, civil wars, territorial disputes, and criminal violence. Due to date, 67 countries are involved in wars [1]. While there are a lot of countries where the risk of post-traumatic stress disorder (PTSD) development is high, this paper aims to critically analyze the current state of PTSD treatment in the world and provide generalized recommendations. It is important to note that the scope of this review is focused solely on combat-related PTSD in military service members and veterans.

PTSD is a severe psychiatric disorder that can occur after an emotionally overwhelming traumatic experience, such as war, natural and human made disasters, sexual assault, rape, robbery, torture, imprisonment, a sudden loss of beloved one, illness, interpersonal conflict, involuntary migration, or others. All of these life-threatening events might be considerably stressful and may contribute to illness development, by causing a range of psycho-emotional distresses and physiological disturbances.

It is said that PTSD itself has emerged as a signature wound of Vietnam conflict. Then the term PTSD was formally established by American Psychiatric Association’s (APA). It was added to the third edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-III) in 1980 under the category of the anxiety disorders. Prior to this, PTSD wasn’t identified as a mental health disorder, and more than 80 labels were used to name symptoms attributing to PTSD, including nostalgia, soldier’s heart or irritable heart, railway spine, shell shock, battle fatigue or combat stress reaction (CSR). In the early concept of PTSD, PTSD-like symptoms were believed to be caused by an inherent individual weakness, while nowadays it is disputed that the cause of symptoms is a traumatic event, perceived as a significant stressor.
aberrant for everyday life experience [2].

2 Diagnosis

According to DSM-5 (2013), PTSD is a group of stress-related disorders with a cluster of symptoms that must have had their onset or been significantly intensified after a direct exposure to a serious injury, or sexual violence, learning that traumatic event has occurred to a close family member or close friend, experiencing repeated or extreme exposure to aversive details of the traumatic events (Criterion A). The individual’s reaction involves reliving traumatic events in thoughts, nightmares, flashbacks (Criterion B), avoiding of trauma-related thoughts, feelings, and reminders that are more likely to elicit traumatic memories (Criterion C), negative alterations in beliefs and feelings (Criterion D), heightened arousal and reactivity (Criterion E), and the disturbance lasting for more than one month (Criterion F). Besides this, symptoms cause significant distress or impairments in regular functioning (Criterion G) and are not referred to the use of medication and different substances, or another medical condition (Criterion H). Criterion A is a fundamental part of the PTSD diagnosis that requires exposure to a traumatic event as a precondition. Further assessment of the psychiatric symptoms that are presented in criterions B, C, D, E, and F is relevant only if Criterion A is met, otherwise it would not qualify as PTSD symptoms. If Criterion A is met, at least one symptom from each criterion is required for an individual to meet diagnostic criteria for PTSD [3].

When an individual develops PTSD, it might be hard to deal with the past, maintain personal relationships with family and friends, trust, have an interest in activities and talk about feelings. Other symptoms, such as insomnia, the feeling of guilt, avoidant behaviors, emotional numbness are also common and might create a significant distress with performing activities of daily living for an individual diagnosed with PTSD.

In warfare, all soldiers are somehow involved in a situation that directly threatens their physical and mental health by being exposed to bomb blasts, severe injury or death of their combat mates, being responsible for the killing. As a result, returning soldiers may develop symptoms such as a heightened sense of arousal, sleep disturbances and avoidance of circumstances related to the traumatic event. Symptoms that last longer than one month or that are very severe may be the first sign of combat-related PTSD development that requires further professional assistance.

The prevalence of combat-related PTSD among Vietnam War veterans ranges from 2.2% – 15.2%, in Gulf War - 1.9% - 13.2%, and among Iraq and Afghanistan veterans – 4% - 17.1%. Following this, approximately 17% of war victims nowadays may develop PTSD [4].

3 PTSD causes

The question regarding causes of PTSD and its development is complex. Not everyone develops PTSD after being traumatized. According to one study conducted in 1995, psychological trauma was screened in 61% of males after experiencing a traumatic event, and only in 8.1% of them PTSD was diagnosed [3]. However, 51.2% of females reported psychological trauma and 20.4% of them were diagnosed with PTSD. Besides gender differences, there are some risk factors known to be involved in PTSD development, such as biological, psychological vulnerabilities and social factors. There is a small or no evidence regarding genetic factor for the PTSD development [3]. In opposite, Vietnam veterans study showed that psychological stress, such as family instability, was found to be a risk factor for the development of PTSD [7]. Finally, the variety of studies show that social factor, such as having a supportive environment, decreases the possibility of developing PTSD after a traumatic event [8].

4 Treatment

Getting an effective treatment is crucial for symptoms reduction and functional improvement. Nowadays, options for PTSD treatment include psychological and pharmacological interventions. The choice of treatment depends on factors such as patient preference and motivation, the patient’s adherence or prior response to the treatment, and symptoms severity of PTSD, the presence of comorbid medical or psychiatric disorders. Further factors that may influence the choice of treatment are clinicians’ skills and experience of a psychiatrist, availability of well-trained psychologists. PTSD has high comorbidity with other psychiatric disorders. Commonly, PTSD co-occurs with major depressive disorder, substance use and anxiety disorders that may complicate diagnosis and its management. According to Seal et
al. (2007), only 17% of 103,788 US Iraq and Afghanistan veterans were screened positive for PTSD without any comorbidity [9]. Other studies reported complications with PTSD treatment among veterans with more severe symptoms [10].

In recent years, a variety of clinical practice guidelines for PTSD management have been published across the Europe, Australia, and North America. Regarding their recommendations, they are based on the assessment of the highest scientific evidence level of treatment effectiveness and highlight some areas of differences and similarities. According to Forbes et al. (2015), there are important areas of agreement across these guidelines. They strongly support the use of trauma-focused psychological treatments and identify some pharmacotherapy benefits for adults with PTSD [11].

5 Effectiveness of PTSD treatments for military service members

5.1 Psychological interventions

Psychological interventions play an important role in the management of PTSD and are highly recommended by clinical practice guidelines as a first-line treatment to target PTSD in general. All the clinical practice guidelines do not rely solely on combat-related PTSD [11, 12, 13, 14, 15, 16]. However, it is important to note, that based on meta-analysis non-military individuals benefit more from psychological interventions for PTSD than veterans [17, 18]. One of the reasons for such decrease in effectiveness of the PTSD treatment might be in a great complexity of traumatic experiences related to warfare.

According to Haagen, Smid, Knipscheer, and Kleber (2015), a majority of above mentioned clinical practice guidelines recommend as the first-line following psychological treatments following methods: eye movement desensitization and reprocessing (EMDR), prolonged exposure, cognitive therapy, cognitive restructuring therapy, cognitive processing therapy (CPT), trauma-focused cognitive behavioral therapy (TF-CBT), and stress management therapy [19]. Each guideline includes the rating scale for recommended therapies to outline their strength. One of the differences between the guidelines is the distinct criteria for PTSD assessment. Following this, the guidelines have a different approach to the EMDR and TF-CBT and their mutual substitution as a first line treatment [11].

5.2 Eye movement desensitization and reprocessing (EMDR)

EMDR is an integrative multi-component psychotherapeutic treatment approach that was developed by Shapiro in the late 1980s. Nowadays, it is recommended as an effective intervention for combat-related PTSD across the majority of guidelines. EMDR therapy helps to reprocess traumatic memories and other adverse life experience events that cause negative thoughts, feelings, and behaviors until they are no longer psychologically disruptive for the individual. In EMDR an individual focuses simultaneously on trauma-related images, memories, emotions, thoughts, and body sensations. The process includes eye-movement back and forth that follows movements of therapist's fingers across an individuals' field of view. The EMDR consists of eight phases that have to be conducted in the following order: going through individuals’ history and background, introducing the EMDR therapy to the client, selecting positive cognition, checking the body for leftover trauma, finishing a session following by re-evaluation of trauma status [20]. Typically, one EMDR session takes from 60 up to 90 minutes. The session of EMDR may be repeated as many times as individual needs [21]. The goal of the EMDR therapy is to reduce distress and reinforce adaptive convictions associated with the traumatic experience.

5.3 Prolonged exposure (PE)

PE therapy is a set of treatments that were developed for PTSD treatment by Edna Foa in the late 1980s. PE aims to help an individual to confront the trauma-related stimuli that provoke an anxiety. Generally, there are three types of PE: in vivo, imaginal, and interoceptive. Normally, PE is carried on approximately 8-15 sessions of 60-90 minutes each. In vivo exposure is used to target the avoidance of trauma-related situations and activities systematically and gradually approaching safe situations that are perceived as dangerous ones. Usually, it is recommended as a homework activity. Imaginal exposure is designed to re-experience and recount memories related to warfare in imagery. It helps individuals to change a negative perception of trauma and themselves, achieve an adaptation to trauma-related memories in order
to get rid of anxiety following it. It is important to prolong the exposure until the anxiety reduces [22]. In one of the studies regarding a PE’s efficacy, it has been shown to be effective in 60% of veterans [23].

5.4 Cognitive therapy (CT)

CT was developed by Aaron Beck in the 1960s. This approach aims to identify and correct biased or inaccurate thinking. It is also an excellent tool for managing memories regarding traumatic experiences, a perception of the world around individuals, and beliefs about themselves causing disturbances. In addition to this, CT helps to overcome problematic behavior and distressing emotional responses. The first step in CT sessions is to establish a good relationship with a patient. Further stages are designed to train an individual to identify, question, and correct automatic thoughts. CT is a time-sensitive therapy and depends on the severity of the problem. Sessions are recommended on a weekly basis until symptoms are reduced [24].

5.5 Cognitive processing therapy (CPT)

CPT is based on cognitive and emotional processing theories and focuses on the impact of trauma. It was developed by Resick, Monson, and Chard in the late 1980s for the treatment of sexually assaulted female victims. This treatment aims to encourage an individual to access negative and upsetting thoughts in order to challenge and replace such thoughts. CPT is a good tool to change the way of thinking. Typically, CPT treatment is carried on up to three months and consists of 12 weekly sessions. Usually, one psychotherapy session lasts from 60 minutes [25].

5.6 Trauma-focused cognitive behavioral therapy (TF-CBT)

TF-CBT is a short-term psychotherapy with an aim to reduce trauma-related symptoms. It was developed by Cohen, Mannarino, and Deblinger in the 1980s. It focuses on managing negative emotions, physical reactions or any other difficulties regarding the traumatic experience that follow trauma-related events. Typically, an individual or group TF-CBT treatment consists of 12 up to 16 sessions. The main elements of the therapy include psychoeducation, gradual exposure, behavior modeling, coping strategies, and body safety skills training [26].

5.7 Pharmacological interventions

A variety of medications is recommended to treat PTSD. Psychopharmacological medications include different classes of antidepressants, antipsychotic drugs, and benzodiazepines.

Selective serotonin reuptake inhibitors are constituents of the most widely used class of antidepressants with the most robust research evidence in PTSD treatment, such as fluoxetine, sertraline, paroxetine. Other classes of antidepressants used to treat PTSD are serotonin-noradrenaline reuptake inhibitors (SNRIs, e.g., venlafaxine), noradrenergic and specific serotoninergic antidepressants (NaSSAs, e.g., mirtazapine), serotonin norepinephrine dopamine reuptake inhibitors (SNDRIs, e.g., nefazodone), monoamine oxidase inhibitors (MAOIs, e.g., phenelzine) and tricyclic antidepressants (TCAs, e.g., imipramine, amitriptyline). Another two classes of medications considered to target PTSD are antipsychotics (e.g., bupropion) and benzodiazepines. Antipsychotics are designed to cope with more chronic and complex PTSD symptoms and are not recommended to be used alone, as a monotherapy, without being combined with another type of medications.

There are also others that don’t traditionally recognized to be psychotrophic, such as alpha-1 adrenergic agonists (e.g., prazosin) and beta-blockers. Typically, they are used to treat arousal and reactivity (Table 1).

Pharmacological treatment recommendations differ across PTSD guidelines and are often used in combination with psychological intervention. It is important to note that medication effects are lower than those observed in the psychological intervention [27]. Nevertheless, good evidence of efficacy has been produced by some medications, such as paroxetine, venlafaxine, and fluoxetine, at the same time most drugs lack proper proof of their efficacy for PTSD [27]. By contrast, in one of the studies conducted by Lee et al. (2016), the results indicated the small positive effect of paroxetine and fluoxetine, while sertraline, venlafaxine, and nefazodone outperformed other medications [28].

When considering pharmacotherapy itself, it is vital to remember about small evidence of effectiveness and potential side effects. Even being well tolerated, SSRIs and SNRIs
have side effects. The most common include sexual and gastrointestinal dysfunctions. MAOIs and TCAs are less safe than SSRIs and SNRIs, because of their anticholinergic effects, toxicity, lethality, and psychomotor or cognitive impairment. At the same time, MAOIs require strict dietary controls making their use more complicated. Antipsychotics can cause weight gain, diabetes, and other metabolic side effects. Because of a variety of side effects and lack of strong evidence, MAOIs and antipsychotics are usually recommended as second-line or third-line interventions for PTSD.

6 Summary

Overall, all the therapies discussed in this paper are widely accepted treatments for PTSD. However, in the meta-analysis conducted by Haagen, Smid, Knipscheer, and Kleber (2015), PE and CPT were more effective for veterans and soldiers than EMDR [19]. The question regarding EMDR as a first-line treatment for veterans with PTSD is leading, and further examination of its efficacy is required. Conversely, in a recent review of the evidence [29], only a minority of veterans can be expected to recover from PTSD symptoms with CPT and PE. EMDR and TF-CBT have been given the highest efficacy grade by the majority of worldwide recommendations for PTSD in general. Moreover, there was evidence that TF-CBT and EMDR are similarly effective treatments for PTSD and are more efficient than other psychological interventions [30]. Only APA (2004) guidelines recommend EMDR as a treatment with a second strength rating [13]. The main reason for such difference is the level of evidence for EMDR. As a result, strong evidence regarding EMDR and TF-CBT is required. These findings are vital in making decisions regarding treatment implementation by

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*1st and 2nd line of therapy, accordingly.
psychotherapists and clinicians. Before prescribing a treatment, it is essential to consider the level of evidence of different therapeutic approaches.

Besides the separate implementation of treatment, psychological or pharmacological, in order to manage the symptoms of combat-related PTSD, both therapies can be implemented in combination. According to Forbes et al. (2015), it is suggested to use psychotherapeutic techniques in conjunction with medications for more severe PTSD symptoms or if there was no effective response to separately used therapies [11]. However, there is a limited amount of trials evaluating the efficacy of combined treatment for PTSD. Moreover, studies comparing psychotherapy and medications suggest that trauma-focused therapies, such as TF-CBT, PE, and CPT are more effective in relieving symptoms of PTSD than pharmacotherapy [28]. Following this, more significant comparative studies are required for further understanding effects of psychotherapy and pharmacology combined use.

According to Forbes et al. (2015), one of the main areas of difference between guidelines is an extent to which pharmacotherapy is recommended [11]. VA/DoD (2003), APA (2004), ISTSS (2008) guidelines suggest pharmacological treatment and psychological intervention as equivalent first-line treatments [12,13,16]. Conversely, NICE (2005) and NHMRC (2007) do not recommend medications when trauma-focused psychotherapies are suitable and available for the patient and consider paroxetine, sertraline, amitriptyline, and phenelzine as a second-line treatment [14,15]. It is important to highlight that NICE (2005) guidelines particularly recommend the use of paroxetine, while all others focus on the general use of SSRIs [14]. VA/DoD (2003) guidelines confirm all SSRIs along with SNRIs as equivalent first-line treatments, while for a second-line use prazosin, TCAs, MAOI, and nefazodone are recommended [12]. Sertraline, paroxetine, fluoxetine, venlafaxine, mirtazapine, nefazodone, and prazosin are proposed by ISTSS as first-line agents and phenelzine, amitriptyline, and bupropion for second-line use [16]. APA (2004) guidelines outline SSRIs as an alternative first-line intervention and all other antidepressants mentioned above for a second-line implementation [13]. All the guidelines mentioned above don’t recommend to use antipsychotics and benzodiazepines on a regular basis [12,13,14,15,16].

7 Additional information

7.1 Competing interests

The author declares that no competing interests exist.

References

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