Posttraumatic Stress Disorder and the U.S. Military Veteran Population

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As defined by the American Psychiatric Association in the fifth edition of *Diagnostic and Statical Manual of Mental Disorders* (frequently referred to as *DSM-5*; 2013), posttraumatic stress disorder (PTSD) is defined as a mental disorder arising from exposure to a trauma (Golier et al., 2015). However, a diagnosis of PTSD requires more than just an exposure to a traumatic event. A person must also exhibit intrusive symptoms (recollections/flashbacks, dreams, etc.), avoidant symptoms (actively avoiding reminders of the trauma), a change in mood or cognitions (newfound negative beliefs about the self and/or the world, feelings of isolation, etc.), and altered arousal/reactivity (hyperreactivity, sleep problems, anger issues, etc.) in order to be considered as a person experiencing PTSD. Specifically, a PTSD diagnosis requires, at minimum, one of both intrusive and avoidant symptoms, two symptoms pertaining to altered mood/cognitions, and two symptoms pertaining to altered arousal/reactivity. These symptoms must also be present for more than one month in order to be accounted into their diagnosis.

In the United States, the one-year prevalence rate for PTSD is approximately 3.5% and the lifetime prevalence about twice as high at 6.8% (Najavits & Anderson, 2015). In contrast, the prevalence rate in veterans is estimated to be between 16% and 32%. However, despite this higher prevalence rate among veterans, fewer than half of veterans diagnosed with PTSD will seek treatment (Crawford et al., 2015). The implications of this inaction are concerning and serious. Veterans with PTSD are three to five times more likely to develop a comorbid depressive disorder (Reisman, 2016). Veterans with PTSD are also more likely to develop a substance abuse disorder, further complicating their treatment. In addition, there is evidence that PTSD can be associated with physical pain, especially with veterans (15% to 35%). Even more alarming, 20% of U.S. suicides are committed by veterans. Compared to their civilian

counterparts, veterans are about four times more likely to commit suicide, especially if they are of 18-24 years of age. While there are many reasons why veterans don't seek treatment, lack of awareness about treatment options by both veterans and their families contributes to the length of time veterans suffer from their PTSD. It is important to make apparent what treatment options are available to veterans so they can receive the help they need and call attention to this serious problem our veterans face.

Psychosocial Treatments

Psychosocial treatments focus on treating and altering psychological and social stressors and habitual behaviors caused by PTSD. This category of PTSD treatments covers a wide variety of tested and effective options with the goal of catering to each patient's preferences and trauma to find the best treatment plan possible. It also includes behaviors used to cope with PTSD symptoms and new treatments under testing.

Coping Strategies. While coping strategies are not used as a treatment option by healthcare professionals, they are important to understand in the context of a veteran's PTSD symptomology. Often times, individuals will not seek formal treatment until months or years after the trauma that caused their PTSD. In this time, they will have developed their own methods of coping with the symptoms they experience daily. Some of these strategies may be beneficial and ingrain positive behaviors and mindsets that the treatment they receive try to teach. Research has shown that such adaptive practices include turning to religion, seeking family/social support, self-distraction, and making an effort to help others (Adhikari Baral & K.C, 2019). In addition, some other adaptive strategies include consuming electronic media (such as TV, music, or videogames), reappraisal (reassurance that the veteran is in a safe place),

and emotional expression (through body language, actions, or words) (Sullivan et al., 2018). Any coping mechanism that allows the veteran to be active in facing their trauma, find social support, and improve their mental health is generally considered an adaptative coping strategy.

However, some coping strategies cause the veteran or service member to develop harmful habits that can worsen their symptoms and interfere with the treatment process, if the veteran later receives treatment. Maladaptive coping includes unusual or unexpected increases in amount of sleep, denial and avoidance of trauma and reminders of the trauma, blaming (usually of themself, but possibly of others), feelings/actions of helplessness and dependency, and substance use (Adhikari Baral & K.C, 2019). When veterans use coping strategies that allow them to avoid facing their trauma, they create the potential for their PTSD symptoms to worsen.

Interestingly, the coping mechanisms that a veteran develops can be indicative of the severity of their PTSD. A veteran who engages in avoidance coping and exhibits significant dysphoria (inability to recollect memories of trauma, loss of interest and attachment, distress about the future, etc.) will typically have a more severe symptomology than a veteran who uses active coping methods to face their trauma (Knežević et al., 2016). The conclusion can therefore be drawn that a veteran's reaction to their trauma vastly impacts the severity of their PTSD. It is also important to note that coping strategies must be investigated on an individual level, as characteristically adaptive strategies can become maladaptive in certain contexts. For example, while social support normally encourages the veteran to feel as though they can be more open to their feelings, if someone close to the veteran emphasizes that the veteran should avoid thinking of their trauma, thus encouraging avoidance behavior, the veteran will likely develop avoidance coping strategies (Sullivan et al., 2018). Due to the fact that veterans may struggle with their trauma for months or years before treatment, it is important to understand how these individuals

have been coping with PTSD in order to effectively treat them and, in some cases, break these coping strategies as part of the treatment process.

Individual Based Treatments. Most common of all PTSD psychosocial treatments, individual based treatments involve the veteran talking through their trauma with a trained therapist (Najavits & Anderson, 2015). These treatments are offered in a variety of forms, with many treatment modalities proven to be effective, allowing veterans to find a treatment that works best for them. In addition, there are two different models of treatment: past- and present-focused. It is worth noting that there are many other types of psychosocial treatments available than are discussed here and adequate research should be done to find a treatment that works for a patient's specific needs.

Past-focused models will ask the veteran to focus on their trauma in detail. Popular treatments in this category include Cognitive Processing Therapy, Prolonged Exposure, Eye Movement Desensitization and Reprocessing, and Narrative Exposure (Najavits & Anderson, 2015). All four of these treatments have been proven to be effective in minimizing and treating PTSD and are recommended for use by the American Psychological Association (*Treatments for PTSD*, 2017). Cognitive Processing Therapy (CPT) focuses on redefining a patient's views of the world following trauma and renewing feelings of trust, safety, and self-esteem (Najavits & Anderson, 2015). Patients will normally be asked to complete writing assignments detailing their trauma outside of sessions and will work with their therapist and through homework assignments on self-identified "stuck-points." Prolonged Exposure (PE) focuses on facing the trauma using both exposure through imagination of the event and through objects or situations associated with the trauma. In addition, patients will be asked to complete a written or recorded narrative of the events, which they review repeatedly as homework. Eye Movement Desensitization and

Reprocessing (EMDR) is centered around the concept of dual awareness where a patient focuses on a repetitive motion or tone while imagining their trauma. As feelings and thoughts arise, the patient and therapist work to reduce them and reinforce positive mindsets. Lastly, Narrative Exposure, rather than focusing on the trauma, guides the patient to give an oral history of their life. Patients are encouraged to integrate the trauma into their life story in order to gain acceptance and work through the trauma.

Present-focused models provide the veteran with education on mental health and adaptive coping strategies (Najavits & Anderson, 2015). Rather than focusing on the trauma, the veteran will learn ways to improve their PTSD symptoms in the present. One of the most effective treatments in this category is Cognitive Therapy (CT). Patients are asked to recognize their negative and maladaptive behaviors that are a consequence of their PTSD. Sessions focus on reforming these behaviors into more adaptive ones to allow the patient to function more normally.

Not all psychosocial treatments are either past- or present-focused models though. Several therapies, like Brief Eclectic Psychotherapy, combine past- and present-focused methods. In this therapy, the patient is first asked to imagine their trauma and then create a more positive mindset (Najavits & Anderson, 2015). In addition, there is evidence that individuals suffering from a common trauma will naturally come together to discuss their respective feelings and experiences. For example, following the series of disasters in Fukushima, survivors living in community housing freely talked about their traumatic memories among themselves with mutual understanding and support. (Hori et al., 2018). While this is not a certified treatment, it does suggest that veterans suffering from similar traumas might be able to find some help and relief through talking to each other. The benefit of individual treatments is there are many tested and

effective treatments for veterans to choose from, allowing them the freedom to pick a treatment that works best for them.

Couple Based Treatments. In many cases, PTSD can cause stress on a veteran's relationships, especially with their partner. In order to address both problems, couple-based interventions were developed to dually treat an individual's PTSD symptoms while working on improving the relationship. Of the total veteran population, about 65% are married, and those that have a partner reported an increase in seeking and receiving treatment (Kugler et al., 2019). In addition, research has repeatedly shown that veterans want more involvement of their partner in their treatment. There have been similar sentiments from the partners themselves wanting to become more involved in the treatment process (Thompson-Hollands et al., 2019). However, most partners, for all their enthusiasm, know little to nothing about PTSD, treatment options, or the treatment process. This can be easily remedied by including partners in informational sessions and using couple therapies. Research suggests that including partners in PTSD treatment would be advantageous for the recovery of the veteran and the overall relationship.

There are seven distinct couple's therapies that have been shown to be effective in both minimizing and treating PTSD symptoms and restoring relationship function and satisfaction. The first and arguably most used treatment, Cognitive-Behavioral Conjoint Therapy (CBCT), aims to minimize avoidance behavior related to PTSD and improve communication skills in the relationship (Kugler et al., 2019). Another advantage of this treatment is its unique effectiveness in relationships wherein the veteran's partner engages in partner accommodation (altering their own behavior/habits to not upset the veteran or to avoid conflict). Research has shown that CBCT is more effective for couples with high levels of partner accommodation versus individual based treatments (Fredman et al., 2016). Mindfulness-Based Cognitive Behavioral Conjoint

Therapy (MB-CBCT) is a modified version of CBCT (Kugler et al., 2019). It has the same goals as CBCT, but also introduces mindfulness skills and has a shorter treatment period by using longer sessions and a weekend retreat. Couple Treatment for Alcohol Use and PTSD (CTAP) is used for situations where the veteran suffers from both PTSD and alcohol abuse. People with PTSD are about two times more likely to develop alcohol abuse behaviors or dependence, making treating both PTSD and alcohol abuse important (Golier et al., 2015). The partner serves to reinforce the veteran's abstinence and progress while the treatment also improves communication skills in the relationship (Kugler et al., 2019). Structured Approach Therapy (SAT) and Emotionally Focused Couples Therapy (EFCT) have similar approaches, both focused on increasing both the veteran's and the partner's awareness of each other's emotional states and helping them restructure negative internal thoughts/feelings/beliefs about the relationship as it is currently. These therapies aim to rebuild emotional attachment and trust within the relationship. The major difference is SAT is significantly shorter (12 sessions) than EFCT (26-36 sessions). Strategic Approach Therapy is perhaps the most specialized of the couple-based therapies, focusing on treating PTSD by helping the veteran overcome their avoidance behavior. The theory behind this method is that the veteran's avoidance behavior is what causes relationship issues. Finally, the Veteran Couples Integrative Intensive Retreat (VCIIR) is a week-long retreat designed to incorporate psychoeducation and relationship skills teaching to dually treat PTSD and improve relationship satisfaction. As previously stated, all of these treatments are approximately equally effective so there are multiple options for couples looking for conjoint treatment.

Preferences in Treatment Delivery. While there are many options for receiving treatment for PTSD, many veterans do not seek it out. Fewer than 50% of eligible veterans

utilize mental health services (Crawford et al., 2015). This raises some important questions as to why veterans are not seeking treatment and how the healthcare system can be improved to entice more veterans to seek care. This relies on investigating what barriers veterans are facing in getting treatment, what they want to receive from treatment, and how they want to receive treatment.

In a study examining veterans' perceived barriers to care and their preferences for receiving care, there were several similarities in veterans' responses between veterans who had received care and those who had not (Crawford et al., 2015). The veterans' concerns revolved around negative beliefs about treatment and stigma related to PTSD. The most cited concerns were an aversion to medications, not wanting to discuss their trauma, and a belief that mental health problems were a personal responsibility. Surprisingly, none of these perceived barriers were associated with deterring veterans from seeking treatment. However, this is most likely because of PTSD severity. The veterans who received treatment for PTSD and had these concerns probably had more severe PTSD symptoms and were driven to seek treatment as opposed to those who did not seek treatment. Preferences for services were also similar between the two groups. The most endorsed items were for assistance with benefits, help with physical problems, and help with specific PTSD symptoms like sleep and anger. This suggests that more could be done to help veterans figure out what kind of care they are eligible for, not just PTSD treatment. In addition, helping veterans resolve their physical problems (which are associated with service and possibly with their PTSD) might help them reduce their fear of stigma and provide an opportunity to help them transition into PTSD treatment. Interestingly. the data from the treated veterans suggested that PTSD-caused family problems were another motivator for this population to seek treatment. These veterans were more likely to want services oriented towards

families than their untreated counterparts. By keeping these findings in mind, mental health institutions (primarily the VA) can better cater to veteran populations and hopefully entice more veterans to consider PTSD treatment.

Another study looking to understand veteran treatment preferences investigated their opinions on using home-based treatment and telehealth treatment as opposed to traditional in-office/-in-person treatment methods (Moreland et al., 2019). Veterans were offered prolonged exposure via a number of treatment modalities, including home-based telehealth, home-based in-person therapy, and officed-based telehealth (using video call in a VA facility). Veterans responded positively to all the methods, indicating that they were open to having more options and using technology. Most veterans preferred home-based telehealth over the office-based counterpart. Giving veterans a range of options for their treatment is important because those who are receiving treatment in a form they like are more likely to complete it. Providing more options can hopefully entice more veterans to be open to seeking and receiving treatment where they will not feel restricted to a method they do not like.

Service Dogs. While service dogs are not typically prescribed as a treatment for PTSD, they are gaining attention for their impact on veterans who have them. Veterans have credited their service dogs with saving and giving back their lives (Heikkila & Keely, 2020). Service dogs have also been shown to lower PTSD symptoms, improve veterans' quality of life, and help them function better socially (Rodriguez et al., 2020). While more formal research is needed for mental health providers to offer service dogs on a more regular basis, service dogs have thus far presented another option for veterans suffering from PTSD.

Before service dogs began to be used as a method of treating PTSD, several benefits of interacting with dogs were known. Interacting with dogs helps reduce and regulate a person's cortisol and other stress hormones and chemicals (Lass-Hennemann et al., 2018). Dogs can also increase a person's levels of oxytocin, making them feel happier. Because of dogs' abilities to affect this kind of mental change, they are often used as a form of intervention after traumatic events to help people feel calmer. Therefore, it is reasonable to assume that these some benefits would apply to veterans and that service dogs would be able to help reduce PTSD symptoms. For veterans with PTSD, a dog is typically considered to be a safer source of interaction than people (Hoisington et al., 2018). Unlike with people, they do not feel the need to be hypervigilant about their surroundings and worried about stigma. Owning a dog also increases a veteran's chances of living near or venturing into parks, which is beneficial for their mental health to be out and challenging their potential negative beliefs of the world. From a biological view, interacting with a dog increases the diversity of a person's microbiome. Studies have shown that a microbiome lacking diversity can worsen mental health disorders. In the case of PTSD, a more diverse microbiome might help prevent more severe symptoms. Service dogs specifically have been shown to help reduce feelings of depression, loneliness, and anxiety in veterans with PTSD as well as decrease emotional numbing and increase feelings of security. Overall, service dogs have shown to have positive effects in many aspects of a veteran's life, especially relating to PTSD.

The process of picking and training a service dog capable of helping a person with PTSD is quite intense. Dogs are normally picked from shelters and characteristics such as a dog's calm and friendly demeanor as well as their size and responsiveness are highly valued (Rodriguez et al., 2020). The dogs are then trained extensively in basic commands as well as specialized commands that can be used to help a veteran with their PTSD symptoms. Veterans can normally

work directly with the service dog trainer to specialize the commands to suit their symptomology (Heikkila & Keely, 2020). Such trained behaviors can include helping with anxiety, observing the veteran's surroundings, helping with social greetings, and waking up the veteran from nightmares (Rodriguez et al., 2020). In addition to these trained behaviors, service dogs exhibit untrained behaviors highly valued by veterans. These include companionship and unconditional love, a calming and happy presence, establishing a routine, and helping the veteran leave the house and interact with people. While these are behaviors that any dog would exhibit, they are especially useful for veterans overcoming PTSD. After the dog has received training, the veteran must undergo supervised training with the dog to develop a bond and learn the commands (Heikkila & Keely, 2020). After this portion of training is complete, the veteran is allowed to bring the dog home. The safety of the dogs is held in the highest concern and the veteran is always vetted before being admitted to the program to ensure the dog has a safe and loving home. Service dogs undergo a strict training process to ensure they have a positive and helpful impact on the veteran. It should be noted that there are no set standards for training service dogs, but there are several reputable trainers who offer service dogs trained specifically for veterans. Service dogs are a viable option for veterans who have previously had problems with conventional treatment methods.

Pharmacological Treatments

Pharmacological treatments for PTSD consist of medications that are used to treat and reduce PTSD symptoms. These medications are normally used in tandem with psychosocial treatment although they can also be used separately (Golier et al., 2015). While there are a large range of medicines in this category, not all medicines that have been tested for use with PTSD treatment are effective, and only a few are routinely prescribed. It should also be noted that even

though medications have been shown to be effective in helping manage PTSD symptoms, many veterans are opposed to the medications, even going so far as avoiding seeking treatment to avoid taking them (Crawford, 2015).

Tested Medicines. The effectiveness of tested medications is based on their ability to address as many symptoms of PTSD as possible. In general, the symptoms are broken up into clusters: intrusive symptoms, avoidant symptoms, hyperarousal, depression, and sleep problems (Golier et al., 2015). These clusters reflect the criteria for DSM-5, with depression falling under altered mood/cognitions and hyperarousal and sleep problems both falling under altered arousal/reactivity. The established groups of medications include antidepressants, antipsychotics, benzodiazepines, hypnotic agents, anticonvulsants, mood stabilizers, sympatholytic medications, and other medications that do not have their own category.

Out of the multitude of medicines that have been tested for use in treating PTSD, the American Psychological Association recommends using fluoxetine, sertraline, paroxetine, and venlafaxine (*Treatments for PTSD*, 2017). Fluoxetine, sertraline, and paroxetine all belong to the category of SSRI medications (a subclass of antidepressants) (Golier et al., 2015). Fluoxetine has been shown to be effective in reducing hyperarousal and depressive symptoms. There are mixed results on its effectiveness regarding intrusive and avoidant symptoms, but research suggests that fluoxetine is more effective in treating PTSD when used earlier in the progress of the disorder. Sertraline is associated with improvements in emotional numbing, anger problems, and increased vigilance. Sertraline, despite being FDA approved to treat PTSD, does not seem to help improve any other symptoms. Paroxetine is also FDA approved to treat PTSD and has been shown to be effective in treating all symptom clusters except for sleep problems. Those taking paroxetine have also shown improvement in overall functioning. Venlafaxine is an antidepressant approved

by the FDA to treat depressive and anxiety disorders. Research concludes that it is effective at reducing PTSD symptoms, especially avoidant symptoms, hyperarousal, and depressive symptoms.

While not as effective or as commonly used, various other medications have been shown to help treat and reduce PTSD symptoms. These include phenelzine, imipramine, and olanzapine (Golier et al., 2015). Phenelzine was one of the first medicines studied for use in treating PTSD. This medication is useful in treating intrusive symptoms and sleep problems. It also has displayed mixed effectiveness in hyperarousal. Imipramine is part of a specific class of antidepressants called tricyclic and tetracyclic antidepressants. Studies have shown it to reduce PTSD symptoms as a whole, especially intrusive symptoms. Finally, olanzapine belongs to the antipsychotic category of medications. Olanzapine is effective at treating and reducing all five categories of symptoms studied in PTSD medicine research. However, antipsychotics as a whole are known to have the possibility of extrapyramidal side effects (permanent medication-induced movement disorders) and olanzapine in particular is associated with significant weight gain in patients. Just as it is important to consider and research all available options for psychosocial treatments, it is important for veterans to investigate available pharmacological treatments to find the one that will work best for them and their symptomology.

New Medicines. While there are relatively few routinely used and effective medicines, there are a few upcoming and promising new approaches to pharmacological PTSD treatments. First, research suggests that the drug propanol could be used to weaken or possibly eradicate traumatic memories altogether (Friedman, 2018). The drug acts to interrupt the process of consolidating and saving memories, making it harder to remember them. Memories affected by this process would have less effect on the patient. Patients who were given a dosage of propanol

before being asked to recall their trauma showed signs of reduced PTSD symptoms. This study was conducted over six weeks, with treatment sessions occurring once a week. Unfortunately, there was no follow-up on patients after the six weeks, so more research is needed to examine the long-term effects of this method.

Second, a new method of pharmacological treatment investigates using 3,4,-methylenedioxmethamphetamine (also known as MDMA) (Sessa, 2017). While related to ecstasy, this drug, when used properly in a clinical manner, is very safe and doesn't have any of the risks associated with ecstasy use. Treatment consists of eight to sixteen weeks of psychosocial treatments; during two or three of those therapy sessions, the veteran would be given MDMA to help them be exposed to their traumatic memories more thoroughly. The treatment follows very strict safety guidelines and has been shown to reduce and treat PTSD symptoms as compared to placebo. Because of MDMA's relation to ecstasy, there is some controversy in its use to treat PTSD. However, MDMA is slated to be approved by the FDA for use in PTSD treatment in 2021. The emergence of new pharmacological treatments is promising for the hope of finding a variety of effective PTSD treatments for veterans.

Conclusion

There are many options available to veterans seeking treatment for PTSD, allowing them to find interventions that are most effective for their symptomology, circumstances, and that fit with their preferences. Patients may react differently to treatment, for example, some may need more or less time to show improvement (Szafranski et al., 2017). Of concern among professionals dealing with PTSD is the rate of dropouts from treatment. Dropout is defined as withdrawing from treatment before the recommended treatment end date, and rates have been

estimated to fall anywhere from 28% to 68%. However, preliminary research has shown that, while not always the case, some dropouts do in fact show significant improvement in symptoms. In one study compromised of PTSD treatment dropouts, 35% to 55% of the participants showed significant improvement and/or met end-state treatment criteria, meaning if they had reached the end of the treatment time, they would be considered remitted. However, that also means there are a significant portion of dropouts who do not show improvement. Transitioning those dropouts back into treatment is critical in order for them to get the treatment they need for their PTSD. Treatment for PTSD is not the same for every veteran so it is important to consider how to best treat each veteran separately and ensure that they receive enough treatment. No one PTSD treatment will work for everyone, much like PTSD will affect each person differently. Providing and calling awareness to the different types of treatment available to veterans is a step in the direction of helping all veterans suffering from PTSD.

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