5-2023

The Most Effective Form of Treating Post Traumatic Stress Disorder and Burn-Out in Emergency Medical Technicians

Peyton Kalb
The Most Effective Form of Treating Post Traumatic Stress Disorder and Burn-out in Emergency Medical Technicians

An honors thesis presented to the Department of Anthropology, University at Albany, State University of New York in partial fulfillment of the requirements for graduation with Honors in Anthropology and graduation from The Honors College

Peyton Kalb

Research Advisor: John Polk, Ph.D.

May 2023
Abstract

PTSD and Burnout are two epidemics that are unfortunately affecting the majority of our nation’s EMS members in today’s society. It is important that these emergency first responders are provided with effective treatments that will allow them to heal from the trauma they experience on a daily basis and that these treatments are made available. This research thesis focuses on the finding the most effective treatment that will lead to the best outcome for these workers and improve their quality of life holistically. The methods in this project include analyzing previous studies done on this issue and developing a pattern across the sources to determine which treatment of PTSD and Burnout will be the most effective for EMTs. After completing the analysis, allowing EMTs to enjoy “down-time” to do whatever they chose after an intense situation, was proven to be the most effective in overall combatting the symptoms of PTSD and Burnout.
Acknowledgements

I would not have been able to complete this thesis without those who have supported me through the whole process of completing my research project. Other students in my research class, that I was surrounded by once a week, have helped me break down this project step by step and make it not seem so overwhelming at most points. My advisor, Professor John Polk, was particularly helpful in guiding me through the whole process and was always willing to give useful feedback that helped me to create my question and carry out this project. Thank you so much all of you for all of your help.

I’d also like to say thank you to all of my best friends that I volunteer with at our school’s collegiate EMS agency. Their support through my three years as an undergraduate student have been something that I will never be able to repay them for. Learning about the world of EMS by their side and working next to them as an EMT has been the most valuable experience of my life so far, and I will forever be thankful for the love and support they have given me. I will miss volunteering on the ambulance with these people so much next year.

Finally, a thanks to my parents and my younger sister who have been by my side for the last 21 years. Thank you for your encouragement, your love, and your unconditional support. None of this would be possible without everything they have done for me.
List of Tables

Table 1..............................................................................................................7

Table 2..............................................................................................................7
Table of Contents

Abstract ........................................................................................................................................................................... ii
Acknowledgements ........................................................................................................................................................ iii
List of Tables .................................................................................................................................................................. iv
Table of Contents .......................................................................................................................................................... v
Introduction .............................................................................................................................................................. 1
Methods ......................................................................................................................................................................... 3
Results and Analysis ..................................................................................................................................................... 9
Discussion ................................................................................................................................................................... 11
Summary and Conclusion ............................................................................................................................................. 12
References ................................................................................................................................................................. 13
Introduction

Being an Emergency Medical Technician (EMT)/First Responder can be argued as one of the most important jobs a person can do. Being the first one on-scene in any type of medical emergency is not easy. Having somebody’s life in your hands when they are having the worst day they possibly can, when they are probably the most scared they have ever been in their entire life, is not something that can be taken lightly. It is an enormous responsibility and becoming an Emergency Medical Technician (EMT) or first responder requires intense training, the ability to think logically in stressful scenarios, and the ability to be ready to face anything. This job is extremely high stress, and the responsibilities and duties of performing this job, can take a significant toll on both an EMTs’ mental and physical health. A common complication of the job that many EMTs/first responders struggle with is Post Traumatic Stress Disorder (PTSD) and Burn-out (Ntatamala and Adams, 2022). This research, related to which form of treatment is the most effective in treating these diseases associated with the job, is extremely important because it can be applied to EMTs not just working in the United States, but it can be transformed and applied anywhere in the world. Making sure that the mental health of our first responders is considered and noticed, is critical in ensuring that they provide the highest level of care that they possibly can while being out in the field. It is extremely important to find the most effective treatment for these workers so they can have a better quality of life, can enjoy doing their job more, can make fewer on-scene mistakes, and be better at making competent on-scene decisions in a variety of high-stress situations.

The mental health of EMTs is a topic that is often overlooked. Two difficult issues that may arise from having this job are PTSD and/or Burn-out. “Post-Traumatic Stress Disorder, or PTSD, is a disorder that develops in people that may have experienced a traumatic event and are
now affected by it. Their memory of the event can be triggered by things in their day-to-day life causing repetition of the associated emotional stressors” (post-traumatic stress disorder (PTSD)., 2022). According to the World Health Organization, “Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed.” Burn-out can be characterized by three dimensions, including energy depletion, increased mental detachment while on the job, and reduced professional effectiveness (Burn-out an "Occupational phenomenon": International Classification of Diseases., 2019). Possible causes of job Burn-out can be a lack of control, unclear job expectations, extremes of activity, and a work-life imbalance (Know the signs of Job Burnout). In terms of feeling like there is a lack of control out in the field, this is very common, as these first responders a portion of the time can only do so much to help their patients while they transport them to the hospital. EMTs don’t have the ability to cure a chronic disease that someone may be facing, which could come across as a lack of control of the situation at that moment. Unclear job expectations may contribute to Burn-out in an EMT if they feel like they are in a position where they are unclear of what actions to perform when working a call. With working in a team, which is commonly done by responders, sometimes knowing your position on the team can lead to workplace dynamic complications, which in the worst-case scenario, could end up impacting patient care. Extremes of activity, which refers to jobs that can put workers in chaotic and high energy environments, it is likely that EMTs face difficulties with their mental health because of the consistent high stress environments that they are put in. A work-life balance is also often hard to achieve due to the fact that technicians often work long hours, extended shifts, and are at some moments unsure of how long they will be responding to a call due to the nature or severity of the injury or illness of the patient. With knowing that EMTs are responsible for the lives of those that need them, it is frightening to know that burn-out could
affect the efficacy of their medical performance. As well as the previously mentioned causes of job Burn-out, EMTs are likely to experience the obstacles in their mental health because of their repeated exposure to traumatic incidents, lack of sleep, the exceptional physical exertion of the job, and long working hours. The main reason why EMTs are suffering from these issues silently and out of the face of the public is because of a certain stigma around Emergency Medical Technicians turning to some form of mental health services for help (Spitzer, 2021). However, it is time that the difficulties and struggles that these essential workers face can no longer be ignored. Something needs to be done to help strengthen the mental health of EMTs across the health system so they can do the best job possible.

Few studies have been done to determine the most effective form of treatment of PTSD and Burn-out in EMTs, which is why this research is extremely important and can ultimately lead to an improved quality of life for these workers. A majority of the studies performed in the past have been focused around proving that EMTs do experience PTSD and determining the most prevalent causes of it, but there is a minimal amount of research done on how they are offered treatment to combat this mental health issue. The overall goal for this project is to gather evidence from previous studies and organize into a way that will prove that there is a pattern between the fact that EMTs do experience PTSD and Burn-out and which form of treatment is most successful at combating these issues.

Methods

In trying to determine the most effective form of treating PTSD and Burn-out in EMTs, it is extremely important to carry out a method that will be most sufficient in collecting the desired results. After gathering as many past studies done with respect to this area, the data needed for
this project will be collected by doing an in-depth analysis of the variables used during these studies. The data gathered will be mainly from articles found in scientific journals as well as articles published by public health organizations. As opposed to collecting all new data through the process of conducting a survey for example, the goal is to determine whether there is an overall pattern or connection in terms of the variables and treatments used across these specific past studies.

Articles will be analyzed and organized in a way that ultimately helps to answer the question of this research project. There are a variety of specific variables that are going to be pulled out of these past studies. These include

1. How many EMTs were surveyed in their study?
2. Which form of treatment were the researchers focusing on most specifically (was it cognitive therapy, medication, etc.)? 
3. Were the people being studied certified EMTs or were they other personnel who are not EMTs but are experiencing the symptoms of PTSD and Burn-out for other reasons? 
4. What method did they use to collect their results (survey, etc.)? 
5. What did their findings include, and did it prove their hypotheses correct or incorrect?

and more specifics like those. What I am going to do in terms of conducting my methods for this project is placing all of these variables and the results that they got from studying these variables and determining if there is an overall connecting pattern between the previously collected results. I am going to look at which treatment these past studies deem the most effective and from there draw conclusions and inferences based on this information. This is how I am going to test my
hypothesis. I will place the variables into an organized manner that lines them up across different studies, and this is essentially how the pattern will be determined, if there is one. The amount of EMTs interviewed in each study will be compared, the form of treatment that was researched by others will be compared, the responses and statistics found in the previous studies will be compared, in order to come to the conclusion and prediction of which treatment would be the most effective.

It is extremely important to gather as much information as I can so that I have more variables and results to organize into data that I want to see for this study. With the gathering of as many past studies done as possible, the goal is to establish a pattern between them to determine an overall trend. While looking at the variables is important to take into account when organizing the data needed for this research, the main goal is to compare the various treatments observed, in order to determine which ones are the most effective or would be the most effective in treating these diseases. The various treatments included in these past studies that were analyzed were allowing technicians to enjoy “down-time” after an intense call, medication usage, cognitive based therapy or talking with a professional, and Transcranial Magnetic Stimulation. Transcranial Magnetic Stimulation is a noninvasive procedure that uses a magnetic field to help stimulate nerve cells in the brain and improve the symptoms of depression (Transcranial magnetic stimulation). The way in which it works, is an electromagnetic coil is placed against the patient’s scalp and then an electromagnet delivers a magnetic pulse into the brain that stimulates nerve cells in that region of the brain which is associated with mood control and depression. The goal is to stimulate the production of new and healthy nerve cells in that area of the brain which will ultimately improve the depressive symptoms in the patient. In terms of the medications I will be looking at for this study, they fall under the category of anti-depressant
medications. Anti-depressant medications are not designed to eliminate the symptoms of PTSD or Burn-out completely, but to make the symptoms more bearable so that people struggling with these mental illnesses have an easier time performing their day to day activities (Va.gov: Veterans Affairs, 2018).

A study done in 2019 touches on both recognizing that there is a presence of PTSD/burnout in EMTs, and it evaluates a few different techniques for treating them. To start, various causes of PTSD/burn-out in EMTs examined, in which they most specifically focused on how certain personality traits were related to the degree in which burn-out was experienced by EMTs. The method done in this study was a cross-sectional study done with 308 participants completing a four-part questionnaire measuring demographic characteristics. The results demonstrated that reducing the amount of work hours, looking at factors of dissatisfaction and stressors on the job, and increasing the amount of welfare resources led to a decrease in the number of EMTs that experienced burn-out (Bahadori, 2019). This study illustrated the fact that a range of relatively simple techniques can be used to slow down the spread of burn out amongst workers. However, the researchers did not evaluate which method was the most effective.

A different study done focused around one specific kind of treatment for EMTs in attempting to prevent the development of PTSD/burn-out, and that was by using a treatment implemented that included the use of downtime given to workers after they experienced a “Critical Incident (CI)” while working. They hypothesized that downtime allotted to workers post-CI would be associated with fewer symptoms like depression/PTSD/burn-out/stressful emotional symptoms in EMTs. After their survey of 201 paramedics was carried out, it was determined that 59% of the participants found the downtime helpful and the downtime was associated with a lower amount of depression like symptoms. The authors suggested that the
optimal downtime length was somewhere less than 30 minutes after a shift had ended, but the optimal amount of downtime was not recommended to be longer than 1 day (Halpern, 2014). This study was done very effectively in terms of looking at one form of treatment of PTSD/burnout in EMTs, but failed to compare it to any other form of treatment, which is where more research needs to be considered. Based on the reading I have done, I hypothesize that compared to other forms of treatment such as medication, cognitive based therapy, or Transcranial Magnetic Stimulation, that taking a moment of downtime and unwinding by doing something that the first responder enjoys after a stressful situation, will be the most effective form of treating PTSD and burnout.

Table 1: Studies specifically relating treatments to Emergency Medical Technicians

<table>
<thead>
<tr>
<th>Title of the study</th>
<th>Who was the study conducted by?</th>
<th>How many participants were there?</th>
<th>Which treatments were analyzed?</th>
<th>What were the results of this study?</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Job Stress and Job Burnout Based on Personality Traits among Emergency Medical Technicians”</td>
<td>Trauma Monthly: An International Journal in the Field of Trauma and Emergency Medicine</td>
<td>308 personnel (using the stratified random sampling method)</td>
<td>Work hours, factors of dissatisfaction and stressors in the workplace, involvement of welfare facilities</td>
<td>Decreasing work hours, identifying specific workplace stressors, and an increase in access to welfare facilities ended up decreasing symptoms of job burnout among their employees</td>
</tr>
<tr>
<td>“Downtime after Critical Incidents in Emergency Medical Technicians/Paramedics”</td>
<td>BioMed Research International</td>
<td>217 ambulance workers</td>
<td>Various lengths of downtime provided to employees</td>
<td>Receiving any amount of downtime was associated with a decrease in the amount of depressive symptoms experienced</td>
</tr>
</tbody>
</table>

Table 1: Table 1 organizes the information found in two studies that were conducted by looking at different treatments of PTSD and Burnout and what effects they have on the occupation of Emergency Medical Technicians.
<table>
<thead>
<tr>
<th>Title of the study</th>
<th>Who was it published by</th>
<th>Summary of the Study</th>
<th>How was the information from this study used?</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Post-Traumatic Stress Disorder among Emergency Medical Services Personnel: A Cross-Sectional Study”</td>
<td>Asian Journal of Medicine</td>
<td>110 paramedics were screened using the “Post-Traumatic Stress Disorder Checklist” in order to explore the prevalence of PTSD among EMS personnel. Results included more than half of the EMS personnel positively showing signs of PTSD.</td>
<td>Establishes the known fact that EMS workers experience symptoms related to PTSD and that it is a prevalent issue in the emergency medicine community.</td>
</tr>
<tr>
<td>“Coping skills, emotional intelligence, attachment, and resilience on post-traumatic stress disorder in private sector emergency medical technicians.”</td>
<td>Dissertation Abstracts International: Section B: The Sciences and Engineering</td>
<td>This study was done to examine the “relationship between PTSD symptoms and coping skills, emotional intelligence, attachment, and resilience among private sector EMT workers.” PTSD was seen clearly due to the prevalence of avoidance coping skills and having anxious attachment styles.</td>
<td>This study looks at the topic from a new perspective of comparing private sector EMTs with public sector EMTs. However it clearly demonstrates the idea that all EMTs deal with PTSD in not the most positive manner.</td>
</tr>
<tr>
<td>“Review the Effectiveness of Transcranial Magnetic Stimulation for Post-Traumatic Stress Disorder”</td>
<td>Department of Psychiatry, Geisel School of Medicine at Dartmouth; Department of Psychiatry, Veterans Affairs National Center for Patient Safety; Department of surgery, Geisel School of Medicine at Dartmouth</td>
<td>This study was done to review the effectiveness of TMS in treating PTSD. Overall, TMS treatment for PTSD is a proven, effective, and well tolerated treatment.</td>
<td>This was used to introduce the idea of applying this type of treatment to EMS workers, because it has been proven that EMTs display similar symptoms as the PTSD patients included in this study.</td>
</tr>
<tr>
<td>“Deployed Soldiers’ Reactions to Exposure and Medication Treatments for PTSD”</td>
<td>Journal of Psychological Trauma: Theory, Research, Practice, and Policy</td>
<td>Soldiers were given a survey asking them to rate which treatment they think they would respond the best to in terms of treating their PTSD. Options given to them on the survey were Prolonged Exposure (PE), Virtual Reality Exposure (VRE), and</td>
<td>This study introduces a perspective coming from soldiers, which experience the similar types of trauma that EMTs might. It supports the idea that medication is not always the most preferred form of treatment.</td>
</tr>
</tbody>
</table>
Table 2: Table 2 includes a variety of studies conducted on treatments of PTSD that were not studies by looking at the response of EMTs. These articles were done with subjects that included those coming back from war, or those experiencing PTSD for a variety of reasons. Table 2 also includes 2 articles that help to establish the fact that EMTs are among those who suffer from PTSD and Burnout.

**Results and Analysis**

After looking at a certain amount of studies done in the past, it is clear that there is one form of treatment that is deemed to be the most effective in combating the symptoms of PTSD and Burn-out in Emergency Medical Technicians. Allowing an Emergency Medical Technicians to enjoy “down-time” or personal time to do the things they enjoy after experiencing a high energy and high stress situation was the most well-liked form of treatment and led to the most increase in positive results when treating the symptoms associated with PTSD and Burn-out.
After looking at the study done involving cognitive therapy with non-emergency medicine personnel, and understanding that there are still limitations to that form of treatment, it can be inferred that if this type of PTSD treatment were applied to EMTs, then they would feel the same way and not respond as well. The connection can be made that, EMTs might feel as though they are being forced reliving the traumatic experience they may have had, and would not be the most effective way of combatting the symptoms that come along with these diseases. The third most predicted effective treatment method studied that could be applied to EMS workers in an attempt to relieve their PTSD and Burn-out symptoms is Transcranial Magnetic Stimulation. After reading the study done on this form of treatment on people who were not EMTs, it can be inferred that if this type of treatment is applied to EMTs, it could have the same positive effects. Being that Transcranial Magnetic Stimulation is a more intense form of treatment, as well as it being a surgical procedure, while it may be noninvasive, it makes sense that other forms of treatment can be predicted as being more preferred and chosen more often by EMTs as a first attempt, then jumping right into a surgery that is still in its experimental phases. The use of antidepressant medication is the last form of treatment that can be inferred that EMTs will resort to when trying to combat their symptoms. According to the Journal of Psychological Trauma, “Relative to PE, soldiers were significantly less willing to recommend medication treatment and had significantly less confidence/belief in the efficacy of medications” (Reger, 2013) and “Relative to both exposure therapies, soldiers reacted to medications with significantly stronger agreement to scales reflecting embarrassment/shame for seeking a particular form of treatment, negative occupational/career impact, and perceived debasement for seeking the treatment” (Reger, 2013). These two pieces of information demonstrate the idea that there is a negative connotation associated with taking medication. Due to this being known, it can be inferred that
EMTs would likely being afraid of facing the same retribution as soldier’s and thus turn to other methods of treatment instead of medication.

Discussion

One of the biggest challenges of completing this thesis project, was finding a sufficient number of resources that could be used to make the argument presented. There is not nearly enough research done on how these treatments of PTSD and Burn-out and how they can help in improving the quality of lives of EMTs. Due to this fact, a lot of information for this research project had to be taken from studies that have researched various treatments but focusing on the results when it came to personnel that were not emergency medicine workers. EMTs experience a multitude of similar symptoms of PTSD and Burn-out that others do, which is why it is safe to make the comparison between the two groups and infer that these treatments will have the same effects on EMTs. Certain strengths I noticed while analyzing these previously done studies, is the way in which they gather their information. Whether it is a survey created by certain criteria, or whether it is testing out the treatment itself, the results are strong and can be relied on due to their authenticity. Some negatives I noticed throughout the process of analyzing these studies is that they go through the struggle of finding sufficient information specifically related to how these treatments affect EMTs. Something I would do differently if I had time in the future, would be to create a survey that I could send out to my coworkers asking them a variety of questions related to the different types of treatment. That way I would have primary data collected by me, that can be analyzed and conclusions can be drawn from that information. A recommendation I would have for someone who may chose to study this same field in the future, is perhaps broaden the subject study area to more than just Emergency Medical Technicians. Perhaps broaden the
study to look at firefighters and police personnel and how these treatments might affect them and how these treatments could improve their PTSD or Burn-out symptoms. A different suggestion I would have is to possibly focus on a specific time frame, maybe post 911 emergency workers who experienced that tragedy first hand, and how their PTSD and Burn-out symptoms could be lifted with an exposure to these treatments.

**Summary and Conclusion**

There is a huge potential for this proposed activity to advance both knowledge and understanding of the world that is the job of first responders. Once the most effective form of treating PTSD for these essential workers is determined, this knowledge can be applied to EMS (Emergency Medical Services) agencies all over the world, and the lives and professional performance of these workers can be overall improved. This proposed research highly suggests a potentially transformative concept that can be implemented in the future to great extent. It suggests a plan that can be used to benefit the quality of life of EMTs. The plan for this research is well reasoned, well organized, and it is fully based on a sound rationale. Considering the research being done is based on studies that have been done in the past, it is extremely important that it be well organized to make the research that much more reliable. The individual conducting these activities is well qualified to conduct this research, being that the individual is an EMT herself and understands the mental tolls that this job can have on this specific group of individuals. There are adequate resources available to the principal investigator, and they can be easily accessed on a variety of websites and through a variety of academic and scientific journals.
References


