
The Case for Investigating EMDR as a Pre-deployment Intervention for Military Personnel

Sean P. Roth

Chatham University

Abstract

Historically military personnel have primarily only been provided post deployment mental health services. Chief among mental health diagnoses is PTSD which is the stepping stone to a variety of other negative lifetime outcomes. As a result of these facts, the Department of Defense (DOD) has made the prevention and treatment of PTSD a top priority. To date the efforts of the DOD have yielded few efficacious outcomes. Providing upwards of 15 various treatment modalities pre and post deployment have been described as “underwhelming” in their ability to reduce the various negative mental health symptoms and severe outcomes a veteran will experience. However, Eye Movement Desensitization and Reprocessing (EMDR) has not been evaluated as a possible pre-deployment intervention. EMDR is a process by which an individual processes traumatic events that are lodged in the memory and emotional portions of the brain. EMDR has been shown to be effective in reducing symptomatology associated with PTSD. Childhood adverse experiences are a noted key factor to these diagnoses and growing in general population rates. Therefore, it should be expected that many persons joining the armed forces come with a preexisting mental health condition. EMDR has been shown to have a positive therapeutic effect on various sensitization factors and can reduce one’s negative symptomatology when experiencing future traumatizing events. This has laid the groundwork to suggest that EMDR is able to provide prophylactic support to military personnel as they enter service and face deployment scenarios. This paper suggests to researchers that EMDR is a viable resource for use in pre-deployment services in order to reduce the ever-increasing number negative outcomes associated with the presence of PTSD in our military personnel.

Introduction

Military personnel are likely to experience traumatic events during their years of service, anywhere from preparation to deployment. Not surprisingly, PTSD is highly prevalent among military personnel, with 8–22% of U.S. Veterans meeting lifetime criteria for PTSD (Goldberg et al., 2016; Wisco et al., 2014). PTSD has been associated with countless negative outcomes, chief among which is suicide ([National Center for PTSD, n.d.](#)). Studies have found that Veterans with PTSD are 1.8–3.5 times more likely to die by suicide than Veterans without PTSD ([National Center for PTSD, n.d.](#)). Accordingly, it is not an

exaggeration to suggest that preventing PTSD is a matter of life-or-death importance. Because PTSD is both common and debilitating in military personnel, the Department of Defense has made the prevention of PTSD a top priority. Although the term prevention has been used to describe post-deployment interventions (e.g., Battlemind training), it is more accurately used to describe pre-deployment interventions aimed at anticipating deployment-related stressors and fostering resilience skills in advance (e.g., the Ready and Resilient program). Compared to post-deployment interventions, pre-deployment interventions have received less attention in the empirical literature. A recently published review identified six pre-incident studies in comparison with 69 post-incident studies (Bisson et al., 2021). Not every one of these studies involved military personnel, but these numbers provide a heuristic to illustrate how rare “true” PTSD prevention research has been.

Recent Reviews of the PTSD Prevention Literature

Bisson and colleagues evaluated randomized controlled trials (RCTs) designed to prevent PTSD, which, as noted, included six “pre-incident preparedness interventions” that were delivered prior to deployment (Bisson et al., 2021). Of the six trials to use pre-deployment interventions, five involved military personnel, while one focused on fire and emergency service personnel. None of the five trials to include military personnel found that pre-deployment interventions prevented PTSD symptoms, although one study found that attention bias modification training (ABMT) did better than a no training control at reducing the risk for combat-related PTSD. These findings, combined with the inconsistent findings of post-incident trials, led Bisson and colleagues to conclude that the results of their review painted a disappointing picture of PTSD prevention (Bisson et al., 2021). In another recent review, Harden and colleagues examined a variety of psychological training and interventions given to military personnel prior to deployment (Harden et al., 2020). In this review, studies included not just RCTs (of which there were eight), but also five quasi-experiments, one case report, and one cross-sectional study. The results of this review were similarly underwhelming, as the 15 included studies varied greatly with respect to methodologies and outcomes measures, thereby making direct comparisons among studies virtually impossible. Accordingly, Harden and colleagues offered a tentative conclusion of their own, noting that mental health benefits were lacking

in most of the reviewed studies, but that some benefits were seen in the studies that used more robust designs (Harden et al., [2020](#)).

Taken together, the reviews by Bisson, Harden, and their colleagues raise more questions than they answer: Most notably, how do we explain the poor performance of pre-deployment interventions? One possibility is that these interventions do not work because preventing PTSD is not feasible. Another possibility is that we cannot tell whether preventing PTSD is feasible because of the disparate methodologies and outcome measures that have been used to evaluate pre-deployment interventions. A third possibility is that we cannot tell whether preventing PTSD is feasible because we have not evaluated every viable pre-deployment intervention. This third possibility may seem surprising considering that a wide array of pre-deployment interventions already have been evaluated, which include ABMT, attention control training, heart rate variability and cognitive bias modification, mindfulness training, resilience training, and stress management/inoculation training (Bisson et al., [2021](#); Harden et al., [2020](#)). Although its absence may not be conspicuous, eye movement desensitization and reprocessing (EMDR) training has not yet been evaluated as a possible pre-deployment intervention, which we believe is an oversight.

Eye Movement Desensitization and Reprocessing

EMDR requires individuals to recall a traumatic event that has already occurred while moving their eyes from side to side, holding tactile pulsers, or tapping their shoulders or legs. Although EMDR's mechanisms are not fully understood, its therapeutic benefits have been attributed to bilateral brain stimulation, which is thought to repair neural networks that had been damaged by trauma exposure (Landín-Romero et al., [2018](#)). Mechanistically, EMDR is thought to help an individual reprocess traumatic events that have gotten “stuck” in parts of the brain associated with memory and emotion (e.g., the hippocampus and amygdala; Landín-Romero et al., [2018](#)). On the surface, it is understandable why EMDR has not been evaluated as a pre-deployment intervention—after all, how does one reprocess a traumatic event that has not yet occurred? This is a legitimate question; however, it is important to consider that (1) a nontrivial number of individuals join the military having already experienced potentially traumatic events and (2) a growing body of evidence suggests that EMDR has the potential to benefit individuals who have experienced negative, but not necessarily traumatic events.

EMDR as a Treatment for Preenlistment Traumatic Stress

The term adverse childhood experiences (ACEs) refers to childhood adversities such as abuse and household dysfunction. ACEs are highly prevalent both in the general population and in military personnel. Consider, for example, that 73.4% of men with a history of military service in

the volunteer era report experiencing at least one ACE, with most of these men endorsing four or more categories of ACEs (Blosnich et al., [2014](#)). ACEs can be traumatizing in their own right and are potent correlates of PTSD symptoms (Cabrera et al., [2007](#); McLaughlin et al., [2009](#)). As but one example, Cabrera and colleagues found that ACEs were an independent predictor of PTSD symptoms, above and beyond the expected contribution of combat exposure, in a sample of 2,392 American soldiers returning from Operation Iraqi Freedom (Cabrera et al., [2007](#)). These findings are consistent with the idea that ACEs “sensitize” individuals and place them at increased risk of PTSD should they be exposed to subsequent stressors (McLaughlin et al., [2009](#)). If stress sensitization does in fact explain why ACEs increase liability to PTSD, then interventions for adults with ACEs should decrease this liability to the degree that they produce desensitization. A 2016 review conducted by Korotana and colleagues offers preliminary support for the idea that EMDR can reduce the mental health consequences of ACEs (Korotana et al., [2016](#)). While only four EMDR studies met this review's inclusion criteria, each of these four studies found some support for the effectiveness of EMDR. Specifically, one study found that EMDR reduced trauma symptoms in adult female survivors of childhood sexual abuse, while a follow-up to this study found that the therapeutic gains of EMDR were maintained over an 18-month period (Korotana et al., [2016](#)). In addition, EMDR outperformed an active listening control intervention in one study and fluoxetine in another (Korotana et al., [2016](#)).

EMDR as a Treatment for More Than Just Traumatic Stress

As noted earlier, EMDR was initially developed for the treatment of PTSD. However, a growing number of investigations have evaluated the feasibility of using EMDR to treat additional mental health problems without a history of trauma, chief among which is major depressive disorder. In a small feasibility study that exemplifies this type of research, Wood and colleagues showed that standard protocol EMDR was associated with a clinically significant reduction in depression symptoms in people without a PTSD diagnosis (Wood et al., [2017](#)). While an RCT is needed to confirm the efficacy and effectiveness of EMDR in treating depression, the findings reported by Wood and colleagues are intriguing because at least eight published studies have found that preexisting depression—like a history of childhood trauma—is a risk factor for PTSD development following combat exposure (Stander et al., [2014](#)). Considering that there is a dynamic relationship between depression and stress, such that increases in one can cause increases in the other, there is reason to believe that preexisting depression might contribute to stress sensitization effects. Therefore, if depression contributes to stress sensitization and EMDR is able to treat depression, then it is possible that using EMDR as a predeployment intervention for military personnel might help to prevent PTSD by targeting sensitization-related vulnerabilities. What, though, could EMDR offer to military personnel without a history of trauma or depression?

For one, having no history of trauma or depression is somewhat uncommon considering the prevalence rates of each. Nevertheless, EMDR offers relaxation exercises (e.g., the “safe/calm place” exercise) and affect-regulation techniques that do not focus explicitly on trauma memories. Although these exercises and techniques appear to be simple stress management strategies, they are significant considering the role that stress plays in PTSD onset (McLaughlin et al., [2009](#)).

EMDR as a Stress Sensitization “Shield?”

Using EMDR has the potential to prevent PTSD by targeting preexisting risk factors that military personnel would otherwise carry with them onto the battlefield. While these risk factors may vary from person to person, the two focused on in this paper—stress stemming from preenlistment trauma and major depression—share at least one common pathway: stress sensitization, which itself is a potent predictor of PTSD development (McLaughlin et al., [2009](#)). To borrow a metaphor from the field of physics—the Abelian sandpile model, also known as the Bak–Tang–Wiesenfeld model (Bak et al., [1987](#))—these risk factors can be thought of as grains of sand that begin to form a pile as they accumulate, with the pile representing increased stress sensitization. The steeper the pile, the more likely it is to collapse when a service member experiences a postdeployment trauma. This collapse, as one might infer, refers to the onset of PTSD. Our hope is that using EMDR as a predeployment intervention would decrease the steepness of the sandpile and, in so doing, decrease the likelihood of collapse following subsequent traumas, which service members are likely to experience during their deployment. EMDR has been shown to increase physiological indicators of desensitization, including autonomic measures of fingertip skin temperature, heart rates, galvanic skin response, and blood pressure (Wilson et al., [1996](#)). This leads to the question of whether EMDR can help to prevent the onset of PTSD at a physiological level by reducing stress sensitization following additional trauma.

There is also evidence to suggest that EMDR may be more acceptable/tolerable than other trauma-focused interventions, as indicated by dropout rates. Specifically, a recent meta-analysis revealed that the mean dropout rate for EMDR was 18% ($n = 21$ studies), while the rates for prolonged exposure and cognitive processing therapy were 22% ($n = 22$) and 30% ($n = 8$), respectively (Lewis et al., [2020](#)). One possible explanation for these findings is that EMDR focuses on positive internal experiences more than other treatment protocols do, which may make it an appealing option to service members. Third, even though there is some debate about the efficacy of self-administered EMDR, it is possible that service members could be taught to safely self-administer EMDR techniques that do not involve memory processing (e.g., breathing techniques).

Conclusion

EMDR should be further evaluated as a potential pre-deployment intervention for military personnel. This paper summarized empirical findings indicating that EMDR has the ability to build resilience in individuals who have already encountered adversity in their life—ranging from posttraumatic stress (e.g., stemming from an ACE) to major depression. Highlighted by the conceptual overlap between stress sensitization models and the stress shield model of resilience, there is a compelling case for novel, prevention-focused research on EMDR. In the end, whether EMDR can prevent the onset of PTSD is an empirical question that can be explored in the years to come, starting with a small feasibility study and moving forward as appropriate.

Author note. Correspondence concerning this article should be directed to Sean Roth: vroth2448@gmail.com.

References

- Bak, P., Tang, C., & Wiesenfeld, K. ([1987](#)). Self-organized criticality: An explanation of the $1/f$ noise. *Physical Review Letters*, *59*(4), 381–384.
- Bisson, J. I., Wright, L. A., Jones, K. A., Lewis, C., Phelps, A., Sijbrandij, M., Varker, T., & Roberts, N. P. ([2021](#)). Preventing the onset of post traumatic stress disorder. *Clinical Psychology Review*, *86*, 102004.
- Blosnich, J. R., Dichter, M. E., Cerulli, C., Batten, S. V., & Bossarte, R. M. ([2014](#)). Disparities in adverse childhood experiences among individuals with a history of military service. *JAMA Psychiatry*, *71*(9), 1041.
- Cabrera, Ó., Hoge, C. W., Bliese, P. D., Castro, C. A., & Messer, S. C. ([2007](#)). Childhood adversity and combat as predictors of depression and Post-Traumatic stress in deployed troops. *American Journal of Preventive Medicine*, *33*(2), 77–82.
- Goldberg, J., Magruder, K. M., Forsberg, C. W., Friedman, M. J., Litz, B. T., Vaccarino, V., Heagerty, P. J., Gleason, T., Huang, G. D., & Smith, N. L. ([2016](#)). Prevalence of Post-Traumatic Stress Disorder in aging Vietnam-Era Veterans. *The American Journal of Geriatric Psychiatry*, *24*(3), 181–191.
- Harden, L., Jones, N., Whelan, C., Phillips, A., Simms, A., & Greenberg, N. ([2020](#)). A systematic review of psychological training or interventions given to UK military personnel prior to deployment. *BMJ Military Health*, *167*(1), 63–69.
- Korotana, L. M., Dobson, K. S., Pusch, D., & Josephson, T. ([2016](#)). A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences. *Clinical Psychology Review*, *46*, 59–90.

- Landín-Romero, R., Moreno-Alcázar, A., Pagani, M., & Amann, B. L. (2018). How does eye movement desensitization and reprocessing therapy work? A systematic review on suggested mechanisms of action. *Frontiers in Psychology, 9*.
- Lewis, C., Roberts, N. P., Gibson, S., & Bisson, J. I. (2020). Dropout from psychological therapies for post-traumatic stress disorder (PTSD) in adults: systematic review and meta-analysis. *European Journal of Psychotraumatology, 11*(1).
- McLaughlin, K. A., Conron, K. J., Koenen, K. C., & Gilman, S. E. (2009). Childhood adversity, adult stressful life events, and risk of past-year psychiatric disorder: a test of the stress sensitization hypothesis in a population-based sample of adults. *Psychological Medicine, 40*(10), 1647–1658.
- Stander, V. A., Thomsen, C. J., & Highfill-McRoy, R. M. (2014). Etiology of depression comorbidity in combat-related PTSD: A review of the literature. *Clinical Psychology Review, 34*(2), 87–98.
- National Center for PTSD. (n.d.). PTSD and suicide: Fiscal year 2018 annual report. Department of Veterans Affairs. https://www.ptsd.va.gov/about/work/docs/annual_reports/2018/NCPTSD_2018_Annual_Report.pdf
- Wilson, D. L., Silver, S. M., Covi, W. G., & Foster, S. (1996). Eye movement desensitization and reprocessing: Effectiveness and autonomic correlates. *Journal of Behavior Therapy and Experimental Psychiatry, 27*(3), 219–229.
- Wisco, B. E., Marx, B. P., Wolf, E. J., Miller, M. W., Southwick, S. M., & Pietrzak, R. H. (2014). Post-traumatic stress disorder in the US veteran population. *The Journal of Clinical Psychiatry, 75*(12), 1338–1346.
- Wood, E., Ricketts, T. C., & Parry, G. (2017). EMDR as a treatment for long-term depression: A feasibility study. *Psychology and Psychotherapy: Theory, Research and Practice, 91*(1), 63–78.