

A Phenomenological Study of the Lived Experiences of Firefighters Using Target 2

Zero Rapid Stress Reduction Protocol

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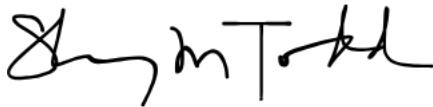
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A Phenomenological Study of the Lived Experiences of Firefighters using Target 2 Zero

Rapid Stress Reduction Protocol



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Abstract

Firefighters are at increased exposure to trauma putting them at risk of harmful mental health conditions compared to the general population. Target 2 Zero is a new trauma protocol designed for reducing negative outcomes of disturbing memories and stress. Specifically, the Target 2 Zero rapid stress reduction (RSR) protocol can be taught and used quickly on an individual basis. Participants were selected based on the criteria of serving as a professional firefighter for more than three years, who were over age 18 years, and who have completed the Target 2 Zero RSR training. Data were collected through semistructured interviews and analyzed to identify themes pertaining to the experience of disturbing memories and stress before and after the Target 2 Zero RSR training. Data collection consisted of six participant interviews, which were recorded, transcribed, and analyzed using exploratory notes, personal experiential themes and then group experiential themes. The four themes showed the study participants were ambivalent about the efficacy and implementation of the Target 2 Zero RSR protocol. They found the protocol to be unique or silly. Firefighters need to establish trust prior to engaging in professional training, and finally compartmentalization is a valuable tool for handling stress from potentially traumatic events (PTEs).

Keywords: Target 2 Zero, Target 2 Zero rapid stress reduction, PTEs, working memory taxation, allostatic load theory, firefighters, trauma, stress

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Dedication

To Claire, Emma, William, and Caroline. I love you more than you can know.

With God all things are possible.

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CHAPTER I: INTRODUCTION

Trauma exposure and posttraumatic stress disorder (PTSD) symptoms are rampant among firefighters (Bartlett et al., 2018). PTSD symptoms are linked with lifetime suicidal ideations and attempts (Bartlett et al., 2018; Boffa et al., 2018; Martin et al., 2017). Firefighters are at increased risk of dying by suicide as opposed to work-related injuries or accidents (Hom et al., 2016; Johnson et al., 2020). The purpose of this interpretive phenomenological analysis (IPA) study was to investigate the lived experiences of firefighters using Target 2 Zero rapid stress reduction (RSR) protocol, a unique modality with components of eye movement desensitization and reprocessing (EMDR), for decreasing the impact of disturbing memories and high stress from potentially traumatic events (PTEs).

Noteworthy characteristics of PTEs are involuntary, invasive, and repetitive disturbing memories of the traumatic event (American Psychiatric Association, 2022). As a result of responding to many emergency calls, firefighters rarely pinpoint a specific incident causing stress, rather the cumulative impact of repeated traumatic exposures lead to disturbing memories and psychological dysfunction (Jahnke et al., 2016). Because of repeated stress from PTEs, firefighters may be vulnerable to cognitive impairment such as memory loss and rigid decision making and influenced by fear-based responses associated with prior traumatic memories while on duty (Davis et al., 2019; Ness & Calbrese, 2016).

Allostatic load (AL) refers to a person's inability to control chronic biological and psychosocial stressors such as changing sleep patterns, trauma, or interpersonal conflict at work (Guidi et al., 2021; Yook, 2019). Over time, AL results in disease and

deterioration (Fava et al., 2019). The AL model may account for the elevated rates of high blood pressure, death due to heart attacks, and increased forms of cancer for firefighters (Van Hasselt, 2022). AL is also associated with mental health disorders, including PTSD (Carbone et al., 2022; Coimbra et al., 2020; Guidi et al., 2021; Malta, 2012) and suicide (Stacy & Schulkin, 2022). Suicide rates among firefighters indicate a higher probability of dying by suicide than work–job-related injuries (Hom et al., 2016; Johnson et al., 2020).

Target 2 Zero is a new trauma protocol based on components of EMDR, EMDR 2.0, movement therapy, and neuroscience research (Williams et al., 2024). This protocol allows individuals to process disturbing memories without the need to recall the memory. Processing disturbing memories is accomplished through engaging in multiple tasks such as body movement, repeating rhythmic phrases, tapping different parts of the body, and tracking the movement of a ball with the eyes (Williams, 2023).

A specific group protocol of the Target 2 Zero trauma processing intervention is the rapid stress reduction (RSR) protocol, designed for individuals or groups (S. Williams, personal communication, June 24, 2024). The RSR protocol can be used to reduce stress and boost performance by clearing disturbing memories (S. Williams, personal communication, June 24, 2024). Individuals can use the protocol with a trained Target 2 Zero clinician or by themselves (S. Williams, personal communication, June 24, 2024). It was unknown whether the Target 2 Zero RSR protocol would help firefighters reduce PTSD symptoms, process disturbing memories, and reduce stress prior to the study.

Background of the Study

Professional firefighting is demanding, requiring focused preparation, mental and physical toughness, and constant flexibility (Hageman, 2022). The inherent occupational risk of firefighting is obvious, yet underappreciated. Firefighters are exposed to dangerous situations involving the extinguishing of fires and are first responder witnesses to traumatic events such as car accidents leading to dismemberment, drownings, and global threats such as terrorist acts (Jahnke, 2016). Firefighters are also at risk of secondary stressors related to the job, including physical exertion and sleep disturbances related to shift work (Johnson et al., 2020).

The result of multiple stressors is an increase in negative mental health symptoms. Specifically, firefighters are at increased risk of developing PTSD, suicidal ideation, and suicidal intent (Boffa et al., 2017, 2018; Martin et al., 2017; Stanley et al., 2019; Healy & Vujanovic, 2021). Symptoms of PTSD and suicidal risk seem to be correlated. Researchers have found the more severe the PTSD symptoms observed, the higher the rate of suicidal ideation and suicidal risk (Boffa et al., 2017; Stanley et al., 2019).

Chronic stress and the requirement to swiftly respond to emergency calls disrupts sleep patterns for firefighters (Johnson et al., 2020). Because of shift work and the requirement to be vigilant while on duty, insomnia is common among firefighters (Jeong et al., 2015). Firefighters with sleep disturbances and elevated levels of PTSD symptoms experience greater difficulty in reducing traumatic stress (Healy & Vujanovic, 2021).

Problems with sleep increase hopelessness, helplessness, and fatigue, which are risk factors for suicide (Healy & Vujanovic, 2021; Joiner et al., 2005). In 2017, more firefighters died from suicide than in the line of duty (Heyman et al., 2018). Based on

their findings, Heyman et al. (2018) suggested that firefighters are not as willing to discuss suicidal ideation or reach out for mental health services because of shame and stigma.

Current treatment options for firefighters include critical incident stress management (CISM), cognitive behavioral therapy (CBT), prolonged exposure therapies, and EMDR therapy (Adler-Tapia, 2013; G. S. Anderson et al., 2020; Fraess-Philips et al., 2017; Gilman, 2018; Lanza et al., 2018). Medication management, family therapy, and dialectical behavioral therapy are also recommended for firefighters struggling with disturbing memories (International Association of Fire Fighters, 2024). Yet, many barriers are associated with these treatment options.

CISM is reported to have mixed results in addressing firefighters' stress, PTSD, and suicidality (Johnson et al., 2020; Price et al., 2022). However, CISM and its interventions are used for crisis intervention purposes and are not alternatives to psychotherapy (Mitchell, 2020). Referrals for psychotherapy are typically initiated via several routes in fire departments, through employee assistance programs (EAP), or through self-referral. Yet, EAP counselors are often not as experienced in treating trauma (McKenna, 2017).

Furthermore, because of the male-dominant culture of firefighting, there is stigma associated with reaching out for mental health services due to perceived weakness and concerns over reputation (Hom et al., 2016; Johnson et al., 2020; Ri, 2019). In J. E. Kim et al. (2018), firefighters noted perceived obstacles and potential shame from others as considerations when refusing to seek out treatment for PTSD. Finding routes to reduce

the effects of disturbing memories and stress from PTEs in a nonstigmatized way that reduces barriers to treatment would be highly advantageous to firefighters.

Several stress models are important when considering the job of firefighting. General adaptation syndrome (GAS) is the initial three-stage stress model described by Hans Selye (1936) to define how the body reacts to harsh conditions. Homeostasis describes how individual systems in the body can adapt and adjust to adverse external stimuli (Billman, 2020; Cannon 1932). Allostasis maintains homeostasis and balances all physiological systems under stress which are essential for life (McEwen, 2004). In chronic stress, allostasis continues, resulting in allostatic load (AL), which leads to significant physiological problems (Guidi et al., 2021; Igbougono, 2022). Thus, firefighters who are unable to reduce their AL suffer physical and mental consequences.

A component of the Target 2 Zero protocol includes working memory (WM) and a theory called working memory taxation (WMT). The WMT theory suggests the brain has limited capacity for storing and retrieving memories when performing multiple tasks (Alting van Geasau et al., 2023; Engelhard et al., 2011; Gunter & Bodner, 2008; Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Schie et al., 2015). When there is competition between thinking about disturbing memories from the past and doing activities such as drawing (Gunter & Bodner, 2008), counting (Greenwald et al., 2015), or tapping fingers (Andrade et al., 1997), the memories become less vivid and emotional (Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Veen et al., 2015). However, research has suggested there is an optimal level to how much WMT is effective in reducing the vividness and emotionality of disturbing memories (Carter & Farrell, 2023). The Target 2 Zero protocol employs the WMT theory by overloading short-term memory

functions through counting, repeating rhythmic phrases, tapping fingers, moving, and tracking a ball in space (Williams, 2023).

Firefighters face many mental health challenges related to their work, including PTSD and suicidality (Healy & Vujanovic, 2021). Despite the extreme challenges, many firefighters choose not to engage in mental health treatment due to associated stigma (McKenna, 2017) and perceived obstacles in care (J. E. Kim et al., 2018). The Target 2 Zero RSR protocol may offer a quick, fun, and engaging method of processing disturbing memories and reducing stress from PTEs. Target 2 Zero RSR may also reduce abreactions, or the reliving of traumatic memories associated with some modalities of trauma therapy (Williams, 2023). If Target 2 Zero RSR can reduce the disturbance level of memories and stress for firefighters, without increasing barriers to treatment or stigma, this would represent a meaningful step forward in mental health care for the firefighting community.

The Problem

The problem that was addressed in this study is firefighters have increased exposure to PTEs in their occupation, which puts them at elevated risk of harmful mental health conditions compared to the general population, specifically PTSD and suicidal thoughts and behaviors (Gulliver et al., 2021; Healy & Vujanovic, 2021; Stanley et al., 2019). PTSD commonly has symptoms of intrusive and upsetting memories, recurrent distressing dreams, flashbacks, and severe psychological distress upon exposure to cues resembling the PTE (American Psychiatric Association, 2022). Extreme stress from PTEs negatively impacts the formation and retrieval of memories (Ashbaugh et al., 2018;

Brewin, 2014; Davis et al., 2019; McEwen et al., 2015; Ness & Calbrese, 2016), which could have substantial negative implications for other aspects of life.

Despite firefighter peer support crisis intervention programs such as CISM (Fraess-Philips et al., 2017; Mitchel, 2020; Price et al., 2022) in addition to other treatment options such as EMDR (Gilman, 2018) or psychotherapy (Lanza et al., 2018), these modalities may have barriers to treatment, including scheduling difficulties and educational and training requirements (Lanza et al., 2018; Price et al., 2022). Stigma and perceived obstacles like time, money, and insufficient training in PTSD may inhibit firefighters from identifying and engaging in peer support and professional services for stress resulting from PTEs (Johnson et al., 2020; J. E. Kim et al., 2018; McKenna, 2017; Price et al., 2022).

Negative mental health outcomes related to stress from PTEs impact firefighters, their families, and the communities they serve. While some treatment is available to firefighters who experience stressful consequences of PTEs, it is not yet clear how to provide more effective support for the firefighter population. Failure to address the research problem would result in firefighters' continued suffering from traumatic stress and related negative mental health outcomes.

Purpose of the study

The purpose of this qualitative study was to explore the lived experiences of firefighters who have used the Target 2 Zero RSR protocol to reduce the impact of traumatic memories and stress. By exploring experiences with a specific trauma treatment technique, this study was a logical and explicit response to the problem of firefighters suffering from negative mental health outcomes from chronic PTEs exposure. The Target

2 Zero RSR protocol can be delivered in one training course and allows for firefighters to use the protocol on their own to reduce the impact of troubling memories and decrease stress. Following an interview guide, I conducted semistructured interviews with six current career firefighters regarding their experience of going through the Target 2 Zero RSR protocol.

Research Questions

I used interpretative phenomenological analysis (IPA) to conduct this study. IPA's purpose is to explore in detail how individuals make sense of their personal world, with the main objective of capturing the significance of unique events for individuals (Smith et al., 2023). In an IPA study, the research questions are usually broad in nature and do not follow a preplanned theory; rather, the objective is to research an area with openness and flexibility (Smith & Nizza, 2022). The research questions (RQs) for the present study were as follows:

RQ1: What did the firefighters experience when using the Target 2 Zero RSR protocol in processing disturbing memories?

RQ2: How do firefighters who have received the Target 2 Zero RSR protocol experience stress?

Because the Target 2 Zero RSR protocol is new and unique, what the firefighters' experiences would be when using it were unknown. The research questions were framed to document the participants' experiences openly rather than limit their experiences to a preconceived theory. An IPA study was helpful in exploring how the Target 2 Zero RSR protocol can be used as a treatment intervention for firefighters and potentially all first responders in the future.

Methodology

The purpose of the qualitative study was to explore the experiences of firefighters using the Target 2 Zero RSR protocol in reducing the impact of disturbing memories and reducing stress. In an IPA design, the main objective is to collect data so the phenomenon being studied can be expressed in its natural language, rather than being defined by previous categories (Smith et al., 2023). Therefore, it was important to understand how the firefighters experienced the Target 2 Zero RSR protocol in their own words.

Research participants were full-time firefighters 18 years of age or older who had at least 3 years of firefighting experience, either professionally or on a volunteer basis. Participants were from the states of Virginia, Idaho and Arkansas. Participants completed the Target 2 Zero RSR training protocol prior to being considered for the study.

Data was collected via one-on-one, semistructured interviews with open-ended questions, using an interview protocol with predetermined questions. All interviews were recorded on Zoom. All Zoom recordings were encrypted and viewed only by me. I maintained a reflexive journal prior to and after the data collection process to identify subjectivity and bracket biases and beliefs could have impacted my analysis of the data, as recommended in Peoples (2021).

I transcribed all interviews verbatim shortly after they were completed to capture inflections and nonverbal information that could have gone unnoticed during the interview process. All words spoken by me and the participants were transcribed while prosodic verbalizations such as long pauses were noted in parentheses, following guidance in Smith and Nizza (2022).

The data analysis plan consisted of Smith et al.'s (2023) seven steps for IPA studies. These steps are the following: reading and rereading the data, initial exploratory note taking, constructing experiential statements from the notes, making connections between the experiential statements, consolidating experiential statements into personal experiential themes, continuing analysis for each interview, and creating group experiential themes across the interviews.

Assumptions, Limitations, and Delimitations

My views on EMDR therapy were an assumption that I needed to bracket for this study. As a certified EMDR counselor, I believe it is an effective tool for processing disturbing memories. Since the Target 2 Zero protocol uses EMDR properties, I might have been biased toward believing the Target 2 Zero RSR protocol would have a profound positive impact on the firefighters' disturbing memories and stress levels.

I am also trained in Target 2 Zero by its developer, Scarlett Williams. I could have incorrectly assumed that firefighters who did not report a positive experience were providing dishonest or inaccurate information. Another assumption I needed to consider was my belief the study findings would transfer to firefighters across the United States, other first responders, and to all individuals regardless of occupation.

Several limitations are of note for the study. Perhaps the biggest limitation to the study was the absence of extant research into Target 2 Zero as a modality generally, and the Target 2 Zero RSR protocol specifically. The current study is the only available research on the Target 2 Zero modality. Another limitation was interviews were conducted via teleconferencing software. Some non-verbal cues were not captured such as non-verbal nuances and expressions.

While not having in-person contact is a limitation of data collection, utilizing teleconference software to perform the study was a delimiting factor for the researcher to gain access to the participants since he did not have access to several participants of the study. The eligibility criteria of the study were delimiting factors. The requirement for the firefighters to be 18 years or older, with three or more years of experience, in addition to completing the Target 2 Zero RSR training protocol were delimiting factors to the study.

Definition of Terms

Allostasis: The body's capacity to accomplish stability through change; the process that maintains homeostasis and balances physiological systems under stress, which are essential for life (McEwen, 2004).

Allostatic load: The cumulative effect of long-term stress on the body because of repeated adaptation to lifestyle changes such as poor sleep cycles, social isolation, poor diet, lack of exercise, and other environmental stressors (Carbone et al., 2019; McEwen, 2004). The constant change leads to disease and impairment (Fava et al., 2019).

Distress: Stress that is harmful or unpleasant (Selye, 1974).

Eye movement desensitization and reprocessing: EMDR was initially discovered by Francine Shapiro in the mid to late 1990s as a therapy to reduce the disturbance of upsetting memories, among other symptoms of PTSD (Shapiro, 2018).

Eustress: Stress that is beneficial rather than harmful. (Selye, 1974)

Firefighters: Defined in this study as men and women who are employed to extinguish fires, respond to emergency situations involving life, property, or the environment in any context either professionally or on a volunteer basis (U.S. Bureau of Labor Statistics, 2024).

Flash technique: a recently developed, low-intensity method originally created to facilitate the processing of disturbing memories for individuals who may be hesitant to think about them prior to conducting EMDR therapy. Individuals are encouraged to recall a positive or neutral memory, rather than the disturbing memory, while tapping their thighs (Manfield et al., 2017; Manfield et al., 2021).

First Responders: Professional individuals such as police officers, paramedics, and firefighters who are required to be among the first persons to respond to an emergency (Morris et al., 2022).

General adaptation syndrome: a three-stage model for explaining the body's response to stressful stimuli originally created by Hans Selye (1936). The three stages include an alarm phase, resistance phase, and exhaustion phase (Selye, 1936; Tonhajzerova & Mestanik, 2017). Over time, Selye changed GAS's name to a stress response theory (Szabo et al., 2012). The GAS is the first model to identify stress as an etiological result of illness (Tan & Yip, 2018).

Homeostasis: an automated process in which physiological systems maintain constancy while adapting to varying external conditions (Billman, 2020).

Posttraumatic stress disorder: A mental health disorder following a traumatic event such as being exposed to death, serious injury or sexual assault. Diagnostic criteria include at least one intrusion symptom such as nightmares, memories, or flashbacks of the event. Negative thoughts or moods occur after the traumatic event including poor memory of the event, feelings of guilt toward the world or the individual, lack of interest in pleasurable activities. The symptoms are not induced from an illicit substance, medication, or other physiological illness (American Psychiatric Association, 2022).

Potentially traumatic event: A direct or indirect exposure to an experience of actual or threatened death, serious injury or sexual violence (Carleton et al., 2019). The most common examples for firefighters include severe transportation collisions, exposure to life threatening natural disasters, exposure to fires or explosions, severe accidents at work, home or as part of a recreational activity, intense human suffering, unexpected accidental death, or traumatic loss of loved one or coworker (Carleton et al., 2019; Knipscheer et al., 2020).

Stress: the biological and psychological reaction to external or internal stimuli which influences a person's affect and behavior (American Psychological Association, n.d.).

Stressor: any event, environmental condition, or circumstance, personally perceived as having an adverse impact on an individual (Halbreich, 2021).

Subjective Unit of Distress Scale (SUDS): an 11 point, one-item, Likert-type scale with a score ranging from 0-10. 10 represents maximum distress where 0 is no distress whatsoever. (D. Kim et al., 2008; Tanner, 2012).

Target 2 Zero: An EMDR protocol designed to tax working memory to the maximum level to assist with processing of disturbing memories. It is a stress reduction modality that includes movement therapy, EMDR, EMDR 2.0, and neuroscience research (Williams et al., 2024).

Target 2 Zero Rapid Stress Reduction protocol: a Target 2 Zero protocol that can be used at any time with the aid of a trained Target 2 Zero mental health clinician or individually without a clinician. The RSR protocol was created to increase efficiency for

first responders, healthcare providers, educators, administrators, high performance athletes, or military personnel (S. Williams, personal communication, June 24, 2024).

Working memory: a theory created from the earlier concept of short-term memory. It can sometimes be used as a replacement for short-term memory. It also implies a mixture of storage and manipulation of information. The original working memory model contains three systems: the visuospatial sketchpad to process visual information, the phonological loop to process auditory information, and the central executive that differentiates between the two systems (Baddeley, 1974, 2012).

Working memory taxation: a theory using WM, which assumes the emotional charge of memories is reduced by keeping the memory in mind while executing a secondary or dual task, creating competition between the two and reducing the emotionality and vividness of the memory (Engelhard et al., 2011; Matthijssen, Brouwers, van Roozendaal, et al., 2021).

Summary

The focus of the study was to investigate the experiences of firefighters using a novel protocol of EMDR called Target 2 Zero RSR. The introductory section described the background of the problem, problem statement, significance of the study, purpose of the study, research questions, methodology, assumptions, limitations, and delimitations to the study. Chapter II provides a comprehensive review of the literature focused on the prevalence of mental illness in the firefighting community, current treatment, and barriers to treatment for firefighters, a theoretical framework explaining the history of stress models and WM and WMT theories, followed by a brief explanation of Target 2 Zero and the Target 2 Zero RSR protocols.

CHAPTER II: REVIEW OF THE LITERATURE

Firefighters consistently experience higher levels of stress because of potentially traumatic events (PTEs; Igboanugo & Mielke, 2023). As a result, firefighters are at increased risk of developing mental health disorders including PTSD (Gulliver et al., 2021) and suicidal ideation (Johnson et al., 2020; Stanley et al., 2017) due to work related stressors. Typical PTSD characteristics include repeated, distressing, and undesirable memories of a stressful event; flashbacks; and intense distress from reminders of the PTE (American Psychiatric Association, 2022).

Harmful mental health consequences related to stress from PTEs influence firefighters, the people they care about, and the community at large. While some treatment is available to firefighters who experience negative consequences of PTEs, how to provide adequate resources to mediate the stress firefighters experience in their jobs is unclear. The purpose of the present qualitative study was to explore the lived experiences of firefighters using Target 2 Zero Rapid Stress Reduction (RSR) protocol in reducing the impact of stressful, traumatic memories.

Target 2 Zero is an enhanced traumatic event reintegration methodology that combines elements of EMDR, EMDR 2.0, and movement therapy (Williams et al., 2024). The Target 2 Zero RSR protocol is an individual or group intervention to reduce the impact of disturbing memories and enhance performance during high-stress situations (S. Williams, personal communication, June 24, 2024). Target 2 Zero RSR can be taught in a 2-hr training course and self-administered or administered by a Target 2 Zero trained clinician when needed to process stress and traumatic memories (S. Williams, personal

communication, June 24, 2024). The Target 2 Zero RSR protocol may be a useful tool for firefighters in reducing stress and processing disturbing memories.

This literature review begins with a discussion of the literature search strategy, next the prevalence of PTSD and suicidality among firefighters due to PTEs and known barriers to treatment, followed by a description of theoretical orientations used for the study. There are two separate theories applied to the study. The first focuses on past and current stress theories through the perspective of the general adaptation syndrome (GAS), homeostasis, allostasis, and allostatic load (AL) theories. The second theoretical framework explains working memory (WM) and working memory taxation (WMT) as a mechanism of action for Target 2 Zero in reducing stress and processing disturbing memories. A summary closes the chapter.

Literature Search Strategy

I used an assortment of search strategies to collect literature for this review, starting with database searches through the University of the Cumberland's online library to identify pertinent peer-reviewed articles, dissertations, and book chapters. Databases searched were EBSCO Host, PubMed Central, CINAHL, PsycINFO, ABI/INFORM, Sage Journals, Science Direct, Frontiers, ProQuest, Google Scholar, and Wiley Online Library. Keywords used to search for literature included the following: firefighters; traumatic stress; PTSD; suicide; first responders; stress; stress theories; chronic stress; general adaptation syndrome; Hans Selye; homeostasis; allostasis; allostatic load; treatment, prevention, and counseling; EMDR; EMDR 2.0; EMDR mechanisms of action; working memory; Alan Baddeley; and Target 2 Zero. Key phrases used in combination contained an amalgamation of the following: firefighters and PTSD,

firefighters and suicide, treatment barriers, allostatic load and firefighters, first responders and mental health issues, self-care for firefighters, EMDR and firefighters, efficacy of EMDR with firefighters, working memory taxation, mechanisms of action EMDR, and models of EMDR. Additionally, articles were reviewed through the EMDR International Association website.

Preferred sources were from scholarly peer-reviewed articles and books. However, databases such as the National Fire Protection Association and U.S. Department of Labor were used as well. Chosen articles were largely published from 2023 to 2017 except for literature referencing theories on stress, general adaptation syndrome, allostasis, allostatic load, origins, theories of EMDR, EMDR mechanisms of action, working memory, and working memory taxation theory. Of note, I found no articles related to Target 2 Zero or the Target to Zero RSR protocol. The information gathered about the Target 2 Zero protocol was from personal communications, unpublished material, or observance of trainings with its developer, Scarlett Williams.

Theoretical Framework

The guiding framework for the present study was a blend of two distinct theories. GAS, the first theoretical model, focuses on past and current stress theories and how firefighters respond to chronic, traumatic stress. GAS was first identified by Hans Selye in 1936, who created the model to represent how the body reacts to nonspecific threats to change, now known as stress (Rochette et al., 2023; Selye, 1936). Selye's model also explained from a physiological perspective what Claude Bernard and Walter B. Cannon were describing as homeostasis (Bernard, 1927; Rochette et al., 2023; Selye, 1973; Tonhajzerova & Mestanik, 2017).

Allostasis and AL distinguishes between stress, homeostatic processes, and non-life-threatening psychosocial stressors such as socioeconomic status, trauma, working environments and health-related behaviors such as tobacco use and the toll these stressors carry on the physical and mental health of individuals (McEwen, 2004; Survarna et al., 2020). AL refers to the cumulative effects of daily stressors leading to disease and impairment (Fava et al., 2019) and is associated with negative mental health disorders such as PTSD (Carbone et al., 2022), suicide (Stacy & Schulkin, 2022), and severe psychiatric disorders requiring emergency care (Juster et al., 2018). Researchers have started to recognize the myriad negative health outcomes associated with firefighting because of chronic stress (Igboanugo et al., 2021). The AL model is the best way to capture the cumulative effects of stressors in the firefighting profession (Igboanugo & Mielke, 2023).

The second theoretical framework describes WM and WMT theory as a mechanism of action for how Target 2 Zero and the RSR protocol operate in processing traumatic memories and reducing stress. According to its developer, Scarlet Williams, Target 2 Zero combines elements of EMDR and EMDR 2.0 (Williams et al., 2024). EMDR and EMDR 2.0 both utilize dual attention stimuli while thinking of a disturbing memory which triggers processing and the memory to be less impactful (Matthijssen, van Schie, et al., 2019; Shapiro, 2018). How dual tasks reduce the disturbance of traumatic memories is explained by WM and WMT theory (Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Schie et al., 2015; Yasar et al., 2023).

WM theory was first introduced by Baddeley and Hitch (1974) to describe the brain's limited capacity to process information in short-term memory storage. The WMT

theory suggests the vividness of emotional memories are reduced for those with PTSD through the competition of secondary or dual tasks such as eye movements or counting (Matthijssen, Brouwers, van Roozendaal, et al., 2021; van den Hout et al., 2010; van den Hout & Englehard, 2012). Because of competition in tasks, disturbing memories are reformulated and moved into long-term storage (Alting van Geusau et al., 2023; Matthijssen, Brouwers, van Roozendaal, et al., 2021).

A logical assumption of WMT model theorizes that more taxation of WM increases processing of disturbing memories. In fact, studies have shown the more complex a task is the better results become in processing disturbing memories (Alting van Geusau et al., 2023; de Voogd & Philips, 2020; van Veen et al., 2015). Target 2 zero uses WMT theory, which impacts short-term memory while thinking about disturbing memories by counting, using rhythmic phrases, moving, and visually tracking of a ball.

Firefighters and Trauma

According to a World Health Organization mental health survey report, 70% of the worldwide population has faced one traumatic event, with 4% experiencing PTSD (Kessler et al., 2017; Serrano-Ibáñez et al., 2023). The frequency of trauma exposure for firefighters is assessed at 91.5%, with approximately one third reporting exposure to three or more traumatic events (Bartlett et al., 2018). Diagnostic testing for firefighters has revealed a prevalence rate of 8%–26% experiencing symptoms of posttraumatic stress depending on the type of assessment (Del Ben et al., 2006; Gulliver et al., 2019). Other studies have produced higher prevalence rates of PTSD for firefighters ranging from 6.5% to 30% (Boffa et al., 2018), and some suggest that one third of all firefighters experience symptoms of PTSD (Tomaka et al., 2017; Zegel et al., 2019). Explanations for

the wide range of prevalence of PTSD among firefighters include the various experiences of firefighters from different departments, and the variability between departments in training firefighters for traumatic events (Jahnke et al., 2016).

Worldwide rates of PTSD within the professional ranks of firefighters vary as well. A Canadian report found 96.4% of firefighters reported responding to at least one critical incident in their career such as exposure to burned bodies, life-threatening events, unsuccessful rescue attempts or the death of a coworker (Nazari et al., 2020). A nationwide study in South Korea estimated PTSD rates at 5.4% (J. E. Kim et al., 2018).

One study indicated firefighters outside of the United States and Canada have a lower rate of PTSD for those who participate in day-to-day firefighting duties (Fraess-Phillips et al., 2017). A major contributor to this discrepancy was a small sample size and lack of appropriate assessment in screening for this disorder in other countries (Fraess-Phillips et al., 2017). While the rates of PTSD were minimal in South Korea, only 15.8% of those with probable PTSD symptoms sought out treatment (J. E. Kim et al., 2018). Firefighters are exposed to copious amounts of traumatic stress, but only a minority of these individuals with symptoms of PTSD seek out treatment.

Symptoms of PTSD are associated with lifetime suicidal ideation and attempts (Bartlett et al., 2018; Boffa et al., 2018; Martin et al., 2017). Studies have shown an association between PTSD symptom severity and suicidal ideation and risk of suicide for firefighters (Boffa et al., 2017; Healy & Vujanovic, 2021; Martin et al., 2017; Stanley et al., 2018). A study of 1,027 firefighters showed that 46.8% endorsed serious suicidal ideation and 15.5% had made a suicide attempt (Stanley et al., 2019). In another study of 5,148 Canadian emergency management personnel, a total of 25.2% of the firefighters in

the sample reported experiencing suicidal ideation and 3.3% endorsed a lifetime suicide attempt (Stanley et al., 2019). In 2017 there was a higher rate of firefighters who died from suicide than in the line of duty (Heyman et al., 2018).

Indeed, suicide rates over the entire career of firefighters reveal a higher prevalence of suicidal ideation, plans, and attempts compared to another susceptible population, Army soldiers (Hom et al., 2018; Nock 2014) and a higher probability of dying by suicide than work-related injuries (Johnson et al., 2020). Data suggests PTSD as a disorder shows a progression from suicidal thoughts to suicidal attempts due to high anxiety and poor impulse control (Nock et al., 2009; Stanley et al., 2019).

Firefighters routinely witness and respond to traumatic events. However, there are certain nuances to the job that make individuals susceptible to suicidal ideation. Shift work and the need to respond to emergencies immediately disrupt sleep patterns for firefighters (Johnson et al., 2020) and insomnia can become a common occurrence (Jeong et al., 2015). Firefighters with higher levels of PTSD symptoms and sleep disturbances experience a greater challenge in managing traumatic and occupational stressors (Healy & Vujanovic, 2021). Sleep disturbance also impairs impulse control, increases hopelessness and fatigue, all risk factors for suicide (Healy & Vujanovic, 2021; Joiner et al., 2005).

Problems with intimate partners increase the risk of suicidality for firefighters (Roberts, 2019). One speculation is firefighters are not available for long periods of time during their shift or are responding to emergency events causing strain and perhaps exacerbating previous conflict in an intimate relationship (Barron, 2010; Roberts, 2019). Firefighters also endorse organizational stressors as a reason for increased suicidality,

whether it is poor work performance reviews, fear of being laid off, conflict with a coworker, or increased work demand (Roberts, 2019). Occupationally, it may be possible firefighters experience higher levels of stress than most other jobs yet are still expected to respond to emergency situations when called into action. Firefighters need more ways to manage stress.

Current Treatment Options and Barriers to Treatment

Treatment options for firefighters consist of CISM, CBT, or brief eclectic psychotherapy (G. S. Anderson et al., 2020; Fraess-Philips et al., 2017; Lanza et al., 2018). Prolonged exposure is endorsed as another form of mental health counseling for firefighters (Adler-Tapia, 2013). EMDR is indicated for treatment of firefighter's traumatic stress (Gilman, 2018). Additionally, the International Association of Fire Fighters (2024) recommends treatment in the form of pharmacological therapy, group, and family therapy, teletherapy, and DBT to resolve symptoms of PTSD and suicidal ideation.

There are several routes to secure these services. CISM is a crisis intervention service offered in fire departments by a firefighter peer and/or mental health professional (Mitchell, 2020). CISM is designed as a bridge between the traumatic event and formal mental health services when applicable (Mitchell, 2020). Referrals for psychotherapy are initiated via several routes. One route is through an employee assistance program (EAP), or through a self-referral outside of an EAP can be made. Perhaps the most challenging route is for a department to refer to a mental health professional on behalf of a firefighter due to issues of privacy and confidentiality (Adler-Tapia, 2013). EAP programs often include mental health generalists in counseling who may not have experience in treating

PTSD. McKenna (2017) reported that one volunteer firefighter terminated pursuing mental health services after he was told the EAP counselor was not experienced in treating trauma.

Barriers abound with these treatment options. Price et al. (2022) discovered that CISM has proven effective in supporting first responders with generalized anxiety disorders and substance use disorders. However, CISM is specifically for crisis intervention, it is not recommended as psychotherapy for symptoms of posttraumatic stress or suicidal thoughts and behaviors and has different goals as a support service for those who experience PTEs (Mitchell, 2020). CISM is designed to be delivered within a short time frame of the traumatic occurrence, usually within 12–72 hr, or sometimes 5–10 days, or perhaps 3–4 weeks if it is an extended disaster situation (Mitchell, 2020). CISM also employs unique interventions such as a critical management briefing, defusing groups, critical incident stress debriefing groups, and psychological first aid (Mitchell, 2020). Therefore, CISM as a crisis intervention tool is efficient, but is not designed for a long-term therapeutic option for processing disturbing memories or managing posttraumatic stress.

Perhaps the largest barrier to seeking out mental health treatment is the stigma of receiving care. Nationally, males represent 91% of career and volunteer firefighters, creating a vacuum of male dominated characteristics (Evarts & Stein, 2022). Because of a male majority, there is camaraderie around heteronormativity and focus on masculine traits such as physical strength and self-reliance (Vujanovic & Tran, 2021).

Firefighting is perhaps one of the foremost male-dominated jobs with characteristics of a White, working-class mentality (Ri, 2019). The values of the

firefighting culture place importance on able-bodied individuals who are athletic and emotionally distant (Perrott, 2019; Ridgeway, 2023). Fire stations and departments across the country convince their workers they are invincible, and nothing will affect them (McKenna, 2017). However, the myth of invincibility for firefighters may be shrinking. Change is occurring due to higher rates of depression, suicide, and PTSD (McKenna, 2017).

Firefighters who experience PTSD and suicidal symptoms fear being ostracized because of a dominant masculine culture (Vujanovic & Tran, 2021). Heavy emotional discussions may be seen as weakness and humor is often deployed to resolve challenging conversations related to stress (Eriksen, 2019; Vujanovic & Tran, 2021). Firefighters identified perceived obstacles and potential stigma as reasons for declining to seek out treatment for PTSD (J. E. Kim et al., 2018). Ultimately, firefighters fear being embarrassed or losing their reputation if they engage in mental health services (Hom et al., 2016; McKenna, 2017). Stigma barriers, such as perceived weakness and concerns about reputation, are larger obstacles to treatment as compared to logistical barriers such as time off, and scheduling with a counselor (Hom et al., 2016; Johnson et al., 2020).

Yet, beyond the stigma of receiving treatment, logistical barriers do exist. Perhaps the most challenging logistical barrier is scheduling for treatment. Gilman (2018) indicates there is an urgency in seeing firefighters professionally because if they are asking for help the individual is likely to present with severe symptomatology. Nevertheless, firefighters are more likely to cancel appointments at the last minute because of work related responsibilities and personal emergency situations (Vujanovic & Tran, 2021).

Logistics also include cost of treatment, receiving time off to go to appointments, and work-related crisis situations hindering the firefighter from receiving treatment (Hom et al., 2016; Vujanovic & Tran, 2021). Logistical limitations may be increased for part-time and volunteer firefighters. Often these employees do not have access to insurance or are unable to pay for copays or deductibles for treatment and need to find affordable routes for mental health care (Lanza et al., 2018).

The evidence is clear, firefighters have a need for mental health services but face many obstacles in receiving these services. The biggest obstacle may be the associated stigma and weakness which goes along with engaging in services. The stress firefighters experience is compounded by various stressors, a topic to be covered in the next session of the review.

General Adaptation Syndrome

Hans Selye was the first to describe a bodily stress response as a warning system for when animals were threatened by external stimuli (Selye, 1936). Selye is also considered the first to identify stress as the possible explanation for nonspecific signs and symptoms of illness (Tan & Yip, 2018). Prior to developing the general adaptation syndrome (GAS) model, Selye was motivated to find why people became sick, rather than understanding the symptoms characterizing certain diseases (Rochette et al., 2023). Selye first published his theory in 1936 when he reported his experimental rats displayed a reaction or syndrome in response to a surgical procedure or noxious substance independent from the procedure or the substance itself. In the article, Selye avoided the term stress, yet described a conventional sign of an organism's response to threats (Szabo et al., 2012).

Selye also submitted the lab rats to harsh environmental conditions such as placing them in cold weather or continuously running then on a treadmill to stay vertical (Tan & Yip, 2018). The physiological reactions to these conditions led the rats to develop enlarged adrenal glands, atrophy of the thymus and lymph nodes, and gastric ulcers, Selye coined the reaction GAS (Szabo et al., 2012). Unopposed to hubris, he would refer to the GAS as the Selye Syndrome (Jackson, 2014). Eventually, Selye transitioned the name of GAS simply to a stress response theory (Szabo et al., 2012).

Today, stress is defined broadly as biological or psychological reaction to an internal or external stimuli which impacts a person's emotions or behaviors (American Psychological Association, n.d.). A stressor is any event, environmental condition, or circumstance, personally perceived as having an adverse impact on an individual (Halbreich, 2021). Selye lamented applying stress as a broad term in the 1940s, preferring to not use it generally but specifically to distinguish it between stressors such as physical or chemical stressors (Szabo et al., 2012). Yet, Selye, was hesitant to use the word stress at all, contemplating words such as tension, or aggression, or distress (Rochette et al., 2023). Initially, the word stress for Selye was considered a flawed adaptation of the organism to an external trigger (Jackson, 2014). However, after 1950, he began to broaden his theory to include the biological relationship between the damage of the organism from external triggers and the defense of this damage through physiological functions (Jackson, 2014).

Three Phases of the General Adaptation Syndrome

The GAS model explains three stages the body experiences when reacting to stress: (a) the alarm reaction, (b) the resistance phase, and (c) the exhaustion phase

(Rogers, 2021; Selye, 1950). The alarm reaction is the initial shock of the stressor when an organism is first off guard (Tan & Yip, 2018). Selye described this initial stage, occurring 6–48 hr after the initial injury, resembling anaphylactic shock in which the body endures drastic changes in temperature, increased salivation, and lachrymation (Selye, 1936). The alarm reaction is the body's arming of defenses to a stressor (Selye, 1973).

In the alarm phase the hypothalamic-pituitary-adrenal (HPA) axis and sympatho-adrenal-medullary systems are activated (Tonhajzerova & Mestanik, 2017). The activation of these two systems is considered the fight or flight response, typically associated with the nervous system (Paravati et al., 2022). The initial or alarm reaction has the potential to be so extreme the creature dies of exposure from the threat within a couple of hours or days (Selye, 1973). In the resistance stage, the organism fights to find balance or homeostasis (Tan & Yip, 2018). Selye indicated in the resistance stage many reactions to the initial stressor are reversed such as gastrointestinal problems, a decrease in stress hormones, and a rebalance of blood sugar (Selye 1950; Selye 1973). During the resistance phase there are neuroendocrine processes stabilizing the organism, allowing for tolerance to the stress to be established (Tonhajzerova & Mestanik, 2017). The resistance phase is characterized as the organism's adjustment or resistance to a certain stressor, with continued exposure to stress, specifically within a period of 1 to 3 months (Selye, 1936; Selye 1973).

Depending on the intensity of the stressor, the organism enters the exhaustion phase (Selye, 1936, 1973). At this point in the stress response, the body is depleted of hormonal resources and a pathological state ensues which can lead to total system failure

(Tonhajzerova & Mestanik, 2017). In the exhaustion phase the organism loses its ability to adapt since the severity and length of the stress is persistent (Selye, 1973). To Selye's surprise, the adaptation or resistance phase does not continue indefinitely, but like an inanimate object, eventual deterioration of the organism occurs (Selye, 1973). Selye believed organisms contain a limited capacity of energy to deal with stress and will begin to break down over time, a process associated with death in the final stage of the GAS theory (Jackson, 2014). The three stages of the GAS model are symbolic of human development where childhood is characterized by poor resistance to external stimuli, adulthood sees the individual adapt and resist threats, and the feebleness of old age is characterized by a decline of adaptability and eventual exhaustion (Selye, 1974).

Eustress and Distress

Despite the simplicity of the model, Selye noticed discrepancies in how external threats are processed by individuals. He admits one person can easily tolerate a stressor such as a physical injury, a disease, drug, or emotional turmoil quite well while another person creates a general adaptation to the stimuli (Selye, 1950). Four decades after his initial publication of the GAS theory, Selye recognized the need to distinguish between positive stress and negative stress (Szabo et al., 2012). Selye's shift in thinking is attributed to Lennart Levi, who reproduced the findings of the International Interdisciplinary Symposium in 1970 focusing on psychosocial stressors and psychosomatic diseases (Levi, 1971).

Hormones may be released from an argument with a spouse or from kissing one's spouse (Levi, 1971; Szabo et al., 2012). Selye agreed and created the terms eustress and distress to describe positive stress and negative stress respectively (Selye, 1974). Eustress

is the type of stress needed to complete a dissertation. Eustress is beneficial rather than harmful (Selye, 1974). Eustress is a positive bodily reaction to a stressor or a type of constructive stress that leads to positive outcomes (Bienertova-Vasku et al., 2020). Distress is harmful or unpleasant stress (Selye, 1974). Variations in stress are vacillating and often it is unknown if an event will be filled with eustress or distress in the moment. A fast-approaching deadline for a work or school assignment is anxiety producing but can lead to positive feelings if completed well. For firefighters it rarely is a specific incident causing distress but instead the cumulative impact of repeated traumatic exposures that lead to disturbing memories and psychological dysfunction (Jahnke et al., 2016).

Physiological Stress Response and Memory

Stress is a common physiological reaction, assisting people in identifying threats in their environment (Murugan et al., 2023). The body responds to stress in a myriad of ways, perhaps the most well-known route is through the HPA axis. Selye adroitly discovered the HPA axis as a mechanism of the body's response to stress (Selye, 1950; Tan & Yip, 2018). For many years, stress has been associated with the activation of the HPA axis, whether the stressor is psychological, traumatic, or inflammatory in nature (Tsigos & Chrousos, 2002). The HPA axis is organized within the sympathetic nervous system, which is divided further into the autonomic nervous system (ANS) and the parasympathetic system (PANS; Alshak & Das, 2023). The ANS administers the fight or flight response while the PANS administers the rest and digest response (Alshak & Das, 2023). When an individual endures stress, the HPA axis releases the stress hormone cortisol to protect the body and increase fuel in the form of blood glucose and metabolize

fat and protein stores (Murugan et al., 2023). The HPA axis also distributes catecholamines such as dopamine, epinephrine, and norepinephrine (Ness & Calabrese, 2016). These chemicals are hormones and neurotransmitters, having the vital function of maintaining balance during a stressful event via the ANS (Paravati et al., 2022). The HPA axis, along with cortisol and its affiliates, collectively known as corticosteroids or glucocorticoids, are considered the body's central response system to stress (E. J. Kim & Kim, 2023). The flight or fight response of the nervous system is a direct result of multiple systems firing catecholamines into the body (Paravati et al., 2022).

Neurologically, stress hormones of cortisol and norepinephrine impair the brain's ability to form accurate memories (Davis et al., 2019). The secretion of cortisol during stress-induced activity impacts the hippocampus which is responsible for short-term, long-term, and contextual memory, or memory associated with time and place (Ness & Calabrese, 2016). Corticosteroids released by the HPA axis bind to neurons that are enriched with corticoid receptors (E. J. Kim & Kim, 2023). Corticosteroids also impair temporary and long-term memory storage. The impairment of the hippocampus reduces the brain's capacity to form memories and encode information vital to discerning threats (Davis et al., 2019). The exhaustion stage of the GAS model is consistent with this type of damage since the brain is unable to adapt to chronic stress.

Davis et al. (2019) confirmed atrophy of neural circuits from chronic stress and discussed the impact of chronic stress on the hippocampus-prefrontal cortex (PFC). The PFC assists individuals in making adaptive, flexible, and goal-oriented decisions (Davis et al., 2019; de Quervain et al., 2017). When the PFC is impaired through chronic stress, rigid, habit-based decisions are executed (Davis et al., 2019; Ness & Calabrese, 2016).

Norepinephrine activates the emotional response system of the brain, called the amygdala, enabling fear based long-term memories to be housed in the hippocampus (Tsigos & Chrousos, 2002). Observable symptoms of PTSD from repeated stress responses are associated with increased activity and dysfunction within the amygdala-hippocampus-PFC neural circuit (Davis et al., 2019; Bremner, 2006). Catecholamines and glucocorticoids consolidate emotionally charged memories as an adaptive function to avoid similar situations in the future (de Quervain et al., 2009).

As a result of chronic stress from PTEs, firefighters may be vulnerable to cognitive dysfunction such as memory loss, inflexible decision making, and influenced by fear-based responses associated with previous traumatic memories while on duty. Disturbing memories are not a result of weakness for firefighters, it is a natural result of chronic stress from repeated PTEs and psychosocial factors. Providing ways for firefighters to deactivate an innate piece of their neurophysiology is a challenge, but not impossible.

Homeostasis

Homeostasis is defined as an automated process in which physiological systems maintain constancy while adapting to varying external conditions (Billman, 2020). The homeostasis model of stress has its nascent beginnings in the ancient world. The Greek physician and philosopher Alcmaeon of Croton in 500 B.C. described health and disease as the balance of opposites (Billman, 2020). The 19th century French physiologist Claude Bernard understood that organisms maintain internal stability despite changes in the external environment (Billman, 2020; Cooper, 2008). Selye (1950) himself referenced Bernard's milieu interieur, in one of his earlier works on the GAS theory. The milieu

interieur describes the constancy of the internal environment such as body temperature and blood glucose concentration to maintain optimum physiological health (Bernard, 1865; Billman, 2020; Sullivan, 1990). Bernard reasoned the internal environment was a requirement and not an outcome of a free and independent life (Billman, 2020).

Bernard's ideas were radical at the time because his hypothesis proposed an internal physiological system was maintaining balance independent of external factors to the system (Billman, 2020).

American physiologist Walter B. Cannon expanded on Bernard's internal environment, articulating the term homeostasis to express the idea of internal conditions changing, rather than remaining static (Billman, 2020; Selye, 1950). Cannon colloquially referred to homeostasis and his book as the "wisdom of the body" to physiologically describe how individuals stabilize automatically in a coordinated manner (Cannon, 1932; Ramsay & Woods, 2014). The central tenet of homeostasis explains how an individual can adapt and thrive despite adverse conditions, going through a flow of continuous adjustments and self-regulations (Billman, 2020). Thus, homeostasis is not only a fundamental property of life but life itself (Billman, 2020; Turner, 2017).

Allostasis

Regardless of its importance, the homeostatic model of stress has been critiqued for its fundamental inconsistencies (McEwen, 2004; Ramsay & Woods, 2014). Thus, allostasis has become a cumulative stress model of biological and psychosocial stressors such as circadian rhythm disruptions, a sedentary lifestyle, tobacco/alcohol use, work-life conflicts, income, and socioeconomic status (Guidi et al., 2021; McEwen, 2004). Sterling and Eyer (1988) were the first researchers to use the term allostasis to describe how

hypertension is impacted by time of day to change the set point of blood pressure. They were looking for answers to why blood pressure rises in stressful situations such as children entering school for the first time or why hypertension is highest among unemployed populations. Further, they were critical of Selye, Bernard, and Cannon's findings for various reasons, noting the homeostatic model is anything but constant (Sterling & Eyer, 1988).

Neuroendocrinologist Bruce McEwen popularized allostasis referring to it as the active process by which the body responds to daily stressors through cortisol, the ANS, metabolic factors, and the immune system to preserve homeostasis (McEwen, 2006; McEwen et al., 2015). The root meaning of allostasis means "achieving stability through change" (McEwen, 2006; Sterling & Eyer, 1988). While homeostasis is regulating individual systems such as blood pressure, pH levels, body temperature, and blood glucose levels; allostasis is managing the regulation of homeostasis (McEwen, 2004). Therefore, the definition of allostasis for the purposes of this study is the capacity of the body to accomplish stability through change; the process that maintains homeostasis and balancing physiological domains which are essential for life (McEwen, 2004).

There are multiple mediators of allostasis. Physiological mediators of catecholamines and glucocorticoids activating the ANS and HPA axis are but one example (McEwen, 2004). There are many other factors, such as early developmental factors, sleep rhythms, lifestyle considerations such as exercise and diet, smoking/drinking habits, and repeated stressful experiences, which can lead to reorganization of hippocampal neurons and memory issues and the suppression of the immune system (McEwen, 2004).

Each unique factor creates differing physiological allostatic states. For example, if an individual is not getting adequate sleep cortisol levels increase causing a hyperglycemic state (Plat et al., 1999; McEwen 2004). Allostatic mediators are activated in two ways: in response to a stressful event or in conjunction with routine housekeeping duties associated with circadian rhythms (McEwen, 2004). All allostatic mediators can have protective or damaging effects depending on the frequency and intensity of stress experienced (McEwen, 2005; Ullman et al., 2019).

Allostatic Load

The AL model extends the theory of allostasis, linking it to the cause and effect of prolonged stress upon individuals (Juster et al., 2018). When allostasis is constantly changing, disease and deterioration of the body occurs, a term described as AL, which is the wear and tear of the body (McEwen, 2006; McEwen & Stellar, 1993; McEwen & Wingfield, 2003). AL is the cumulative impact of chronic stress on the body (Suvarna et al., 2022). AL may be the body's response because of dysfunctional allostasis or from too much stress (McEwen, 2004). Constant strain from the load of allostasis can lead to significant physiological changes (Igbougono, 2022). AL differs from other models of stress since it focuses on multiple biological systems rather than just a few indicators of stress (Carbone et al., 2022).

AL is depicted as the body's inability to stop chronic stress or shut off the stress response creating allostatic overload (Fava et al., 2019; McEwen, 2017). Allostatic overload, synonymous with AL, refers to environmental challenges exceeding the ability of the individual's coping skills (Guidi et al., 2021; Fava et al., 2019). The exhaustion stage of the GAS theory is parallel to the concept of AL since it is at this point the body

begins to show signs of breakdown (Tonhajzerova & Mestanik, 2017). AL is associated with mental health disorders including PTSD (Carbone et al., 2022; Coimbra et al., 2020, Guidi et al., 2021; Malta, 2012) and suicide (Stacy & Schulkin, 2022). Stages of allostasis have been defined as peritraumatic allostasis, short-term posttraumatic allostasis, and chronic allostasis (Malta, 2012).

Clinical criteria for the diagnosis of AL and allostatic overload were operationalized into diagnostic criteria by Guidi et al. (2021). These researchers suggested two separate criteria, which include the presence of an identifiable source of stress or chronic stressor within current life events deemed to exceed the individual's ability to cope with the stressor similar to a DSM diagnosis. The stressor is affiliated with one or more of the following symptoms sets within the past 6 months after the stressor: (a) At least two of the following symptoms, including difficulty falling asleep, restless sleep, lack of energy, sadness, demoralization, dizziness; (b) significant impairment in social or occupational functioning; or (c) significant impairment in mastery of one's environment, or feelings of overwhelm by the demands of daily life.

AL is an important concept for understanding the wide-ranging stress firefighters endure in their profession. AL accounts for the cumulative effects firefighters experience from repeated PTEs, physiological changes such as sleep disruptions, poor cardiovascular fitness, high blood pressure, increased coronary disease, and common occupational stressors such as interpersonal conflict (Fava et al., 2019; McEwen, 2004; Van Hasselt et al., 2022; Yook 2019).

Firefighters are also at higher risk of engaging in destructive behaviors such as substance use (Rajabi et al., 2020) and suicide (Boffa et al., 2018) due to occupational

stressors. Reducing the overall stress firefighters endure on a routine basis is critical to their overall mental wellness and ability to respond to crisis situations appropriately. The Target 2 Zero RSR protocol may be able to reduce the impact of AL.

Working Memory Theory

Target 2 Zero uses a combination of EMDR and EMDR 2.0 protocols (Williams et al., 2024). EMDR is a preferred treatment for PTSD because of its large beneficial effects compared to control groups (Alting van Geusau et al., 2023; Cuijpers et al., 2020; Shapiro, 2018). Despite the efficacy of EMDR as a modality for PTSD, there remains open debate into how it works to resolve stress from traumatic memories (Cuijpers et al., 2020; Landin-Romero et al., 2018; Scelles & Bulnes, 2021). The WM theory has some evidence supporting the mechanism of action for EMDR (Alting van Geusau et al., 2023; Matthijssen, Brouwers, van Roozendaal, et al., 2021). For the purposes of this study the WM theory and WMT theory were used to describe how Target 2 Zero reduces the impact of traumatic memories.

The term WM was first introduced in the 1960s for computational theories and in biological studies (Baddeley, 2002). Atkinson and Shiffrin (1968) were the first psychologists to delineate the term for memory systems. Their initial theory had three main components (Malmberg et al., 2019). The theory provided an explanation for how short-term memory is not just simple storage but instead an active process termed working memory. The Atkinson-Shiffrin theory assumed a simplistic movement of communication between short-term memory and long-term memory (Baddeley, 2002; Malmberg, et al., 2019).

Baddeley and Hitch (1974) proposed a comprehensive theory of WM (Baddeley, 2002). Their original multicomponent WM theory had three dimensions, consisting of the phonological loop controlling auditory information, the visuospatial sketchpad which processed visual and spatial information, and the central executive mode, acting as a representative between these two systems (Baddeley, 2002; Baddeley & Hitch, 1974). The central executive was thought of as a repository of unexplained ideas as to how the WM model operated (Repovs & Baddeley, 2006). The central executive system is responsible for the incorporation and organization of the two verbal and auditory subsystems, informally called slave systems (Baddeley, 2002; Landin-Romero, 2018).

WM can be limited by doing simultaneous tasks to disable short-term memory storage systems (Baddeley, 2012). Tasks such as recalling a sequence of numbers and then adding more numbers to the sequence impair the available capacity of the WM (Baddeley, 2012). The most salient point of the theory, for the present study's purpose, is that WM has restricted ability for holding and manipulating information (Baddeley, 2012, Matthijssen, van Schie, et al., 2019). Attempting to hold attention over two challenging tasks floods the capacity of WM, leading to poorer performance on both, compared to the execution of a single task (Baddeley, 2007).

The WM theory was tested using the eye movements of EMDR on participants without PTSD (Andrade et al., 1997). Andrade et al. (1997) discovered eye movements had an effect in the visuospatial sketchpad of WM but not the phonological loop or the central executive portion of WM. Based on the study results, Andrade et al. (1997) concluded eye movements reduced the vividness and emotional intensity of memories in non-PTSD participants and the same would be true for those who suffer from PTSD.

Baddeley and Andrade (2000) tested the WM theory again to evaluate the vividness of images while executing various tasks interrupting the visuospatial sketchpad and phonological loop systems. Study results showed inhibiting these two systems reduced the vividness of auditory and visual images correspondingly.

Working Memory Taxation Theory

The working memory taxation (WMT) theory assumes there is limited capacity for memories to be stored and retrieved when performing a competing task (Alting van Geusau et al., 2023; Engelhard et al., 2011; Gunter & Bodner, 2008; Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Schie et al., 2015). WMT occurs in EMDR with bilateral stimulation, which distracts and induces dual attention (Wadji et al., 2022). The initial dual attention task for EMDR was following the fingers of the therapist, creating back and forth eye movements for the client (Shapiro, 2018). However, an assortment of alternatives has been used to induce stimulation in EMDR such as visual, auditory, or tactile stimulation (Scelles & Bulnes, 2021).

Various other dual tasks have been tested to tax working memory including spatial tapping (Andrade et al., 1997), counting (Greenwald et al., 2015), drawing (Gunter & Bodner, 2008), focused breathing (van den Hout et al., 2011) and playing the game Tetris (Engelhard et al., 2010). The result of dual attention tasks in the WMT theory renders memories less emotional and vivid (Andrade et al., 1997; Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Veen et al., 2015). Additionally, studies have concluded taxing working memory through eye movements creates emotional detachment from traumatic memories (Landin-Romero et al., 2018; van den Hout, 2013). Once the memory is no longer vivid and emotional it is reconsolidated into long-term

memory storage (Matthijssen, Brouwers, van Roozendaal, et al., 2021) via glucocorticoids (de Quervain et al., 2009).

Adding more memory-taxing tasks may prove to be highly effective in reducing the intensity and vividness of memories (Littel & van Schie, 2019; Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Veen et al., 2015). Working memory taxation functionality has been theorized through the illustration of an inverted U-shape (Englehard et al., 2011). Too little taxation of working memory will not result in enough competition of tasks to reduce the vividness and emotionality of memories, while too much taxation will prevent the individual from holding the disturbing memory in mind (Carter & Farrell, 2023; Englehard et al., 2011).

Littel and van Schie (2019) found no evidence for the U-curve in their results suggesting there is an optimal level of working memory taxation possible (Carter & Farrell, 2023). While the previously mentioned studies suggest WMT's importance in processing disturbing memories, it is unknown what levels of WMT are needed to process such memories. Target 2 Zero uses the WMT model of the brain's limited amount of short-term memory storage through multiple tasks of saying rhythmic phrases out loud, moving, tapping fingers, and tracking a ball in space.

One possible way to increase the effect of WMT may be in matching modality specific taxation to the disturbing memory's modality (Matthijssen, van Schie, et al., 2019). According to the WM model, information is processed and stored briefly in one of two systems; the visuospatial sketchpad or the phonological loop, responsible for visual spatial information or auditory information respectively (Baddeley, 2012; Baddeley & Hitch, 1974; Matthijssen, van Schie, et al., 2019). Matthijssen et al. (2017) asked PTSD

clients to recall two disturbing memories, one mostly visual and the other mostly auditory. The clients were then exposed to two alternating conditions (eye movements, counting out loud) and a placebo condition (staring at a nonmoving dot). Both memories showed a reduction in the emotionality and vividness of the memory with no known modality specific effect. Another study tested reducing auditory memories through various WMT tasks such as eye movements, counting, and the placebo effect of gazing at a nonmoving object, yet no modality specific effect was evidenced (Matthijssen, Heitland, et al., 2019).

On the other hand, it could be hypothesized the central executive is the part of the WM model which lowers vividness and emotionality of memories and any task that amply taxes WM will be effective regardless of the modality (Baddeley, 2002; Baddeley & Hitch, 1974; Gunter & Bodner, 2008; Matthijssen, van Schie, et al., 2019). The central executive is considered a control center for attention, delegating responsibilities to the various other systems of working memory (Baddeley, 1996; Patel & McDowall, 2016). The central executive uses task shifting, monitoring, updating and suppression as methods to control attention (Miyake et al., 2000; Patel & McDowall, 2016). Central executive suppression may account for the reduction in vividness and emotionality of WMT theory (Patel & McDowall, 2016).

Flash Technique

An existing EMDR protocol called the flash technique (FT) was designed to assist clients in the preparation stage of reprocessing memories based upon the WMT theory (Manfield et al., 2017). Within the original EMDR protocol, the client is asked to keep the disturbing memory or target in mind while reprocessing commences (Shapiro, 1989).

The FT is suggested for clients who are highly anxious about remembering past traumatic experiences, or dissociate when thinking about the memories, or are unable to recall the memory for various reasons (Manfield et al., 2017).

The FT has evolved over time and now includes the client mimicking the counselor's thigh taps while blinking their eyes when commanded to flash and recall the traumatic memory briefly (Manfield et al., 2021). The flash technique was proven to be no more efficient in reprocessing memories than the standard EMDR protocol, albeit more pleasant to experience (Brouwers et al., 2021). However, the benefit of the FT is for individuals who experience avoidance of thoughts, feelings, memories, and who dissociate since it does not require actively focusing on the memory compared to standard EMDR (Alting van Geusau et al., 2023). Target 2 Zero, like FT, allows individuals to focus on multiple dual attention tasks, while processing a disturbing memory.

Target 2 Zero

The Target 2 Zero protocol maximizes WMT theory while performing multiple tasks such as moving the body, thinking about a disturbing memory, tapping the forefinger and thumb, tracking the movement of a ball, and reciting rhythmic phrases such as “one-two, one-two” or “tip tap, tip tap” (Williams, 2024, slide 135). The combination of these activities may force the brain to process copious amounts of information while indirectly focusing on the traumatic memory. In an unpublished retrospective case review of Target 2 Zero, Williams suggested that the protocol “is a little like doing CrossFit, knitting, visually focusing on a moving object, playing Jeopardy, and remembering a bothersome to life threatening memory all at the same

time” (Williams, 2023, p.6). In another retrospective study Target 2 Zero is described as affecting memory consolidation through gross motor, fine motor, visual, and verbal systems (Williams et al., 2024).

Target 2 Zero employs several different protocols. One group protocol of Target 2 Zero is called rapid stress reduction (RSR). The RSR protocol is used to reduce stress and boost performance via clearing disturbing memories (S. Williams, personal communication, June 24, 2024). The protocol allows individuals to maintain optimum performance in high stress-situations. The RSR protocol can be used at any time with the aid of a trained Target 2 Zero mental health clinician or individually without a clinician. The RSR protocol is designed to increase efficiency for first responders, healthcare providers, educators, administrators, high performance athletes, or military personnel (S. Williams, personal communication, June 24, 2024).

Summary

Firefighters face a myriad of stressors related to their job including physical, psychological, and occupational stressors. Various stress theories such as the GAS model and homeostasis could describe the strain of the job of firefighting. However, the cumulative effect of stress firefighters experience is best described through allostasis and the AL model (Igboanugo & Mielke, 2023).

The Target 2 Zero RSR protocol may assist firefighters in processing stress and managing traumatic memories. The WMT theory is a model to capture how Target 2 Zero reduces the impact of distressing memories. Researchers have studied various stress theories and WMT theories, but neither of these topics were connected to the profession of firefighting. Target 2 Zero RSR protocol may be a helpful resource in reducing stress

and processing traumatic memories through the taxation of working memory. Currently, there is no research material documenting the effects of the Target 2 Zero protocol and the Target 2 Zero RSR protocol specifically. The present study filled a gap in the literature between finding accessible treatment for firefighters and managing their stress and processing disturbing memories.

CHAPTER III: METHODOLOGY

The aim of this chapter is to provide justification for the research methodology of the interpretive phenomenological analysis (IPA) study focused on firefighters' experiences with the Target 2 Zero Rapid Stress Reduction (RSR) protocol. The Target 2 Zero RSR protocol may be useful in processing disturbing memories and reducing stress. How IPA is germane to the study is further discussed in the following paragraphs. A description of qualitative research, research design, interpretive lens, information on the participants studied, data collection methods, role(s) of the researcher, analysis methods, ethical considerations, and trustworthy measures within the research is discussed further in the chapter.

Two RQs were addressed in the study:

RQ1: What did the firefighters experience when using the Target 2 Zero RSR protocol in processing disturbing memories?

RQ2: How do firefighters who have received the Target 2 Zero RSR protocol experience stress?

Nature of Qualitative Research

I sought to address the problem of firefighters' exposure to PTEs putting them at risk of mental health problems such as PTSD and suicidal ideation. Qualitative methodology supported the implementation of the research purpose, which was to explore the lived experiences of firefighters using Target 2 Zero RSR, a unique modality with components of EMDR, in potentially reducing the impact of traumatic memories and reducing stress. A valid reason to investigate the purpose through a qualitative lens

was to gather participants' experiences, observations, and actions during the research project (Tenny et al., 2022).

Qualitative research is uniquely adept at answering the research questions posed by the study which focused less on numerical data, a quantitative approach, and more on open ended questions such as how and why a phenomenon occurred (Smith & Nizza, 2022; Tenny et al., 2022). Quantitative research occurs in a sterilized, controlled data collection setting (Tenny et al., 2022); while qualitative research is collected in a comfortable, nonjudgmental atmosphere allowing for reflection of experiences without constraint (Smith & Nizza, 2022). Therefore, the informal nature of data collection in qualitative research through semistructured interviews can be completed in the firefighter's natural environment.

Research Design

Several qualitative designs were considered for the present study. For instance, one consideration was a grounded theory study. Grounded theory studies are useful for meticulously describing a phenomenon with the goal of producing a substantive theory (Chun Tie et al., 2019). Since the current study's focus was on exploring participants' experience with the Target 2 Zero RSR protocol, a well-organized, comprehensive theory was not the objective of the research. A case study methodology was considered as well, which is practical for gathering the individual account of a certain phenomenon (Hancock et al., 2021). However, phenomenological studies, particularly IPA studies, are idiographic in nature, representing the focus of a small sample size larger than one person (Smith et al., 2023). Further, for the current study, it was important to parse out the individual accounts of the phenomenon while also identifying themes across the sample

size (Smith et al., 2023). For the previously delineated reasons, an IPA study was the qualitative research methodology of choice.

The main objective of an IPA study is concerned with the detailed examination of an individual's lived experience (Smith et al., 2023). For the present study, the focus was on the specific population of firefighters engaging in the Target 2 Zero RSR protocol for reducing disturbing memories and stress and how they make meaning of the Target 2 Zero RSR training protocol phenomenon in their lives. The detailed account of describing a phenomenon in an IPA study requires three foundations: (a) phenomenology, (b) hermeneutics, and (c) idiography (Smith et al., 2023). Each foundation is pertinent to understanding why IPA is the correct choice for the design of the research.

Phenomenology is involved with understanding the experiences of people in their own lived world (Braun & Clarke, 2021; Smith et al., 2023). IPA also focuses on the personal experience of participants (Braun & Clark, 2021). Since Target 2 Zero RSR is a new protocol, it is important to have a research design allowing for the collection of information through the unique perspective of the firefighters who were experiencing the Target 2 Zero RSR protocol for the first time. Capturing the firefighter's reflective awareness of their experience with the Target 2 Zero RSR protocol was central to the phenomenological examination (Smith & Nizza, 2022).

Hermeneutics refers to the process of interpretation (Smith et al., 2023). A dynamic of IPA research is the double hermeneutic, which leads to multiple interpretations of phenomenon between participants and the researcher (Montague et al., 2020; Smith et al., 2023). For IPA, the investigator draws conclusions from the

participants' experiences, while the participants draw their own conclusions on what is happening to them (Smith & Osborn, 2015).

Additionally, a hermeneutic circle is formed in IPA research. This circle creates a dynamic relationship between individual parts such as words, sentences, and paragraphs, to the interpretive whole account of an experience such as major themes (Montague et al., 2020; Smith et al., 2023). It was necessary for me to analyze the meaning of the firefighters' experiences on a microscopic level, while also interpreting the cumulative experience of the Target 2 Zero RSR protocol for the firefighters' lives.

IPA creates an idiographic stance focusing on a specific person's lived experience (Smith et al., 2023). An idiographic approach allows for a detailed account of an individual's experience before moving into a larger group exploration (Love et al., 2020). Further, idiographic accounts permit meaning making in groups that are small and similar while also highlighting commonalities across the group; another instance of focusing on individual parts and the whole simultaneously (Love et al., 2020; Smith et al., 2023). For the study, understanding each firefighter's experience with the Target 2 Zero RSR protocol, while also connecting themes between the group, was valuable to understanding how the protocol may assist with processing distressing memories and potentially reducing stress.

Currently, there is no research on the experiences of individuals with the Target 2 Zero protocol. A research design dedicated to the accurate lived experience of individuals, a depth of interpretation of experiences, and allowance for specific yet generalized themes to develop is required. IPA research fits the parameters for the stated goals in understanding how individuals responded to the Target 2 Zero RSR protocol.

Interpretive Framework

A social constructivist framework was the foundation for this study. In social constructivism, individuals seek to understand the world they live in through developing subjective inferences of experiences toward objects in their environment (Creswell & Poth, 2018). From a social constructivist lens, people create models and paradigms to make meaning out of experiences and continually test and retest hypotheses through new experiences (Creswell & Poth, 2018). Further, people do not make meaning from nothing, but from a shared philological, experiential, and cognitive framework (Schwandt, 2000).

From the researcher standpoint, a social constructivist generates a concept of how something works through meaning (Creswell & Poth, 2018). Epistemologically, reality is co-constructed in social constructivism between the researcher who constructs a framework of the participant's experience and the participant who lives in their own world interpreting their reality (Boyland, 2019; Creswell & Poth, 2018). An example of the multiple construction of realities was how the firefighters subjectively constructed meaning of stress personally after completing the Target 2 Zero RSR protocol while I observed the meaning of stress through the AL theory and the firefighter's own subjective reality. Further, the firefighters inevitably interpreted memories from PTEs from their own subjective reality after completing the Target 2 Zero protocol while I was interpreting memory reconsolidation from the perspective of the working memory taxation theory and the firefighter's own reports. As the firefighters and I were interpreting the experience of the Target 2 Zero RSR protocol together, multiple realities were being constructed (Creswell & Poth, 2018).

Participants

Research participants were current full-time firefighters over age 18 years who had at least 3 years of firefighting experience either as a volunteer or in a professional capacity. Participants were from several states including Virginia, Idaho, and Arkansas. Participants were screened for the specific criteria needed to qualify for the study.

Inclusion/Exclusion Criteria

The following inclusion criteria was used to determine if participants are eligible for the study.

- Must be 18 years of age or older.
- Participants must have at least 3 years, past or present, firefighting experience either as a volunteer or in part/full-time professional service.
- Participants have completed the Target 2 Zero RSR training.
- Participants have read and agreed to the informed consent document.

Individuals were excluded from the study if they were under age 18, had less than three years of experience in firefighting, had not completed the Target 2 Zero RSR training, or did not consent and sign the informed consent document.

Sampling

Participants were chosen using purposive sampling, specifically a convenience and criterion-based strategy. Initially, participants were recruited based on convenience in the form of referrals by a gatekeeper, following guidance in Palinkas et al. (2015) and Smith and Nizza (2022). The gatekeeper for the participants was the instructor who trained the firefighters in the Target 2 Zero RSR protocol.

The convenience sample was firefighters who had completed the Target 2 Zero RSR training protocol. Based on the convenience sample, participants were further screened using a criterion sampling technique. Participants for the study were recruited based on the eligibility questions previously explained to identify and determine if a firefighter met the necessary requirements for the study. A recruitment letter was sent to firefighters (see Appendix A) who recently participated in a Target 2 Zero RSR training via the instructor gatekeeper.

Sample Size

There is no correct answer to the question of what the appropriate sample size is in IPA research (Smith et al., 2023). Sample size depends on the depth of individual cases and the quality of data produced until saturation is achieved (Smith et al., 2023). IPA has a unique value of committing to a detailed explanation of a phenomenon, therefore, quantity should not be risked over the quality of the participants' experiences (Smith et al., 2023). Six participants were studied regarding their experience of completing the Target 2 Zero RSR training protocol.

Data Collection Methods

Upon completion of the recruitment process and signed informed consent by the participants (see Appendix B), I scheduled individual, semistructured interviews to collect data to ascertain what the research participants experienced through the Target 2 Zero RSR protocol by facilitating conversation and asking open-ended questions, as recommended in Creswell and Poth (2018) and Smith et al. (2023). The semistructured interviews began with basic demographic information about the participants such as name, age, state of residence, ethnicity and years in professional service as a firefighter

(see Appendix C). After the initial questions were asked, the remainder of the interview maintained a balance between focusing on the research topic and allowing for participants to discuss their unique experiences relevant to the Target 2 Zero RSR protocol.

The interviews were recorded via Zoom. Permission to record the interviews was obtained in the informed consent document. Pseudonyms were used to protect the confidentiality of the identifying biographical information, such as names and ages. I created the participants' pseudonyms upon completion of the Zoom interviews. Informed consent extended to de-identifying participant information and anonymizing verbatim extracts in the data to protect confidentiality (Smith & Nizza, 2022). Interview recordings and transcripts were stored digitally on an encrypted, password protected flash drive. All physical notes were secured under lock and key in a filing cabinet.

The IPA approach to data collection is committed to keeping an open mind to suspend preconceptions in terms of interviewing and questions (Smith et al., 2023). Therefore, a specific interview protocol (see Appendix C) was needed to stay within the parameters to study the desired phenomenon. Interview questions were formed to be expansive, nonassumptive, and to maximize the participants' experience of the Target 2 Zero RSR protocol.

Role of the Researcher

As a professional in the field of counseling, I have over 12 years treating various trauma, abuse, and substance use disorders associated with deep psychological wounds. As a counselor in private practice, I am an EMDR-certified counselor specializing in treatment for individual clients with a spectrum of trauma and abuse, sexual and ritual

abuse, interpersonal violence, and trauma from catastrophic events. As a certified EMDR counselor, I am biased to believe EMDR is an effective treatment for PTSD since it reduces stress associated with disturbing memories.

Further, I have been trained in Target 2 Zero and have used this modality on a handful of occasions with my clients. Since I have been trained and have used both EMDR and Target 2 Zero with clients, it may be possible that I was biased toward believing the Target 2 Zero RSR protocol would have a significant positive impact on the firefighters' stress levels and disturbing memories. Conversely, it is possible I harbored negative biases toward firefighters who report neutral or detrimental effects of the Target 2 Zero RSR training protocol on stress levels and the processing of disturbing memories.

A qualitative researcher examines the interactions between themselves and research participants, their humanness is necessary to the collection and analysis of data (Braun & Clarke, 2020; (Smith & Nizza, 2022; Smith et al., 2023). Researcher reflexivity, or my own interpretations, thoughts, and feelings during the process of the study, was addressed to prevent subjective experiences from impacting the results of data collected. However, my own subjectivity is a primary resource in IPA methodology. Further, research reflexivity is an ongoing process, requiring consideration to personal, interpersonal, methodological, and contextual factors of the phenomenological process (Olmos-Vega et al., 2023).

Reflexivity was needed to consider how my biases impacted the objective reality of the study. A step to mitigate and recognize reflexivity in the study was to keep a research journal documenting my preconceived thoughts and anticipated results generated from the study, as recommended in Smith and Nizza (2022) and Peoples

(2021). Maintaining a journal of my subjective experiences as a researcher was considered a form of bracketing to capture, minimize, and suspend my judgments and beliefs about the study. By bracketing preconceived beliefs and values about the research experience, I was equipped to have an open mind and listen more attentively to the participants' experiences, as described in Dörfler & Stierand (2021).

An additional measure to capture reflexivity is to conduct a self-reflexive interview before and after data are collected (Love et al., 2020; Smith & Nizza, 2022). In the present study, the self-reflexive interview prior to the data collection was conducted by a trusted colleague of mine. The colleague determined that my biases were important to the data collection and analysis process, but the biases of the firefighters toward me as a researcher also required consideration as part of the interpretation process. The interview following data collection was also completed by a trusted colleague. Both interviews were to observe if there had been changes of my views or perceptions which could have impacted my interpretation or analysis of the data captured. The self-reflexive interviews also afforded the opportunity to capture any potential changes in my biases or viewpoints of the research and incorporate the changes into the interpretation of the data when appropriate and relevant, as recommended in Love et al. (2022). While these biases were important to capture, there was no impact upon the interpretation process as a result of these interviews.

I had no previous experience with firefighters or the firefighting culture up to this point in my career. As a professional counselor, I work in a female-dominated field that is typically sensitive toward emotions, helping those in need, and adept at having complex conversations with empathy and compassion. The firefighting community is a

male-dominated culture, focused on masculine traits such as physical strength and independence (Vujanovic & Tran, 2021) while placing value on individuals who are physically fit and emotionally distant (Perrott, 2019). Entering a different workplace atmosphere and collecting data from firefighters could have created a culture shock and bias impacting my interpretation of the phenomenological experiences of firefighters. However, appropriate measures were taken, such as journaling and self-reflexive interviews, to understand my reactions to the unique culture of the firefighting community.

Data Analysis Methods

Upon completion of the data collection process, I gathered the data from the semistructured interviews, which were transcribed verbatim. The transcriptions were produced through Zoom's transcription feature. Once the transcriptions were edited and ready to be sent to participants, member checking commenced via emailing the participants to assist in verifying the data collected were accurate. The participants had the option to respond back with changes they would make to the transcription, agree to the transcription, or if they did not respond to the email, it was assumed they agreed with the transcription.

After transcriptions were produced and member checking was completed, I implemented the seven steps of IPA data analysis created by Smith et al. (2023). The first step was reading and rereading the data to allow for a general structure of the interviews to develop. During the rereading of the transcripts, there was a focus on shifting the pattern from generic explanations to specific experiences of the Target 2 Zero RSR training and how it impacted the firefighters. Along with reading and rereading the

printed transcripts, exploratory note taking commenced as descriptions of what the firefighters discussed were summarized. During this step, interpretations began to arise from the transcribed words of the firefighters. At this point, my subjectivity was important to monitor as to maintain focus upon what the firefighters experienced. It was necessary to focus on their own reports, rather than my experience of the interview through the transcriptions. At this stage, notes were loose and disjointed from each other.

The third step was transitioning from initial notes of the firefighters' experiences into larger chunks of data called experiential statements. The primary task here was to transform the unstructured and fragmented notes into concise, condensed, and polished statements. The hermeneutic circle was important to consider here since the individual interviews needed to be interpreted in relation to the whole process as the next step involved creating a bridge and making connections between experiential statements (Smith et al., 2023).

During the fifth step, experiential statements were compiled into strips of paper and scattered across a flat surface. The randomized experiential statements were then clustered into similar patterns based upon the two research questions being addressed through the study. After experiential statements were categorized into similar concepts they were identified as a personal experiential theme (PET) and named appropriately. Once all PETs were identified and named, they were consolidated into a table for further analysis. Each PET was divided into subthemes with the experiential statements connected to the PET along with the page number the experiential statement could be found in the transcript. Additionally, the key phrase or word supporting the PET and

experiential statement was also identified in the table. Step 6 involved repeating the first five steps for the remaining interviews.

The final step was to shift from analysis to synthesis. Rather than focusing on the individual firefighter's experiences, the entire group experience was cross analyzed with the goal of convergence between experiences. The PETs were organized into pieces of paper and categorized into larger blocks of data called group experiential themes (GETs). The GETs also needed to be identified, named, and organized for further analysis to identify the common themes that developed from a group perspective, not just an individual perspective. Through the analysis process, each participant's narrative emerged into the larger group experience of the Target 2 Zero RSR training.

Ethical Considerations

Approval for the study was granted by the University of the Cumberlands Institutional Review Board (IRB), approval number 0724-128264 (Appendix D). The recruitment letter, informed consent, and interview questions were approved by IRB prior to recruiting, scheduling, and conducting interviews for participants. A modification to the initial IRB was granted 7 weeks after to allow for personal recruitment of firefighters and to thank participants with a \$30 gift card in recognition of their time (Appendix E). The study was conducted in alignment with the American Counseling Association's (ACA, 2014) ethical principles of autonomy, nonmaleficence, beneficence, justice, fidelity, and veracity toward participants involved in the research.

The informed consent document was consistent with ACA (2014) mandates explaining the purpose, potential risks and benefits of the study, and allowance for withdrawal from the study at any point (Standards G.2.a & G.2.d). If participants decided

to drop out for any reason, their request was granted without question or coercion. Consistent with ACA (2014) standard of confidentiality, procedures were implemented to maintain participant confidentiality (Standard G.2.d). The participants were able to schedule their own interviews with the researcher via a QR code generated on the recruitment letter. The interviews were recorded on the Zoom platform and transferred to a flash drive. The encrypted flash drive device was accessed through a password-protected computer only accessible to me. All research notes were accessible to me only and stored in a metal filing cabinet under lock and key.

After the initial data were collected, I informed the participants in the study of the plan to process, code and synthesize the information compiled in the interviews, in keeping with Standard G.2.g. (ACA, 2014). In agreement with ACA (2014) mandates, the identity of participants was disguised from the original data collected (Standard G.4.d). The participants' information was de-identified with pseudonyms. Additionally, any extended direct quotes was anonymized to protect participants from being identified/

Trustworthiness Measures

Trustworthiness plays an important role in the assessment of qualitative research procedures (Adler, 2022). Trustworthiness and rigor are terms applied to qualitative studies in lieu of scientific nomenclature such as reliability and validity (Adler, 2022; Lincoln & Guba, 1985, Smith et al., 2023). In IPA research, the terms validity and quality are used to express study trustworthiness (Smith et al., 2023). The four trustworthiness measures considered in the present study were credibility, transferability, dependability, and confirmability.

For the study, credibility was obtained through member checking. Member checking is a validity check to test the integrity of qualitative research by sending the data back to the participants to ensure the themes and statements were represented accurately (Creswell & Baez, 2021). Upon completion of data analysis of the interviews, the transcripts were emailed to all participants in the study within 1–2 weeks of the interview. Along with the transcripts, the major themes of the interviews were identified and emailed to each participant within a variable amount of time depending upon when the analysis concluded. All participants were invited to respond back with any feedback or clarification of their statements. If participants failed to respond back, it was assumed they agreed with the transcription and themes identified. All six participants either agreed or failed to respond to these emails.

Transferability in qualitative research was challenging because of the inherent inability to replicate a study (Stahl & King, 2020). However, this can be mitigated by providing a thick, rich description of the environment and participants studied (Tenny et al., 2022). To provide a thick, rich description, I began to analyze the raw data quickly after its collection to capture the contextual components of the interviews such as the ambience and nonverbal cues, following guidance in Creswell and Poth (2018). The thick, rich description of the data provided detailed accounts of the setting as to allow for readers to draw conclusions and interpretations of the data themselves (Tenny et al., 2022).

IPA studies describe thick, rich data as attentive and skilled writing (Smith et al., 2023). The purpose of the attentive and skilled writing process was to produce a link between the firefighters' experiences and key concepts presented in the data. To

accomplish such an outcome requires multiple attempts at drafts to create the best possible narrative to reflect the data analyzed (Peoples, 2021; Smith et al., 2023). I wrote several drafts of the data collected to synthesize and blend direct quotes, the ambience of the data, and the major themes generated.

Dependability was accomplished through an independent audit, following guidance in Peoples (2021) and Smith et al. (2023). There were a spectrum of options available for an audit, from a full-scale external audit of the data by the researcher to a committee member conducting audits of smaller levels of data such as the first and third interviews and comparing the notes and themes generated in the analysis (Smith et al., 2023). For this study, I used the second option and had my methodologist complete a mini audit of at least one interview to verify that the data were transcribed and coded appropriately. The dissertation methodologist audited the first interview transcript agreeing with my initial exploratory notes.

Confirmability was established through reflexive journal writing of my subjective experiences throughout the research process. The journaling process consisted of a structured routine of reviewing the summary of the last data analysis session, crafting a plan, and capturing thoughts to start a new analysis session, a summary of insights from the session of data analysis, questions, and issues to address moving forward, and finally an appraisal of the session recording thoughts, feelings and behaviors (Goldspink & Engward, 2019).

The double hermeneutic of IPA analysis created a unique way of interpreting data. IPA is not interested in making the right assumptions about the data being presented, but focused on presenting observations, thoughts and conclusions back into the

data being analyzed (Goldspink & Engward, 2019). Therefore, reflexivity was necessary to the goals of data analysis. Finally, a self-reflexive interview before and after analysis of data was conducted with a trusted colleague committee to gain deeper understanding of the researcher's subjectivity. Reflexivity in qualitative research was a critical piece of ensuring trustworthiness of the study and validating results of the data.

Limitations and Delimitations

Several limitations were of note for the study. Perhaps the most significant limitation was the lack of extant research on the Target 2 Zero and Target 2 Zero RSR protocols. The current study is the foundational investigation into the Target 2 Zero protocol generally and the Target 2 Zero RSR protocol specifically. Therefore, the study results are not transferable to previous research. Since IPA research examines experiences on an idiographic scale (Smith & Nizza, 2022), it was important to proceed with caution in overgeneralizing inferences made in this study. IPA research, in contrast to grounded theory, does not seek to create a substantial theory for a specific phenomenon (Chun Tie et al., 2019). Therefore, collecting the experiences of the firefighters was an important first step, but more qualitative and quantitative research is needed to understand if and how Target 2 Zero RSR protocol helps reduce stress and process disturbing memories from PTEs for firefighters and other first responders.

Because of the requirement to use a convenience and criterion-based sampling strategy there was not the possibility for a purposeful random selection of participants which would have increased the credibility of results (Palinkas et al., 2015). With the requirement to find participants who are firefighters and have trained in the Target 2 Zero RSR training, a purposeful random sample strategy was not appropriate for the study.

Additionally, interviews and follow-up interviews were conducted via Zoom software. Because of the inability to perform in-person interviews, some data was lost such as nonverbal nuances and expressions.

However, while not having in-person contact was a limitation of data collection; utilizing teleconference software to perform the study was a delimiter for the researcher to gain access to participants since he lived in a different part of the country than most of the participants interviewed. The eligibility criteria was a delimiting factor to the study too. Particularly the necessary criteria of studying firefighters who have trained in the Target 2 Zero protocol who were willing to participate in answering questions about their experience of the training.

Summary

The goal of Chapter III was to provide a comprehensive overview of how the research methodology attempted to answer the two research questions. The research design, participants, data collection, and data analysis methods used were surveyed to understand how these procedures answered these questions. I used IPA to provide a full explanation of how firefighters experience the Target 2 Zero RSR protocol in their own language. All participants interviewed provided valuable insights into how the Target 2 Zero RSR protocol may be helpful in processing disturbing memories and experiencing stress. Chapter IV focuses on the interpretations and results of the data collected.

CHAPTER IV: STUDY RESULTS

The problem addressed in this study was that firefighters have increased exposure to potentially traumatic experiences (PTEs) in their occupation, which puts them at elevated risk of harmful mental health conditions compared to the general population, specifically PTSD and suicidal thoughts and behaviors (Gulliver et al., 2021; Healy & Vujanovic, 2021; Stanley et al., 2019). The study purpose was to explore the lived experiences of firefighters who were trained to use the Target 2 Zero rapid stress reduction (RSR) protocol to potentially reduce the impact of traumatic memories and stress. I examined the lived experiences of six firefighters who met specific inclusion criteria. Participants were firefighters with at least 3 years of fire service as a professional or volunteer fire fighter, 18 years of age or older, and agreed to the informed consent document. Additionally, the firefighters were required to participate in the Target 2 Zero RSR training with a Target 2 Zero RSR trainer.

Because of the lack of extant published research on the Target 2 Zero RSR protocol and Target 2 Zero in general, it was unknown what the firefighters would encounter, therefore, open exploration of the participant's experience was required throughout the data collection process. The research questions focused on the experiences of the firefighters who went through the Target 2 Zero RSR protocol and were as follows:

RQ1: What did the firefighters experience when using the Target 2 Zero RSR protocol in processing disturbing memories?

RQ2: How do firefighters who have received the Target 2 Zero RSR protocol experience stress?

I examined the lived experiences of six individuals through semistructured interviews. Recruiting between six to 10 participants was the goal; the final study sample was six as it proved challenging to secure more than this because of the inclusion criteria. The six participants varied in age, experience, geographic location, gender, and ethnicity.

The following chapter is a summary of the data collection and analysis approaches used in the study. The flow of the data analysis plan is illustrated, along with biographical information of the participants studied, when they were trained and in what format they trained in the Target 2 Zero RSR protocol, and examples of the data analysis procedures leading to the four themes discovered. The flow of the data analysis is illustrated along with a summary and examples of the exploratory notes which produced the personal themes experienced by each individual participant and how the four group experiential themes of the research were ultimately formulated. Subsequently, the chapter demonstrates how each participant's experience with the Target 2 Zero RSR protocol applies to the primary and secondary research questions. Verbatim quotes from participants are referenced throughout the chapter to support study conclusions.

Data Analysis

Though I used Smith et al.'s (2023) guidelines for IPA data analysis in general, I developed my own process for organizing and analyzing the data collected. After securing the interview audio and video recordings and transcription of the interview from the Zoom teleconference software, I began writing the reflexive journal entry shortly after to capture all relevant details and the researcher's own thoughts and reactions to the interview. The reflexive journal was a way to describe participant nuances such as

lighting, background noises, and other environmental factors associated with the interview impacting the interpretation of the data collected.

Next, I de-identified the participant names from the transcription using a sequential format of P1, P2, P3, based on when the interviews were completed. These numbers were subsequently changed to pseudonyms to facilitate the discussion of findings in Chapter 4. The transcriptions were then organized for clarity and included nonverbal communication patterns such as long pauses, sighs, and laughing from the video recordings. When completed, the transcriptions were emailed to the participants for member checking to ascertain their approval and accuracy of the interview script. There were no participant responses indicating an inaccuracy or need for clarification.

I read each participant's transcript while watching the interview video and making initial notes to highlight important sections of the interview. I then copied the transcript into a document with three columns. The first column was for experiential statements, the middle column was for the transcript, and the third was for exploratory notes. The initial transcription document of notes and highlights served as a reference guide for marking initial exploratory notes, written on a printed copy in the exploratory notes section of the three-column interview document.

I then entered my written notes into the three-column document and entered the personal experiential statements into the first column of the three-column document. Approximately 40 experiential statements were created per participant interview except for the last one, which produced over 60 experiential statements.

Next, I compiled the experiential statements into a new document and printed it. I used this document to create themes and subthemes by cutting the experiential statements

into strips of paper and then strategically organizing them by hand. The themes created from the experiential statements transitioned into the personal experiential statements (PETs), which I named, organized, supplemented with quotes from the participant transcriptions and placed in a new document. Once the PETs were formed for each participant, I emailed them to each participant to confirm the accuracy of the themes. A few participants responded with their agreement of the analysis, while several others did not respond, indicating their consent of the analysis.

The next step was to merge all PETs, with supporting subthemes and participant quotes, into a new document. I then cut the PETs into individual pieces of paper and organized them into larger themes or group experiential themes (GETs). The GETs are what comprise the four themes discussed further in the chapter. Table 1 is a summary of the data analysis steps.

Table 1*Data Analysis Procedure*

Step	Description
Reflexive journal entry	The entries documented my thoughts and reactions to the interview. The entries helped identify how I interpreted the data by capturing background noises, affect, and other environmental factors associated with the interview that impacted interpretation of the data collected.
Transcription	I obtained the Zoom transcription file and then edited it for clarity and organizational purposes. Nonverbal nuances such as laughing, sighing, or long pauses were noted. I edited the transcription while listening and watching the audio and video versions interchangeably.
Reading and watching	I read the transcript while watching the interview video, making notes along the way.
Exploratory notes	I made initial notes, comments of interest, and questions from each participant transcription.
Experiential statements	The exploratory notes were merged into larger organized themes. Each interview had roughly 40 experiential statements, except for the last interview.
Personal experiential statements	The experiential statements were organized into more defined themes with the corresponding quotes from the interviews.
Group experiential statements	After each previous step was completed for the six interviews, the personal experiential statements were organized into themes experienced by the majority of the six participants.

Participant Demographics

Demographic data for the six study participants included age, state of residence, gender, race, and years of firefighting experience. The participants' ages ranged from 37 to 53 years, with a median age of 45 years. Three participants resided in the state of Virginia, two resided in Idaho, and one resided in Arkansas. Four participants identified as cisgender male, and two identified as cisgender female. One participant identified as African American, while the remaining five identified as White. Four participants had

over 20 years of professional experience in firefighting, the other two participants had 15 and 17 years, respectively.

More than half of the participants interviewed were either professionally trained or assisted with their coworkers in a mental health capacity. Levi, Sarah, Ben, and Joe reported having trained in mental health services, or were a part of their fire station's peer support team. To maintain confidentiality, their positions and titles held are not included.

The participants were not screened for disturbing memories or traumatic stress from potentially traumatic experiences (PTEs) prior to the interviews. However, in the inclusion criteria, it was necessary to have at least 3 years' experience as a firefighter. The researcher assumed participants with at least three years' experience in firefighting would produce instances of traumatic stress or past disturbing memories from firefighting duties. All participants were assigned numbers (P1, P2, P3) to protect their identities and provide confidentiality, which were later changed to pseudonyms to facilitate the findings discussion. The following table displays the participants' basic biographical and vocational information.

Table 2*Participant Demographics*

Participant	Age (in years)	Gender	Race/ethnicity	State of residence	Total years of service
Levi	44	Male	White	Virginia	20
Rebecca	51	Female	African American	Virginia	21
Sarah	53	Female	White	Virginia	26
Ben	38	Male	White	Idaho	17
Joe	37	Male	White	Idaho	15
Aaron	47	Male	White	Arkansas	24

The participant's training date and elapsed time between the interviews, in addition to the Target 2 Zero RSR training format were distinctive elements of the research. The first Target 2 Zero RSR training occurred on June 5, 2024, and included several groups of first responders, including firefighters. The participant interviews associated with the June 2024 training were completed between 7-13 weeks after completion of the initial training. Because of low recruitment for interviews for the first training, a second training was conducted on September 4, 2024. Because of poor marketing and response, the September 4, 2024, training elicited only one participant firefighter who completed the training online. A third Target 2 Zero training was completed online with firefighters from Idaho Falls, Idaho, on September 26, 2024. The researcher did not participate in any of the three training courses. Participant training dates, interview dates, and modality of training are shown in Table 3.

Table 3*Training Dates, Interview Dates, and Training Formats*

Participant	Training date	Interview date	Training format
Levi	6-5-2024	7-27-2024	In person
Rebecca	6-5-2024	8-12-2024	In person
Sarah	6-5-2024	8-30-2024	In person
Ben	9-26-2024	10-04-2024	Online
Joe	9-26-2024	10-07-2024	Online
Aaron	9-4-2024	10-9-2024	Online

Findings

Data analysis resulted in PETs for each participant. Upon completion of the sixth and final PET, all were organized into larger chunks of data (GETs). The themes that emerged during data analysis were the following: (a) ambivalence toward efficacy and implementation of Target 2 Zero RSR, (b) Target 2 Zero RSR is strange or silly, (c) established trust is necessary to heal, and (d) compartmentalization helps with disturbing memories and stress. I next discuss each theme.

Theme 1: Ambivalence Toward Efficacy and Implementation of Target 2 Zero RSR

The first major theme that emerged from the data was the ambivalence participants described with their experience of the Target 2 Zero RSR protocol on processing disturbing memories and reducing stress. Participants used phrases such as “I’m sort of on the fence,” “The jury’s still out,” and “I didn’t know when to do it.” Two participants witnessed others in their training cohort processing disturbing memories while having little or no experience processing memories themselves. Their discrepancy in experience versus observations of others led to uncertainty on whether the Target 2

Zero RSR protocol is effective in processing disturbing memories and stress. Sarah reflected on her experience with the training by saying,

I can see where the process might work. I don't know if other people had a result.

I don't think I did in our class that we did. We had a firefighter who started breaking down, like she ... Obviously, things were percolating up.

Sarah is a firefighter with 26 years of experience and has experience in working in mental health systems, "percolating up" refers to disturbing memories or stress becoming a part of conscious awareness. She witnessed the Target 2 Zero RSR protocol have an impact on another trainee in significant ways, despite not having experienced a change herself with her own disturbing memories by stating, "I'm sort of on the fence. I'm not saying it doesn't work. I just didn't. It didn't seem to work for me."

Levi echoed a similar sentiment to Sarah. He reported a small change in the memory he was reprocessing, yet diminished the severity of the memory by asserting it was not "dragging me down." He also observed a fellow trainee who was processing a disturbing memory in his cohort and explained it as

And it obviously stimulated some deep thoughts with another audience, you know, person the audience because ... She broke down really hard. She's like, 'Should I keep ... this is really crushing me should I keep going?' or you know, and they're like, 'Let's just try another round.'

Levi described witnessing the trainee needing to take a break from the group cohort training but returned in a "very positive light." I interpreted this statement as the trainee came back to the training stabilized and at peace. While Levi did not report his memory as disturbing in the training, he witnessed others who were processing their own

disturbing memories become stabilized through the Target 2 Zero RSR training. He observed others around him who shared their testimony of the training as, “Wow that, that helped, that helped.” So, while Levi received a small benefit with his own memory and Sarah personally did not, they both observed and received reports from others who were gaining benefit from the training protocol leading to ambivalence towards the efficacy of the training for themselves.

Rebecca was more direct in her assessment of the protocol. She described herself as not having any disturbing memories at the time of the Target 2 Zero RSR training and very little stress, therefore, there was no impact on either of these parts of her mental health. However, she was appreciative of having another mental health resource or “tool” if she were to need it in the future and said, “I can’t honestly say that it would be something that I use or will use, or something that helps. But it’s nice to have it in my toolbox.” Rebecca acknowledged the Target 2 Zero RSR training is another resource, but not one she will use, indicating doubt in the efficacy of it as a tool.

Another aspect of ambivalence for several participants who found the training to be beneficial was implementation of the Target 2 Zero RSR protocol. Ben was certain the training was useful for stress reduction but unsure he will use it, stating, “I think it’s gonna be a benefit. I don’t know how big of an impact it’s going to have. The jury’s still out on that one.” Ben described receiving significant benefit in his stress levels from the training and has no doubt the Target 2 Zero RSR works for stress. However, a major concern for him was the indecision of how to use it. His uncertainty is captured in the following statement: “Yeah, eh, am I going to remember to deploy? Am I gonna

remember to use this tool? Am I going to feel comfortable using this tool in ... at the station or after a difficult call?"

Despite Ben's belief in Target 2 Zero RSR helping him reduce his stress levels, he also recognized it may lead to feelings of discomfort if he were to use it with other coworkers at the fire station and said, "Is it gonna become something that I'm comfortable with doing in more open space? Because there's always a level of comfortability with anything new." Ben's ambivalence to using Target 2 Zero RSR related to how comfortable he is with coworkers' perceptions of him while on the job.

Aaron believed the protocol was helpful. He was not concerned about discomfort but confused and uncertain of the timing of when to use the protocol and said, "You know, I didn't know when to do it. So, what's the recommended dosage, if you will.. Is it post event? Is it daily? Is it during the event?" Aaron aptly stated that it is not something that can be done "all the time," so he was curious as to when the Target 2 Zero RSR protocol will have the most impact. Further he asked, "When you're feeling high stress? When you're feeling depressed? When you're feeling ... When you're starting to feel depression?" Aaron was hopeful about the training but focused on the precise timing of when to implement the Target 2 Zero RSR protocol.

In contrast to the other five participants, Joe received benefit and continued to perform the Target 2 Zero RSR protocol on a routine basis after the training. He reported, "I've been trying to implement it into my life." He has also found benefit from the training in managing his stress and anger in his life by recognizing, "It's helped me to step off, breathe for a little bit, tap out and, ah, work through my anger so that I can move on to... Not come out aggressive and angry, I guess you could say." For Joe, his anger

was an indicator of high stress, and using the Target 2 Zero RSR protocol allowed him to distinguish when he needs to intervene upon his stress levels. He has been able to implement the training to reduce his stress levels efficiently without uncertainty as to whether it works or when to use it.

While three participants reported ambivalence on whether the Target 2 Zero RSR protocol efficaciously manages disturbing memories and stress levels, two participants who did receive benefit were unsure of implementation of the protocol. The uncertainty led to the participants not engaging in the Target 2 Zero RSR after the training was completed. Joe was the only participant who had been using the training to effect on a consistent basis after training. Table 4 shows quotes supporting Theme 1 from all six participants.

Table 4*Quotes Supporting Theme 1*

Participant	Quote
Levi	<p>“But being that I didn’t have anything that was really dragging me down or you know my ... my ... and now, I mean, there was a lot of other people that were around me and they were, you know, their testimony was, ‘Wow that, that helped, that helped.’”</p> <p>“And it obviously stimulated some deep thoughts with another audience person because she broke down really hard. She’s like, ‘Should I keep ... this is really crushing me should I keep going?’ and they’re like, ‘Let’s just try another round.’”</p>
Rebecca	<p>“After it was over, I can’t necessarily say even though it is a tool that it would be a tool that I would use.”</p>
Sarah	<p>“I can see where the process might work. I don’t know if other people had a result. I don’t think I did. In our class that we did, we had a firefighter who started breaking down, like she um ... Obviously, things were percolating up.”</p> <p>“I’m sort of on the fence. I’m not saying it doesn’t work. I just didn’t ... It didn’t seem to work for me.”</p>
Ben	<p>“I think it’s gonna be a benefit. I don’t know how big of an impact it’s going to have. The jury’s still out on that one.”</p> <p>“Yeah, eh, am I going to remember to deploy? Am I gonna remember to use this tool? Am I going to feel comfortable using this tool at the station or after a difficult call? Is it gonna become something that I’m comfortable with doing in more open spaces? Because there’s always a level of comfortability with anything new.”</p>
Joe	<p>“I’ve been trying to implement it into my life. It’s It’s helped me to step off, breathe for a little bit, tap out and, ah, work through my anger so that I can move on to ... Not come out aggressive and angry, I guess you could say.”</p>
Aaron	<p>“I didn’t know when to do it. So, what’s the recommended dosage, if you will? Is it post event? Is it daily, is it during the event?”</p>

Theme 2: Target 2 Zero RSR Protocol Is Strange or Silly

The second major theme that emerged from the data was the participants' experience of the Target 2 Zero RSR protocol being strange or silly. Participants used words like weird, awkward, odd, silly, and novel to describe their encounter with the protocol. For those who did the training in person (Levi, Rebecca, Sarah) the strangeness of the protocol was in the context of performing the protocol in a group setting. For those who completed the training online (Ben and Aaron), they could imagine performing the Target 2 Zero RSR protocol in person would be challenging and unhelpful. Joe did not comment on the strangeness of the protocol. Levi was skeptical yet inquisitive of the protocol when it was first introduced:

I think it was mixed emotions. At one point I was like, 'Really, we're doing this?', you know, and on the same token I was kind of challenged by, 'Is it really this easy for the mind to reprogram these?'

Levi's surprise by the abnormality of the protocol was apparent, but he was also fascinated to think disturbing memories could be reprocessed in such an easy maneuver. He described his experience further as "And so I did it for like one round, really focused in the second round, I was like, man, I feel fine. This is weird."

For Levi, there was a juxtaposition of strangeness and interest to the protocol. He stated that he would use it in the future, but also recognizes the protocol is irrational: "I think, man, if that come up, if that came up again, even something as benign as just a repetitive thought. I would ... I think it's silly [laughed]. Full disclosure." Despite his belief that the Target 2 Zero RSR protocol was odd, he would at least attempt to use it for disturbing memories in the future.

For Sarah, the oddity of the protocol was completing it in a group format as a woman. She stated, “Doing it in a group was odd because as a woman, you know, we’re running, and everything’s shaken.” The awkwardness impeded Sarah from engaging in the training since she was around a group of her colleagues. She explained the strangeness of the protocol as, “But it’s just odd, you know, you’re in a group of people who are your peers. And then doing that.” For Sarah the strangeness of the protocol was having to perform aerobic like exercises in front of her peers without proper notice. She envisioned reducing the oddness by verbalizing the warning of “Hey, you’re going to be jogging in place” and to be prepared with appropriate athletic wear.

Rebecca did not voice the same discomfort with the Target 2 Zero RSR protocol. But her initial comment when asked about her experience was, “It was my first experience with it, and my first time hearing about it. I found it to be interesting.” Interpretively, the word “interesting” and its delivery indicated to me that the protocol was different to Rebecca. Both women in this study, Rebecca and Sarah, reported no change on their disturbing memories. Sarah reported very little stress reduction from the training. Furthermore, neither endorsed a desire to continue using the protocol for future disturbing memories or stressors.

For Ben and Aaron, who completed the training online, there was less concern over the strangeness during the training but instead an acknowledgment that it would be silly to engage with the training in a live group setting. When prompted, Ben confirmed completing the training live as problematic by stating, “There would have been more skepticism with it, just because we’re in front of our peers.” Again, the awkwardness of

the Target 2 Zero RSR protocol would have hindered Ben from fully participating in a live training, as he stated,

And we're dancing around like a bunch of, like a bunch of monkeys or a bunch of idiots. Had it been in person, I think there would have been some resistance to it. Versus the online, where all I could see was the lady doing the instruction and myself. I couldn't see the rest of the group.

Ben experienced the most significant reduction in his stress levels from all the participants interviewed. However, his participation in the Target 2 Zero RSR protocol was in a private, online setting. As he indicated, if he had completed a live training in front of his peers, his experience of significant stress reduction may have been inhibited.

Similarly, Aaron admitted the protocol was strange, yet he personally was unaffected by this characteristic of the Target 2 Zero RSR protocol. However, he did confirm that if it was introduced in a live group setting, the protocol would be met by other firefighters with discomfort due to awkwardness. Aaron explained it this way, recalling his training with Scarlett Williams:

Me feeling silly, I'm over my ego. I'm like, 'Oh, yeah, Scarlett, I can jump up and do this right now and feel fine.' But doing it in a professional setting without background information may make people feel uncomfortable or silly.

Aaron cited how the Target 2 Zero RSR protocol is silly but was unconcerned how he perceives himself. He experienced a positive physical change to the disturbing memory he was working on while using the Target 2 Zero RSR protocol. Because of his positive response to processing his own disturbing memory, he considered it a valuable tool to introduce in a crisis. He pondered how this could happen by stating,

You can introduce it in a high intensity meeting, actually. You can say, “Hey, this is super high intensity we got. We’re losing structures and houses and evacuations. And I’d like to start out. Just take 1 minute.” [Laughed.] It may feel silly, but it’ll get people moving and maybe lower that intensity a little bit, and maybe it’ll work.

Aaron’s laugh in this excerpt signified absurdity in introducing the Target 2 Zero RSR protocol to a group of firefighters who are facing a critical incident. Nevertheless, Aaron endorsed the Target 2 Zero RSR protocol to firefighters in such a crisis. Table 5 summarizes participant quotes supporting Theme 2.

Table 5*Quotes Supporting Theme 2*

Participant	Quote
Levi	<p>“I think it was mixed emotions. At one point I was like, ‘Really, we’re doing this?’, you know, and on the same token I was kind of, um, challenged by, ‘Is it really this easy for the mind to reprogram these?’”</p> <p>“And so I did it for like, one round, really focused in the second round, I was like, man, I feel fine. This is, this is weird.”</p> <p>“I think, man, if that come up, if that came up again, even something as benign as just a repetitive thought. I would, I would, I think it’s silly [laughed]. Full disclosure.”</p>
Rebecca	<p>“So it was my (coughs) first experience with it, and my first time hearing about it. Uhm. I... found it to be interesting...”</p>
Sarah	<p>“Doing it in a group was odd because as a woman, you know, we’re running, and everything’s shaken.”</p> <p>“But it’s just odd, you know, you’re, you’re, you’re in a group of people who are your peers. And then doing that, you know.”</p>
Ben	<p>“There would have been, there would have been more skepticism with it, just because, we’re in front of our peers.”</p> <p>“And we’re dancing around like a bunch of...like a bunch of monkeys or a bunch of idiots. Had it been in person, I think there would have been some resistance to it. Versus the online, where all I could see was the, the lady doing the instruction, and myself. I couldn’t see the rest of the group.”</p>
Aaron	<p>“Me feeling silly, I’m over my ego. I’m like, “Oh, yeah, Scarlett, I can jump up and do this right now and feel fine,” but doing it in a professional setting without the background information may make people feel uncomfortable or silly.”</p> <p>"You can introduce it in a high, tense, uh, high intensity meeting actually. You can say, “Hey, this is super, uhm, high intensity we got. We’re losing structures and houses and evacuations. And I’d like to start out. Just take one minute.” (Laughs) It may. It may feel silly, but it’ll get people moving and, and maybe lower that intensity a little bit, and maybe it’ll work.”</p>

Theme 3: Establishing Trust Is Necessary to Healing

The third theme to develop from the study was the importance of trust in healing from disturbing memories and stress. Since the Target 2 Zero RSR protocol is unique, trust in the training is foundational to believing it can help. A few words to identify this theme were trust and open, while words like heartfelt and passionate created confidence between the participants and the trainer. But when trust was not established between a participant and the trainer, the participant referred to the Target 2 Zero RSR training as suspect.

Aaron reported “some pretty horrific things” in his earlier career as a firefighter and that the trauma from these incidents were “shoved under the rug” when he tried to receive help. Trust for Aaron was necessary to his healing process with the Target 2 Zero RSR protocol since he had experienced a CISM team in the past that had not earned the trust of his team despite having clinical expertise. This thought is exemplified by the following statement:

They’ve never been a part of a tight-knit team that goes in a high-risk environment and succeeds. So they, to me, have the knowledge and skills maybe to help emotionally work through some things, but the trust isn’t developed with those individuals because they’re not a part of us.

Aaron’s need for trust was more valuable than professional knowledge for healing from disturbing memories and stress management. Further, Aaron recognized that mental health peer supports who have firefighting experience are more trustworthy than merely mental health professionals when referencing a colleague who moved into a peer support role by explaining:

I actually knew him professionally before we jumped some fires for him and responded to some things. ... They brought him in as a peer support and gave him some of the skills and tricks of the trade to get people to open up and talk and to identify when we need to elevate things to a, to a more doctor or professional realm when he's interacting with those, uhm, situations. So, that's been good, because now we can openly talk about our experiences, and we're talking to somebody who's trusted from the field.

Aaron prefers to experience healing from disturbing memories and the stress of his job by someone who has performed the job of firefighting. However, the trainer for the Target 2 Zero RSR protocol did not have this experience and was still able to earn his trust. Aaron describes how that was accomplished as, "And I think that's what I liked about it that, and she's not getting paid for the interview. So, it felt heartfelt and she believed in that exercise, and, that's what kind of sold it to me, if you will". Aaron was able to trust the trainer because of her authenticity and enthusiasm toward the protocol in addition to her willingness to help others voluntarily.

Levi had a comparable experience as Aaron in building trust with the trainer and stated, "You could tell she was very passionate about it. Of course, the whole cadre there, seemed uh, to be very passionate about it as well." Levi's experience of enthusiasm and excitement from the trainer created trust for him in the Target 2 Zero protocol to help process disturbing memories. Notably, both Levi and Aaron experienced the greatest positive impact on their disturbing memories through the training.

Ben gained trust from the trainer when she used the words EMDR. He described having familiarity and success with EMDR in the past. Therefore, he was able to build

trust toward the Target 2 Zero RSR protocol because of similarities between the two modalities. He stated, “After having done it, seeing that it relies on some of those same components as the EMDR does. It was very easy for me to say, ‘Yeah, this is gonna have benefit for me and for others.’” Ben benefited from EMDR in the past, therefore, he could also trust the Target 2 Zero RSR protocol for he and the firefighters he supports.

Conversely, trust was not developed for Sarah, and she had brought up her concerns toward the trainer. As a firefighter and a professional with mental health training she had questions about safety procedures, risk factors, and those who may have adverse reactions to the Target 2 Zero RSR training. Sarah describes her concerns, “Because one of my questions was to her was, ‘What are the rule outs? Contraindications, medically for this treatment?’ She said, ‘Oh, there’s none.’” With her knowledge of mental health treatment, Sarah was alarmed. She further explained,

But I was like, “Well, that doesn’t make sense.” I said, “You’re having people run.” You know, “What about people who have eye issues?”... But she was like, “Oh no, this always works.” I’m like, “There’s no such ... nothing is always.”

With the lack of clarification on safety protocols, Sarah was unable to trust the trainer and the Target 2 Zero RSR protocol, stating, “I just, a part of me, lost respect for her as a clinician after she was like, ‘No, no, it works.’” Further she stated, “I just got really suspect about it”. Sarah’s expertise in the mental health field led her to be skeptical of the Target 2 Zero RSR protocol because safety procedures were not fully discussed in the training she participated in. While Sarah was able to experience a slight reduction in her stress levels she reported no difference in her disturbing memories. Table 6 is a summary of the participant quotes supporting Theme 3.

Table 6*Quotes Supporting Theme 3*

Participant	Quote
Levi	“You could tell she was very passionate about it. Of course, the whole cadre there, seemed uh, to be very passionate about it as well.”
Sarah	<p>“Because one of my questions was to her was, ‘What are the rule outs? Contraindications, medically for this treatment?’ She said. ‘Oh, there’s none.’ But I was like, ‘Well, that doesn’t make sense’, I said, ‘You’re having people run.’ . . . You know, ‘What about people who have eye issues?’ . . . But she was like, ‘Oh no, this always works’, I’m like, and, ‘There’s no such.. nothing is always.’”</p> <p>“I just, a part of me, lost respect for her as a clinician after she was like, ‘No, no, it works’. Further she stated, “I just got really suspect about it. I’m like, ‘you’re just gonna do stuff to people and just let them go?’”</p>
Ben	“After having done it, seeing that it relies on some of those same components as the EMDR does. It was very easy for me to, to say, ‘Yeah, this is gonna have benefit for me and for others.’”
Aaron	<p>“They’ve never been a part of a tight knit team that goes in a high-risk environment and succeeds. So, uhm, they, to me, they have the, the knowledge and skills maybe to help emotionally work through some things, but the trust isn’t developed with those individuals because they’re not a part of us.”</p> <p>“I actually knew him professionally before, uh we jumped some fires for him and, and responded to some things, and uhm, they brought him in as a peer support and gave him some of the skills and tricks of the trade, to get people to open up and talk and to identify.. Identify when we need to elevate things to a, to a more doctor or professional realm when he’s interacting with those, uhm, situations. So, that’s been good, because now we can openly talk about our experiences, and we’re talking to somebody who’s trusted from the field.”</p> <p>“And I think that’s what I liked about it that, and she’s not getting paid for the interview. So, it felt heartfelt and she believed in that exercise, and, that’s what kind of sold it to me, if you will.”</p>

Theme 4: Compartmentalization Helps With Disturbing Memories and Stress

The final theme emerging from the data was that compartmentalization helps with processing disturbing memories and stress. Words and phrases used to represent this theme were compartmentalize, categorizing, “box it up,” and “blow off.” Four participants (Rebecca, Ben, Joe, Aaron) articulated how compartmentalization is something they use to manage disturbing memories and stress. Aaron reported accessing his disturbing memory using a compartment while participating in the Target 2 Zero RSR protocol.

Compartmentalization presented as a method for Rebecca when discussing how she controls disturbing memories and stress in her life as a firefighter. Rebecca’s 20-year career in fire service has created opportunities for her to manage PTEs on the job. When asked about some of her techniques, she said,

I think it’s because I can compartmentalize really well, and I meditate quite a bit, and I give myself 5 min to deal with the situation. And I’ll say to myself, ‘You get 5 min,’ and if you, if it’s something that I can’t change, let’s put it that way.

Rebecca observes she may need longer than 5 min to process a PTE but does not go beyond an hour. Her process consists of contemplation and self-examination about the incident. “I sit there, I reflect, I go back. I review. ‘How could I have changed it?’ ‘What did I learn from it?’ And then, if I can’t do anything differently, then I move on from it.” Rebecca has found a successful cognitive skill to process her disturbing memories and stress from critical incidents. If she truly believes there is nothing else she could have done differently about the incident, she stows it away mentally. Rebecca reported the

least impact on her disturbing memories and stress from the Target 2 Zero RSR protocol because she had very little at the time of her training.

Similarly, Ben did not have a disturbing memory at the time of his training but did endorse an incident that was problematic after the training. When asked if he used the Target 2 Zero RSR protocol for the incident, he stated, “I hadn’t even thought to try, or that it was being a large stress in my life until I sat and thought about this morning.” Ben compartmentalized the memory until it started to surface into his consciousness again. He reported that he does not have time to think about the disturbing memories or stressors in his life because there are many people and things vying for his attention:

I don’t think about the stress in my life, and I just try to tick boxes off and say,

“Okay, I got all these things I gotta do. I got all these things stressing out my life.

I gotta deal with them. Let’s take care of them.” And unless it’s in the forefront of my mind, it’s not the priority.

Compartmentalization is an element of prioritization for Ben. If managing stress and disturbing memories from his job does not fit into his schedule, then he compartmentalizes until he is able to act on them. Ben experienced a significant reduction in his stress from the Target 2 Zero RSR protocol, likely due to the fact he made it a priority in his training.

Joe also found the Target 2 Zero RSR protocol helpful with his stress levels. Comparable to Ben he reported no impact on disturbing memories because he did not have any at the time of his training. Further, he endorsed a tendency to compartmentalize when asked about his disturbing memories at the time of the training, “No, it’s pretty rare that I have that stuff that bothers me too much”. Continuing his thought, Joe went on to

say, “I’m just...Sometimes I wonder I’ve gone the opposite direction and just kind of blow off more than I should”. When directly asked if he compartmentalizes Joe affirmed, “A lot of days. Yeah”. Additionally, I asked if he ever interacts with the compartments he creates for disturbing memories, to which he responded, “Very rarely. I try to live off the fact of there’s only so much I control in my life”. This response echoes Rebecca since they both compartmentalize disturbing memories into what they can and cannot control. Joe, who has 15 years of professional service, considers whether his compartmentalization is a problem, but he also communicates a skill he has been able to utilize for disturbing memories and stress throughout his career.

Finally, Aaron offered insights into how he uses compartmentalization in his life for stress and was able to access his disturbing memory through a compartment in the Target 2 Zero RSR training. He responded to how he manages stress going into the training as “Well, I think men do a really good job of categorizing things. I think we put things in boxes and storm away, and when we need em’, we bring them out”. Furthermore, he endorses compartmentalization as a skill to balance between work and his personal life by offering, “Probably how I deal with stress. That it’s like kind of survival mode at times where you box it up and put it away and then deal with the next thing, or deal with your loved ones”. In this quote, Aaron verifies Ben’s idea of compartmentalization as a function of prioritization. The phrase “survival mode” represents how Aaron is unable to manage disturbing memories and stress from his job and engage with his personal life simultaneously. Thus, placing disturbing memories and stress in a compartment is functional to maintaining a work/life balance.

Next, Aaron comments on the procedure of accessing his memory bank in the Target 2 Zero RSR training. When prompted by the trainer in the Target 2 Zero RSR training he reports, “It’s like, ‘How do you feel about the incident?’ Well, it was 10-15 years ago, and I’ve kind of boxed it up and put it away.” However, Aaron was able to unlock the compartment and manage the memory by stating, “And, I did mentally go there. Take it out. And I had that emotional response. And then, like, I’ve explained after the training it, went away.” Aaron did not have a cognitive or mental shift in his experience of the disturbing memory he was working on, but did notice an emotional and physical shift in how he was feeling after the training. Despite this shift Aaron contends the levels of his stress and disturbing memories were still low at the completion of the training:

But I think my stress level and my...What do you call it? Disturbance thoughts?

Kind of remain the same. It’s still pretty low you know? You bring it into your consciousness, and then do the exercise and put it back. Nothing. Nothing seemed to change necessarily in that realm. Mentally. Now, physically, I had that change.

Aaron clearly articulates how compartmentalization is useful for his traumatic memories, stress, and prioritization of tasks in his life. But he also has awareness of how he can manipulate memories and stress to work on them consciously when prompted and afforded the time to do so. Table 7 shows the participant quotes supporting Theme 4.

Table 7

Quotes Supporting Theme 4

Participant	Quote
Rebecca	<p>“I think it’s because I can compartmentalize really well, and I meditate quite a bit, and I give myself 5 min to deal with the situation. And I’ll say to myself, ‘You get 5 min,’ and if you, if it’s something that I can’t change, let’s put it that way.”</p> <p>“I sit there, I reflect, I go back. I review. ‘How could I have changed it? ‘What did I learn from it?’ And then, if I can’t do anything differently, then I move on from it.”</p>
Ben	<p>“I hadn’t even thought to try, or that it was being a large stress in my life until I sat and thought about this morning.”</p> <p>“I don’t think about the stress in my life, and I just try to tick boxes off and say, ‘Okay, I got all these things I gotta do. I got all these things stressing out my life. I gotta deal with them.”</p> <p>“Let’s take care of them’. And unless it’s in the forefront of my mind. It’s, uh, not. It’s not the priority.”</p>
Joe	<p>“No, it’s, it’s pretty rare that I have that stuff that bothers me too much. Ahm. I’m just.. Sometimes I wonder I’ve gone the opposite direction and just kind of blow off more than I should.”</p> <p>I: “So, it’s a possibility that you, uhm, compartmentalize really well?” Joe: “A lot of days. Yeah.” I: “Alright. And do those compartments ever come out, or, you know, express themselves?” Joe: “Very rarely. I try to live off the fact of there’s only so much I control in my life.”</p>
Aaron	<p>“Well, I think men do a really good job of categorizing things. I think we put things in boxes and storm away, and when we need em’, we bring them out.”</p> <p>“Probably how I deal with stress. That it’s like kind of survival mode at times where you box it up and put it away and then deal with the next thing, or deal with your loved ones.”</p> <p>“It’s like, ‘How do you feel about the incident?’ Well, it was 10-15 years ago, and I’ve kind of boxed it up and put it away.”</p> <p>“But I think my stress level and my...What do you call it? Disturbance thoughts? Kind of remain the same. It’s still pretty low you know? You bring it into your consciousness, and then do the exercise and put it back. Nothing. Nothing seemed to change necessarily in that realm. Mentally. Now, physically, I had that change.”</p>

The two research questions to the study were the following:

RQ1: What did the firefighters experience when using the Target 2 Zero RSR protocol in processing disturbing memories?

RQ1: How do firefighters who have received the Target 2 Zero RSR protocol experience stress?

Table 8 is a concise summary of the participants' responses to the RQs in the current study along with key emergent themes. This table serves as a synopsis of the participants' responses to the research questions. The previous section references the in-depth analysis of these themes. The subjective unit of disturbance scale (SUDS) refers to the 11 point, one-item, Likert-type scale with a score ranging from 0-10. 10 represents maximum distress where 0 is no distress whatsoever. (D. Kim et al., 2008; Tanner, 2012).

Table 8*Summary of Participant Responses*

Participant	RQ 1	RQ 2	Major themes
Levi	Moved from a 2 to a 0 during training on the SUDS scale. Mild decrease.	Stress was reduced to 0. Some benefit to the training.	Ambivalent if it helps. Protocol is strange. Established trust in training.
Rebecca	Did not have a disturbing memory in the training. No impact.	Stress levels were the same. It was about a 1 before and after protocol on the SUDS scale.	Ambivalent if it helps. Protocol is strange. Experience of compartmentalization of disturbing memories.
Sarah	Disturbing memory was the same after the protocol. No impact.	Stress levels reduced mildly. Stress levels went from 4 to a 3 on the SUDS scale.	Ambivalent if it helps. Protocol is strange in a group. Did not establish trust in training.
Ben	Did not have a disturbing memory in the training. No impact.	Significantly reduced stress from 8 to a 3 on the SUDS scale.	Ambivalent on how to use the protocol. It would be strange to perform in a group. Established trust because of past experiences.
Joe	Did not have a disturbing memory in the training. No impact.	Reported stress levels stay at a "4 to 5" on average but does not spike to a 7 or 8 on the SUDs scale after training.	Did not experience ambivalence toward protocol. Experience of compartmentalization of disturbing memories.
Aaron	Experienced a physical change, not a mental one. Reported the memory stayed the same but felt better.	Stress levels reduced mildly. Stress levels went from 4 to 3 on the SUDS scale.	Ambivalent on how to use protocol. Protocol is strange. Established trust with the trainer. Experience of compartmentalization of disturbing memories

Summary

Throughout Chapter IV, the research results were discussed with the four major themes reviewed. The themes for the firefighter's experience with the Target 2 Zero RSR protocol was ambivalence toward efficacy and implementation of the protocol, the experience of strangeness and silliness toward the protocol, the establishment of trust as a condition for healing disturbing memories and stress, and compartmentalization as a function of managing disturbing memories.

In Chapter V, the four themes and the interpretation of the results are noted. The implications of the results for firefighters, first responders, the profession of counseling, and counselor education will be discussed. Further, the limitations of the current study are stated, possible next steps for research regarding the Target 2 Zero RSR protocol for firefighters and others are envisioned. The chapter ends with my personal reflections as the study researcher and a conclusion.

CHAPTER V: DISCUSSION

The purpose of the current interpretative phenomenological analysis (IPA) study was to explore the lived experiences of firefighters who used the Target 2 Zero Rapid Stress Reduction (RSR) protocol in potentially reducing the impact of disturbing memories and stress. The problem addressed in the study was firefighters have increased exposure to potentially traumatic experiences (PTEs) in their occupation which puts them at elevated risk of harmful mental health conditions compared to the general population, specifically PTSD and risk of suicidal thoughts and behaviors (Gulliver et al., 2021; Healy & Vujanovic, 2021; Stanley et al., 2019). High amounts of stress from PTEs adversely affect the formation and retrieval of memories (Ashbaugh et al., 2018; Brewin, 2014; Davis et al., 2019; McEwen et al., 2015; Ness & Calbrese, 2016), which could have substantial negative implications for other aspects of firefighters' lives.

The justification to investigate the purpose through a qualitative lens was to gather participants' experiences, observations, and actions during the study (Tenny et al., 2022). IPA was the qualitative design of choice for the study to examine the detailed account of the firefighters' experience with the Target 2 Zero RSR protocol. IPA creates an idiographic position focused on a specific person's experience while also accounting for the experience of a larger group (Love et al., 2020; Smith et al., 2023). The methodology was created to capture each individual's experience while connecting themes that occurred between the group.

The study used a social constructivist framework as the foundation of the research. In social constructivism reality is built between the researcher who constructs a framework of the participant's experience and the participant who lives in their own

world interpreting their own reality (Boyland, 2019; Creswell & Poth, 2018). The researcher interpreted the participants' meaning of processing disturbing memories and stress through the theoretical orientations of the AL theory and working memory taxation (WMT) theories respectively.

The research participants were current full-time firefighters over the age of 18 who had at least three years of firefighting experience professionally. Participants completed the Target 2 Zero RSR training prior to being considered for the study. The study recruited and interviewed six participants regarding their experience with the Target 2 Zero protocol.

The goal for the researcher was not to find a new training modality for exposure to PTEs endured by firefighters, but to openly explore the firefighters' experiences with the Target 2 Zero RSR protocol. Due to the openness of exploration by the researcher toward the participants, the four themes generated reflect the essence of the firefighters' experience with the Target 2 Zero RSR protocol. The researcher interviewed the six participants, facilitating semistructured interviews utilizing open-ended questions to generate data regarding their experience with the Target 2 Zero RSR protocol.

The interviews were transcribed and analyzed applying a seven-step process for analyzing IPA data (Smith et al., 2023; Smith & Nizza, 2022). The main questions of the study are, "What did the firefighters experience when using the Target 2 Zero RSR protocol in processing disturbing memories?" and "How do firefighters, who have received the Target 2 Zero RSR protocol experience stress?" Four themes emerged from the data as follows: (1) ambivalence toward efficacy and implementation of Target 2 Zero RSR, (2) the Target 2 Zero RSR protocol is strange or silly, (3) established trust is

necessary to heal, and (4) compartmentalization helps with disturbing memories and stress. The following chapter will explain the researcher's interpretation of the findings, implications for the professions of firefighting, counseling and counselor education, limitations to the study, recommendations for future research, and the researcher's personal reflections, concluding with final thoughts about the study.

Interpretation of Findings

In addition to generalizability being somewhat antithetical to qualitative research, the current study's findings are not transferable to other studies on the Target 2 Zero RSR protocol because there is no extant research on the training modality, except for a retrospective document submitted for publication (Williams et al., 2024). Regardless of the lack of current published research on the protocol, the four themes of the study require interpretation and understanding of what the firefighters experienced with the Target 2 Zero RSR protocol.

Several factors influenced the interpretation of the data which are important to articulate prior to moving forward. The researcher bias is a major factor influencing the emergence of the themes. To the best of his ability, the researcher attempted to mitigate bias through careful reflexive journaling while analyzing the data and completing pre and post data collection interviews regarding his bias.

A second factor with interpreting the data was the general vagueness of the firefighters when talking about disturbing memories or traumatic stress. The phrase "PTSD" was mentioned once in the interviews. The word "trauma" in relation to the participant's personal experience was mentioned once. The phrase "disturbing memories" by the researcher was often diminished or ignored entirely. Throughout the participant

interviews euphemisms were used for disturbing memories and traumatic stress such as, “long term problem”, “that stuff”, or “I’m glad we’re researching this”. The inability of the participants to express their internal thoughts and emotions was a challenge to the interpretive process but was also verification of several themes that developed in the study, notably themes three and four.

Participant demographics played a role in the interpretative process. Four out of six participants in the study were advocates of mental health tools for firefighters either because of their position or because they were a part of their department’s peer support team. Because of their focus on new mental health tools for their peers and themselves, these participants were likely tolerant of new interventions. Also, each participant in the study reported 15 years or more of fire service. The participants in the study have applied a number of tools in their careers to this point in managing traumatic stress. The Target 2 Zero RSR protocol may have had a larger impact on less experienced firefighters who have less tools to manage symptoms of disturbing memories and stress.

The section will discuss the two research questions and how the four themes answer the research questions of the study. Each theme answers the research question in its own unique way. The interpretation of the findings, when applicable, will also include the two theoretical frameworks and how these theories either aligned or failed to align with the themes. Discussion of current relevant research will also be included in this section to envision possibilities for different theoretical orientations that may apply to the themes generated from the study.

Research Question 1

Overall, only two participants (Levi and Aaron) experienced an effect when using the Target 2 Zero RSR protocol for memories from the past. Levi did not report his memory as disturbing. Aaron did not report a mental change, but a physical difference in the memory he was processing in the training. Each theme will be discussed in consideration of research question one and how it relates to current scholarly literature.

Theme 1: Ambivalence Toward Efficiency and Implementation of Target 2 Zero RSR Protocol

Despite Levi experiencing relief from his memory, he was still uncertain if the protocol would work for a highly disturbing memory in the future. But he did mention a desire to use the protocol for something as benign as a repetitive thought. Levi's ambivalence and confusion are a result of experiencing a reduction in the emotionality of his own memory, which he did not describe as disturbing, and the observations of a trainee who was processing a highly distressing memory in his training module.

Aaron found the protocol to be effective at reducing his disturbing memory but was unsure of how to utilize the training in the future. Aaron's ambivalence over how to use the training for his disturbing memories was a function of timing. He was uncertain if Target 2 Zero was best right after an incident, or an hour after an incident, or perhaps 2 weeks after an incident. The question of when to use the training is difficult to answer at

this point because of the novelty of the protocol. However, early intervention for EMDR is considered two to three months after an incident (Shapiro & Maxfield, 2019).

Theme 2: Target 2 Zero RSR Protocol Is Strange or Silly

Levi experienced the largest relief from his memory through the training. Levi reported the memory was not “disturbing” but more of an “injustice” when thinking about it. However, he did have an emotional connection expressed as a “real bummer” when describing the incident.

Levi’s experience of a reduction in emotionality of his memory could be accounted for by the WMT theory. As a reminder, the WMT theory assumes there is limited capacity for memories to be stored and retrieved when performing a competing task (Alting van Geusau et al., 2023; Engelhard et al., 2011; Gunter & Bodner, 2008; Matthijssen, Brouwers, van Roozendaal, et al., 2021; van Schie et al., 2015). Levi reported using the Target 2 Zero RSR training for “one round, really focused in the second round, I was like, man, I feel fine. This is weird.” Levi’s focus while performing the dual competing tasks of the Target 2 Zero RSR protocol allowed him to reduce the emotionality of his memory in the training.

Additionally, there is a case to be made for a strange and different therapy to influence disturbing memories. While odd and unconventional, visual schema displacement therapy is proven to be superior to eye movement desensitization reprocessing (EMDR) therapy in reducing the emotionality of memories (Matthijssen, Brouwers, van den Hout, et al., 2021). Visual schema displacement therapy, like the Target 2 Zero RSR protocol, includes multiple tactics such as using eye movements, blinking, sighing, and watching a clock held by a therapist and the therapist saying

“Whoosh” (Matthijssen, Brouwers, van den Hout, et al., 2021). What may account for the superior results of this protocol is arousal induction. Studies have pointed to increased arousal such as increased heartbeat show a reduction in the vividness of memories (Littel et al., 2017) and could boost memory reconsolidation (A. K. Anderson et al., 2006; Matthijssen, Brouwers, van den Hout, et al., 2021).

The Target 2 Zero RSR protocol increases the objective arousal of participants by marching or jogging in place and swinging arms back and forth. It could increase the internal arousal of participants by creating tension in using a novel and strange protocol. Perhaps for Levi and Aaron they tolerated the internal arousal of a strange protocol long enough to receive benefit from the training.

There is some evidence to indicate the element of surprise also destabilizes memories making them more malleable to change (Sinclair & Barense, 2018). The element of surprise, or prediction error, creates memory interference. Interference enables memories to be modified by adding new content (Sinclair & Barense, 2018). Further, increased prediction error creates increased modification of memories. The research concludes the element of surprise as a key indicator of memory reconsolidation that allows multimodal memories to be altered (Sinclair & Barense, 2018). The element of surprise was verbalized in some of the participant interviews. Several firefighters believed they were going to be learning about a new mental health technique, not participating in the technique itself. The element of surprise and tolerating a new and strange protocol could account for the relief Levi and Aaron had with the memories they were working on in the training.

Theme 3: Establishing Trust Is Necessary to Healing

Levi and Aaron clearly experienced a positive change in the memories they were working on through the training. Rebecca, Ben, and Joe did not report a disturbing memory during the training. Sarah did have a disturbing memory she identified in the Target 2 Zero RSR training but reported no difference in the emotional charge of the memory. One answer is a lack of trust established with the trainer and the training in general. For Sarah, who has many decades of firefighter service and providing mental health services, was acutely aware all interventions have risks and benefits associated with treatment. The trainer's perceived lack of informed consent toward her group led Sarah to put a barrier up between her and the intervention. One reason for Sarah's concern was her observation of another trainee becoming visibly upset because of the Target 2 Zero training. After this event, Sarah stated,

So, I was just a little bit scared myself. I'm like, "If this is, if this really does work, what if some of my past trauma does come up? I don't want to start crying in front of my coworkers.

Firefighters need to display strength. But if firefighters show any form of weakness, they worry their peers do not trust them or their decision-making skills while on an incident (Gilman, 2018). Sarah was distraught in thinking about processing her trauma in front of her peers. An event that would have been very vulnerable for a firefighter who needs to maintain a semblance of strength in front of her coworkers.

Theme 4: Compartmentalization Helps With Disturbing Memories and Stress

Aaron did not report a mental shift in his memory but a physical shift after the training was completed. The WMT theory does not account for the physical shift Aaron

experienced through the training. However, there are several theoretical options to consider when explaining his physical shift.

Somatic experiencing (SE) is a theory that holds promise for the treatment of PTSD (Kuhfuß et al., 2021; Levine, 1997). SE may better explain the stress reduction results of the Target 2 Zero protocol. SE is a body-oriented therapeutic modality directing participants to attend to internal visceral (interception) and musculoskeletal (proprioception) sensations rather than cognitive or emotional experiences of trauma (Kuhfuß et al., 2021). SE theorizes emotional states of fear and helplessness are calmed through interoceptive and proprioceptive physical awareness (Kuhfuß et al., 2021; Levine, 2010). The theory of SE could account for the experience of Aaron noticing a physical shift, but not a mental or emotional shift when using the Target 2 Zero RSR protocol.

Polyvagal theory is another possible theory to help explain Aaron's reaction to the training. Developed by Stephen Porges, polyvagal theory is an evolutionary informed theory to describe how the brain and the body can be reshaped to experience safety and connection environmentally (Dana, 2020; Porges 2022). The three organizing principles of polyvagal theory are coregulation, autonomic hierarchy, and neuroception (Dana, 2020). Neuroception refers to bodily awareness that creates homeostatic health, growth, and restoration (Porges, 2022).

Both SE and polyvagal theory have a primary treatment objective of sympathetic nervous system regulation. SE attempts to regulate through body awareness (Levine, 2010), while polyvagal theory induces co-regulation between client and therapist (Dana,

2020). Aaron's increased awareness of his emotions toward the disturbing memory from the past may have led to healing components of that memory.

Research Question 2

Five participants experienced a positive reduction in their stress when using the Target 2 Zero RSR protocol. Rebecca was the outlier who did not report any change in her stress levels from the training. Most of the participants (Levi, Sarah, Joe & Aaron) reported a slight reduction in their SUDS score, while Ben reported a significant reduction in his SUDS score from an eight to a three because of the training. With this general overview in mind, the individual themes will be discussed as it relates to research question two.

Theme 1: Ambivalence Toward Efficacy and Implementation of Target 2 Zero RSR

Many participants were ambivalent about when and how to use the training for stress in the future. Apart from Joe, the other five participants of the study were not actively using the protocol. Joe represented an outlier in the study since he continuously used the Target 2 Zero RSR protocol after completing the training. Several considerations are possible when it comes to the ambivalence in using the tool, but Ben and Aaron both indicated in their experience it will be an issue of remembering to use the protocol for stress. Aaron described his thought as:

I'm really hopeful that it'll trigger in my mind, 'Oh yeah, Scarlett. I gotta do those exercises,' under a stressful situation. I almost need a tattoo on the back of my hand that says, 'Hey, remember, remember those exercises.' Because in the heat of the moment you don't, it's like you don't have time to think."

Aaron acknowledged that he may have trouble remembering to use the tool, especially during moments of high stress.

The lack of remembrance can be explained by elements of the AL theory. AL is depicted as the body's inability to stop chronic stress or shut off the stress response creating allostatic overload (Fava et al., 2019; McEwen, 2017). From a neurological perspective, research points to acute and chronic stress creating atrophy upon neural circuits involved in adaptable thinking, decision-making and goal-oriented actions (Davis et al., 2019; de Quervain et al., 2017).

Large amounts of stress produce a dependence on rigid cognitive styles and habit-based memory systems (Davis et al., 2019; Ness & Calabrese, 2016). The inability to remember the Target 2 Zero RSR protocol when stressed could be a result of allostatic overload. One way to overcome the barrier of constant stress is to make the instructions very clear in the training, specifically, when to use the protocol, symptoms or signs that indicate it can be used, and action plans for when and how long to use the protocol. Self-efficacy is proven to be stress reducing for firefighters (Makara-Studzińska et al., 2019). Providing firefighters clear directions on when to apply the Target 2 Zero RSR protocol will lead to self-efficacy and confidence in the protocol.

Theme 2: Target 2 Zero RSR Protocol Is Strange or Silly

The first three participants (Levi, Rebecca & Sarah) described their experience with the Target 2 Zero RSR protocol as strange or silly in their live training environment. Ben and Aaron, who completed the training online, imagined the protocol would be silly to complete in a live training environment. Joe was again an outlier. He reported being unaffected by how he was perceived using the Target 2 Zero RSR protocol. Most of the

comments were focused on completing the different aspects of the training, running in place, tapping forefinger and thumb, while thinking about a stressful memory with self-consciousness. Ben reacted to thinking about performing the protocol in front of his coworkers by stating, “I think that doing it in front of our peers, would have definitely ... I don’t know how much I believe this is gonna work.” The strangeness of the protocol put doubt in the minds of the participants and how they would use it.

Firefighters are often characterized as black and white thinkers, or highly inflexible in their thoughts (Arjmand et al., 2024). Copious amounts of stress also produce black and white thinking focused on rigid cognitive approaches (Davis et al., 2019; Ness & Calabrese, 2016). The Target 2 Zero RSR protocol may have disrupted this rigid belief system for the firefighters through a creative outlet. Creative interventions such as adult play and play therapy correspond with overall adult well-being, increased problem-solving abilities, self-regulation and self-esteem building (Colston, 2023; Farley et al., 2021).

Theme 3: Establishing Trust Is Necessary to Healing

Ben experienced the largest reduction in stress due to the Target 2 Zero RSR training. Trust was established for him when the trainer explained the protocol had similarities to EMDR. The recognition of this treatment modality allowed Ben to feel at ease in believing the training would be of benefit to him and his peer group.

When asked to define stress from the interview protocol Ben comprehensively described the AL theory, specifically how stress is cumulative in nature. Ben impressively included Hans Selye’s distinction of eustress and distress in his definition. Metacognition, or thinking about thinking, is linked to intelligence due to increased

problem-solving abilities, comprehension, memory and learning (Song et al., 2021).

Ben's awareness of stress models and EMDR may have enabled him to trust the training at higher levels due to his previous knowledge and experience with EMDR.

Theme 4: Compartmentalization Helps With Disturbing Memories and Stress

Rebecca, Ben, Joe, and Aaron endorsed compartmentalization when dealing with traumatic stress from PTEs. Firefighters are extremely adept at compartmentalizing or numbing out difficult emotional experiences (Vujanovic & Tran, 2021). The Target 2 Zero RSR protocol had a minimal impact on the firefighters' stress levels, except for Ben. It's possible the Target 2 Zero RSR protocol may have made an impact on less seasoned firefighters, or firefighters who were not as skilled at compartmentalizing emotions and memories.

Implications for the Professions

This study's results have implications for firefighters, professional counselors who may treat firefighters, and counselor educators who train and contribute to research mental health treatment of firefighters. The primary implication of the study is that firefighters do experience disturbing memories and traumatic stress from PTEs and need ways to manage these mental health components of their jobs. When firefighters have better resources regarding their mental and emotional wellbeing, the outcomes for firefighters, their families, and the communities they serve are positively impacted.

Firefighters

Regardless of the uncertainty and silliness of a new protocol, firefighters are willing to investigate new tools to help them manage stress and disturbing memories. Firefighters continually require new tools. As first responders they experience the highest

exposure to traumatic events and are expected to resolve traumatic situations at a higher percentage than other first responders (Sahebi et al., 2020; Serrano-Ibáñez et al., 2023). As several participants pointed out in the study, one method for resolving traumatic stress and disturbing memories may not work for others. This sentiment was articulated by Aaron as, “And you know where, where something may fit one group, or one individual, may not be a fit for others”, when talking about the Target 2 Zero RSR protocol. Or Joe, who enjoys showing his coworkers what he’s learned in various trainings can instruct others about the protocol, “Something I learned. I’ve been trying it. If, if it works for me, it works. If it doesn’t, you can try it. See if it works for you.”

Because of the uncertainty and strangeness of the Target 2 Zero RSR protocol and the need for firefighters to establish trust prior to healing, the protocol would best be delivered by a peer support or critical stress incident management (CISM) personnel familiar to firefighters. Conceivably, a Target 2 Zero trainer would train firefighter peer support personnel so they could train their firefighter peers. In this scenario, firefighters have established trust with a known trainer who speaks their language and can articulate the nuances of the Target 2 Zero protocol in a way that can be understood. Accepting cultural competencies of firefighters improves mental health interventions (Arjmand et al., 2024; Johnson et al., 2020; Vujanovic & Tran, 2021)

Ben and Joe were online, not in front of each other. For the first three participants, showing weakness of processing disturbing memories or stress likely impacted their ability to fully engage in the training modality. Firefighters are very concerned about the implications of showing weakness in front of their peers (Gilman, 2018). Therefore,

interventions should be structured and direct in how they assist firefighters (Arjmand et al., 2024).

Professional Counselors

The most important implication of the study for professional counselors is trust needs to be developed as a function of healing when working with firefighters. What was surprising for the researcher was the necessity of trust to be established within the context of firefighting (Vujanovic & Tran, 2021). The bond of firefighters is deeper than most coworker relationships. The level of trust established between firefighter peers is considered a “brotherhood” (Sommerfield et al., 2017). Counselors are not expected to be firefighters too, but there are steps they can take to ensure deeper trust. For professional counselors taking time to educate themselves on fire culture, including firefighter terminology, could bridge the gap between firefighters and professional counselors (Vujanovic & Tran, 2021). Firefighter cultural competency and how to overcome treatment barriers for firefighters including stigma is highly recommended when working with this population (Johnson et al., 2020). Additionally, embedding within a fire department team and building relationships inside a team fosters cohesion and a sense of trust (Johnson et al., 2020). Therefore, professional counselors need to understand that integrating into a fire station is not a wasted effort, but an element of building therapeutic rapport and trust. Professional counselors will have significantly better outcomes with their mental health interventions when adapting into the milieu of firefighters.

Another important implication for professional counselors is appreciating how firefighters compartmentalize disturbing memories and stress. For the participants who endorsed this theme in the study, they found compartmentalization to be an asset for

finding balance in their professional and personal lives. However, they were also concerned about the consequence of disconnecting from emotions and thoughts upon their mental and emotional health. For professional counselors, understanding the utility of compartmentalization for firefighters while on the job, but helping them incorporate their emotions and thoughts off duty is an important piece of therapeutic work with this population. Due to compartmentalization, firefighters may present as defensive or uninterested in mental health services or techniques since psychotherapy requires reflection upon emotional experiences (Vujanovic & Tran, 2021). These authors suggest using open-ended questions, with the language commonly used within the firefighter culture. Words such as tools, toolbox, and workshops instead of group therapy can be helpful (Vujanovic & Tran, 2021 p. 142).

Counselor Educators

Counselor educators teach appropriate ethical codes to inform decisions and teach the next generation of professional counselors in ethical decision-making models. Firefighters are a unique population with diverse treatment needs and accommodations. According to the American Counseling Association (ACA) code of ethics, counselors are well informed of the populations they serve and when necessary, receive training on best practices with diverse groups (2014, Standards C.2.a & C.2.f). Counselor educators can advocate for this population by preparing their students and supervisees by adhering to the ethical mandate to receive appropriate training and competencies when working with firefighters.

Further, counselor educators are constantly updating their own skill set and leading their students and those they supervise to resources. A helpful list of resources

can be found in the work by Vujanovic and Tran (2021) who recommend anyone working with firefighters familiarize themselves with the various national websites for professionals who treat firefighters. These researchers recommend websites such as the International Association of Firefighters (www.iaffrecoverycenter.com), First Responder Center of Excellence (www.firstrespondercenter.org), and Firefighter Behavioral Health Alliance (www.ffbha.org).

Finally, counselor educators can advocate for their students to engage in meaningful dialogue and research with firefighters. For this researcher, he was prompted by his esteemed counselor educator to consider a dissertation topic of the Target 2 Zero RSR protocol with firefighters. Without such prompting, the current study would not have been possible.

Limitations

Several limitations discussed in Chapter III impacted the study. The largest limitation was the lack of extant research on the Target 2 Zero RSR protocol. The current study is the initial research effort into the Target 2 Zero RSR protocol. This limitation restricted me from having foundational information on the Target 2 Zero RSR protocol.

Due to requiring a convenience and criterion-based sampling strategy, the ability to create a random selection of participants was not possible, however this would have increased the credibility of the conclusions (Palinkas et al., 2015). The limitation to interview participants who are firefighters and have trained in the Target 2 Zero RSR protocol training was crucial, but also negated the ability to create a random sample in the study. Additionally, the challenge of recruiting firefighters who were trained in the Target 2 Zero RSR protocol and willing to provide a follow up interview on their experience

was a limitation to the study due to time constraints. The researcher was hopeful the snowball sampling strategy would increase recruitment, but this strategy did not lead to more interest.

New limitations arose as the data collection process commenced. One limitation in the data collection process was the timing of scheduled interviews for the firefighters after their Target 2 Zero RSR training. For the first three participant interviews, there was a 7-13 week gap between the training and the interviews. The participants were handicapped in retrieving information about their memories and experiences of the Target 2 Zero RSR training because of the gap between their training and interview with the researcher. However, there is a possibility additional time allowed added benefit and objectivity to explore long-term perceptions of the training, providing a more in-depth reflection for the participants.

Challenges with scheduling the interviews were rampant due to the emergency nature of the firefighter's work. On several occasions interviews were scheduled only to be cancelled due to unforeseen events. Additionally, two participants completed their interviews while at the fire station or in transit to work and could not provide full focus and concentration during the interview protocol. The unexpected cancellations and lack of full attention during the interviews were unfortunate, but a reality to the data collection process.

Two thirds of the participants in the study were advocates of mental health tools for firefighters. Their participation is appreciated and applauded; however, it is a limitation since they are required to continue to learn about new mental health tools. The experience of firefighters who do not hold such a high value on completing mental health

training would have added more depth to the study. Perhaps firefighters who could benefit most from the T2Z RSR protocol are the most guarded to participate in the training and interview regarding their experience.

The years of firefighting service became an unperceived limitation to the study. The researcher assumed with the inclusion criterion of at least 3 years' firefighting experience participants would need some form of training to assist with disturbing memories and stress. However, all participants had at least 15 years plus of firefighting experience. This amount of service represented an abundance of practice with finding tools to help with disturbing memories and stress. Every participant was aware of the necessity to manage stress and disturbing memories since their careers depended on managing these mental health components of the job. The best practice in research for firefighters suggests that tactics for improving mental health should be implemented earlier in their careers throughout the continuum of their careers and reinforced after retirement (Smith et al., 2021). The study would have benefited from a wider range of years of firefighting experience from the participants studied.

All six participants were full-time firefighters. National data indicates 35% of all firefighters are career firefighters, the other 65% represent volunteer firefighters (U.S. Fire Administration, 2020). Part-time or volunteer firefighters may be at more risk in accessing affordable mental health care since they lack insurance or paid time off benefits (Lanza et al., 2018). The absence of part-time or volunteer participants in the study is a limitation to how these firefighters would experience the Target 2 Zero RSR protocol.

The study featured only one African American participant. Firefighters who are ethnically underrepresented may encounter various forms of biases and microaggressions

which can heighten the stress of the job (Arbona et al., 2017; Vujanovic & Tran, 2021). This participant reported very little problems with stress or disturbing memories in their interview. However, the disparity in racial diversity was a limitation to the study. This limitation emphasizes an opportunity for future studies to emphasize other racial and ethnic groups or more diverse groups in general regarding their experience with the Target 2 Zero protocol.

Finally, I was a limitation to the study since it represented my first extended exposure to firefighters. Comparable to clinicians needing to have competency when engaging with the firefighter culture (Johnson et al., 2020), researchers benefit from having the same competencies. I acknowledge limited understanding of firefighter culture and language outside of my own academic studies prior to engaging with participant interviews.

Recommendations for Further Research

Endorsements for further research are an exciting outcome of this study. The following segment highlights what future studies could be implemented with the Target 2 Zero RSR protocol. These recommendations are organized by the identified themes of the study.

Ambivalence Toward Efficacy and Implementation of Target 2 Zero RSR Protocol

A quantitative study investigating the effectiveness of symptom reduction of the Target 2 Zero RSR protocol is recommended. These studies could include firefighters, first responders, or clients in treatment for symptoms of PTSD. Pretest and posttest analysis information would be collected using instruments such as the Life Events Checklist for DSM-5 (LEC-5), Comprehensive Trauma Inventory (CTI), Clinician-

Administered PTSD Scale (CAPS-5), and the posttraumatic stress disorder checklist for DSM-5 (PCL-5) inventories. Such studies could clarify the efficacy of the Target 2 Zero RSR protocol for PTSD symptomatology using a quantitative methodology.

Several participants identified uncertainty in when and how to use the Target 2 Zero RSR protocol in the data. Because of the ambivalence toward implementation of the Target 2 Zero RSR protocol in this study, a recommendation for a future investigation is to create a collective case study for firefighters or other first responders to investigate the utilization of the protocol over a predetermined amount of time. A collective case study investigates multiple cases focused on a single issue (Creswell & Poth, 2018). The objective of the case study would be to discover when and how the Target 2 Zero RSR protocol is most effective for firefighters or first responders.

A grounded theory qualitative research design is recommended for future research. A grounded theory study could assist in developing a theory for how the Target 2 Zero RSR protocol helps with disturbing memories and traumatic stress. For a grounded theory study, 20-60 individuals would be recommended (Creswell & Poth, 2018). This study could include firefighters or all first responders such as police officers and paramedics.

A randomized controlled trial is suggested on the effectiveness and suitability of EMDR therapy compared to the Target 2 Zero RSR protocol and a control group. This study would identify participants diagnosed with PTSD to show the effectiveness of EMDR vs. the Target 2 Zero RSR protocol. Participants could be recruited from every career path not just focused on firefighters or first responders.

From the participants in this study, a smaller group training in an online setting had more of a positive experience. Participating in a live training with one's peers added a layer of self-conscious discomfort. A multiple regression analysis study is advised to research what training format, either online or live, and group size (small, 3-8; or large more than 10), along with instructor type, a peer support or outside mental health professional, would have the most impact on a dependent variable such as traumatic stress for firefighters.

Finally, a study on when the Target 2 Zero protocol is most efficient in resolving disturbing memories is suggested. Does it work best at two to three months after a traumatic incident? Can the protocol assist firefighters as quickly as 24-48 hours post-incident? Further research is required to answer these questions regarding the timing of the intervention for firefighters.

Target 2 Zero RSR Protocol Is Strange or Silly

Because of being unprepared and surprised by the Target 2 Zero RSR protocol, many participants reported it as strange or silly. A helpful way to mitigate lack of preparation, discomfort and surprise for future participants is to be well informed. An IPA study in the future would focus on what levels of informed consent are the most conducive to being prepared for the Target 2 Zero RSR training, such as contraindications, type of clothing most appropriate, and the instructions that jogging is a part of the training.

Additionally, studying which component of the training is the strangest or silliest could be informative. Is jogging the strangest part? Is it the tapping of the forefingers and

thumbs? Is it tracking a ball visually? Or is it a combination of maneuvers? These questions would be informative to improve the instruction of the protocol.

Establishing Trust Is Necessary to Healing

Multiple participants reported a feeling of trust or a lack of trust with the Target 2 Zero protocol for various reasons. Several reported it was the trainer's zeal for the protocol. Another reported it was previous familiarity with EMDR that allowed him to trust the training. Future studies investigating what specific characteristics of mental health training allow firefighters to feel trust towards a facilitator is advisable.

Another potential study would focus on when firefighters build trust towards mental health professionals. A longitudinal study tracking if there is a difference in firefighters' perceptions of trust towards mental health professionals in different phases of their careers is logical. All the participants in this study had at least 15 years of firefighting experience. It would be important to observe if firefighters with less than 15 years of career experience have similar, less, or more trust towards mental health professionals as their careers advance.

Compartmentalization for Disturbing Memories

Compartmentalization of disturbing memories was a major skill noted by several participants in the study. Despite this mechanism as a skill for the participants there were reported emotional consequences of compartmentalization for them including numbness, anger, and lack of emotional availability toward loved ones. There is an assortment of mental health exercises clinicians can teach firefighters with building effective compartments while also maintaining contact with their emotions. A future study investigating the effectiveness of mental health clinicians assisting firefighters with

building healthy compartments through meditation, visualization or bilateral stimulation is recommended.

Personal Reflection

My personal process throughout the study is, like the study itself, complex. Despite the setbacks and frustrations, I thoroughly enjoyed studying the nuanced elements of the Target 2 Zero RSR protocol and how firefighters could benefit from it in managing their traumatic stress. I was astonished at the poor recruitment response initially. Yet, interviewing firefighters who had experience with live training and online training was beneficial to understanding how the protocol can best be deployed.

Some of the conclusions I discovered in the research characterized firefighters as a male dominated, athletic, emotionally distant people who are running off the belief they are invincible (McKenna, 2017; Perrott, 2019; Ridgeway, 2023). As a counselor I can recognize the danger of these beliefs. However, what I learned through the research is the skill of emotional distance for firefighters is not only a learned trait but is a requirement to continue in their career. In fact, when empathy develops for the people they treat, it can lead to emotional consequences, such as disturbing memories and traumatic stress. Levi articulated it well by stating, “And so, one might say in the trade, ‘you’re getting soft.’” This phrase reverberated in my mind throughout the data analysis process since it was the first interview I did. Originally, I took the phrase as a pejorative comment because of my own experience of being called “too sensitive”. Further, as a counselor, empathy is the main skill I use in my treatment protocols. However, in the field of firefighting empathy can have severe consequences. As a researcher, making that shift,

and entering the mindset of a firefighter without judgment was needed to interpret the experiences of the participants using the Target 2 Zero RSR protocol.

Another insight I gained through the study was the value of compartmentalization. Again, as a professional counselor, I believed this mental defense mechanism to be a problem to eliminate. However, firefighters' compartmentalization is necessary for staying present to the next call or incident. I was able to understand the capacity for the mind to store traumatic stressors for long periods of time with little impact on daily functioning. I am truly grateful to the firefighters who graciously provided their time and insights through this dissertation project.

In my clinical practice I have personally seen the value of Target 2 Zero when working with individual clients who have traumatic stress from disturbing memories. A few clients have been able to process severe traumatic events with little to no abreactions quickly. When used effectively, the protocol has been nothing short of miraculous for clients who have been holding onto deep trauma for years. Other clients have struggled to reprocess their trauma with Target 2 Zero due to the overstimulating nature of the protocol. Some have been overwhelmed and experienced feelings of self-consciousness when engaging in the protocol. These interactions have led me to similar conclusions from the participants of the study, namely ambivalence about when and how to use it with clients.

I think there is great benefit in the Target 2 Zero RSR protocol for firefighters, first responders and all kinds of people. But, like many interventions, it needs to be deployed wisely. Consent is a major characteristic of my clinical counseling practices. I want to make sure I am always informing and gaining consent of the clients I treat. This

concept is necessary for the Target 2 Zero protocol as well. For it to be most effective, people need to be informed about what it is and what it can potentially do.

Conclusion

The study was an exploration of the lived experiences of firefighters who used the Target 2 Zero RSR protocol in potentially reducing the impact of disturbing memories and stress. The findings suggested that the study participants did have some positive experience of changes in disturbing memories and stress reduction from the Target 2 Zero RSR protocol. The participants' experiences were mainly of uncertainty about when and how to deploy the protocol into their lives.

The Target 2 Zero RSR protocol was also considered strange and silly by many of the participants. If a protocol is successful, but overwhelming, it will still be ineffective. Marketing the protocol in a way to entice people to experience the training is necessary. Adaptations and variations of the protocol for those who are unpleasantly surprised by the strangeness of Target 2 Zero RSR is recommended for the future.

Establishment of trust was a third key element of the study. For firefighters, the "brotherhood" of the profession is important to maintain. For trainers who are introducing new concepts, there is a requirement to build trust through common language and common experiences. When trust was not established, it had deleterious results for at least one participant who was unable to immerse herself in the training.

The fourth and final theme of compartmentalization for disturbing memories and stress emerged from the study. Firefighters naturally compartmentalize their memories and emotions well. This skill has an impact on how they process traumatic stress and are

emotionally available to their loved ones when not on duty. Yet, compartmentalization has emotional and mental consequences requiring mitigation for this population.

The results and themes of the study point to one final conclusion. For the firefighters, ambivalence, ambiguity and the strangeness of the protocol lead to doubt and inaction toward using the Target 2 Zero RSR training. Clarity leads to belief and action. Disambiguating what the Target 2 Zero RSR protocol is, how it can help with stress and disturbing memories, and when to appropriately use the protocol will lead to trust and certainty in the modality. It is logical to believe EMDR was considered bizarre and silly when first introduced as a treatment for trauma. Yet, EMDR is now a first line treatment of choice for PTSD (Matthijssen, Brouwers, van den Hout, et al., 2021). More research will take time to collect information and the experiences of others and the insight of clinicians on the protocol and how it effectively reduces traumatic symptomatology. However, there is enough evidence from this study to conclude it will be a benefit to firefighters, first responders, and others dealing with traumatic stress.

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Appendix A: Recruitment Letter

Recruitment Letter

Dear Firefighter,

The following letter is an invitation to consider participating in a study regarding potentially traumatic events (PTEs) associated with the job of firefighting. My name is **J. Patrick O'Neal**, and I am conducting research as part of a PhD in Counselor Education and Supervision at the University of the Cumberland under supervision of **Dr. Sherry Todd**. Below you will find information about the study and what your potential involvement would entail if you agree to participate. The study has been approved by the University of the Cumberland Institutional Review Board approval number #0724-128264.

About the Study

Firefighters often endure many stressors related to PTEs. Because of these stressors many mental health symptoms can arise such as post-traumatic stress, problems with memory, and suicidal ideation. Resources for firefighters are limited due to many barriers. The Target 2 Zero Rapid Stress Reduction (RSR) protocol borrows from components of Eye Movement Desensitization Reprocessing (EMDR) which typically allows for individuals to experience significant positive changes in processing disturbing memories in a short amount of time without directly thinking about the memory.

Eligibility and Data Collection

Participation in the study is voluntary. You are eligible to participate if you are 18 years of age or older, have at least three years of experience as a volunteer or professional firefighter and have participated in the Target 2 Zero RSR training protocol. You will be asked to complete an informed consent document and interview about your experience regarding the Target 2 Zero RSR protocol. The informed consent process and interview should last between 30-45 minutes regarding your experience with the Target 2 Zero RSR protocol, with myself J. Patrick O'Neal.

The interview can be scheduled and completed via Zoom teleconferencing technology. **You can schedule this meeting by scanning the below QR code or link and choose the most convenient time for your schedule.** I am looking to recruit a maximum of 10 participants who have completed the Target 2 Zero RSR training with the need to complete six interviews.

Once the interview is completed, I will send you a copy of the interview transcript to confirm the accuracy of your responses. Upon completion of the analysis of the interview, I will confirm the accuracy with you again via email to ensure my interpretation and observations were true of your experience. All information provided is considered confidential and will be stored under lock and key in a filing cabinet only I have access to. Data collected during the study will be retained for three years on a

password protected drive. Afterwards, the data will be destroyed. All information utilized will be de-identified to protect your identity.

Risks and Benefits

There is no more than minimal risk associated with participation in the study. **There will be a \$30 gift card awarded to participants who sign up and successfully complete an interview for the study.** Further, the information provided will benefit future research endeavors to understand how Target 2 Zero impacts memory processing and stress reduction.

If you have any questions about this study or would like more information, please contact me **J. Patrick O'Neal** at [REDACTED] You can also contact my supervisor, **Dr. Sherry Todd** at [REDACTED]

Your participation is very valuable to this study. Thank you so much for considering being a part of the research on Target 2 Zero.

Sincerely,

J. Patrick O'Neal, Doctoral Candidate, LCPC, NCC, EMDR-C



<https://scheduler.zoom.us/patrick-o-neal/hello-i-am-an-event-card-886>

Appendix B: Informed Consent Form

Informed Consent

You are invited to participate in a research study entitled, *A Phenomenological Study of the Lived Experiences of Firefighters using Target 2 Zero Rapid Stress Reduction Protocol*. You were selected as a potential participant due to your experience as a volunteer and/or professional firefighter who has been trained in the Target 2 Zero Rapid Stress Reduction (RSR) protocol. Please read this form carefully and ask any questions you may have before accepting the invitation to participate in the study.

The above-mentioned study is being conducted by **J. Patrick O'Neal**, a doctoral candidate at the University of the Cumberland and has been approved by the UC Institutional Review Board (IRB). The IRB study approval number is #0724-128264. Patrick O'Neal is under the supervision of his dissertation chair, **Dr. Sherry Todd**.

Background Information:

The purpose of the study is to examine the experience of professional firefighters who have been trained with Target 2 Zero RSR protocol for disturbing memories and reducing stress from potentially traumatic events (PTE's) in their professional or personal lives. The study will include approximately 10 participants.

Inclusion Criteria:

You are qualified to participate in this study if you:

- Are 18 years of age or older.
- Have at least three years, past or present, firefighting experience either as a volunteer or professional service.
- Have completed the Target 2 Zero training.
- Have read and agree to the following informed consent document.

Procedures:

If you agree to contribute to the study, you will also be asked to agree and sign an informed consent document and participate in a recorded interview approximately 45-60 minutes in length, answering questions related to your experience of the Target 2 Zero RSR training protocol. The interviews will be conducted over Zoom by J. Patrick O'Neal.

Voluntary Nature of the Study:

Your participation in the study is strictly voluntary. If you agree to participate you are free to withdraw at any point throughout the process without consequence or pressure from the researcher.

Risks and Benefits of Participation:

There is no more than minimal risk associated with participation in the study. There is no individual benefit to participation in the study other than contributing valuable information to the academic community on the Target 2 Zero RSR protocol. Information provided in the study will benefit future research studies on how Target 2 Zero impacts memory processing and stress reduction.

In the event you experience any intense unpleasant symptoms at any point because of the study, you may terminate your participation at any time. You may refuse to answer any questions you consider invasive, probing, or stressful. You will also be provided with information on additional mental health support or crisis services in your area.

Compensation

There will be a \$30 gift card awarded to participants who successfully schedule and complete an interview with the researcher, J. Patrick O'Neal.

Recording

The participant understands the study involves interviews that will be audio and video recorded. If you decline to be recorded, you will not be permitted to participate in the study.

Confidentiality

Any data or records pertaining to your participation will be kept private. Any identifiable data gathered such as employer, name, or age will be de-identified. Verbatim quotes will be anonymized as well. Interview recordings and transcripts will be stored digitally, and password protected with any physical notes being secured under lock and key in a filing cabinet. In the event the study leads to publication, the researcher will not include any information possible to identify you personally. Research records will be stored securely and only available to the researcher.

Contacts and Questions:

The researcher conducting the study is J. Patrick O'Neal, [REDACTED]. The researcher's faculty advisor is Dr. Sherry Todd, [REDACTED]. You may ask any questions related to your consent in participating in the study. All questions may be delivered via email to the researcher, Dr. Todd, or the University of the Cumberland's review board irb@ucumberland.edu.

Documentation of Consent

I have read the above information and I have been given adequate time to consider the information and its implications for me personally. I have been given the opportunity to

ask questions and receive answers to my questions. Below my signature represents consent to take part in the study.

**If you would like a signed copy of this consent, please inform J. Patrick O’Neal.

Typed Name of Participant: _____ Date: _____

Participant Signature: _____ Date: _____

Signature of Researcher: _____ Date: _____

Appendix C: Demographic/Interview Questions

- Name:
- Age:
- Gender
- Race/Ethnicity
- Employment Status (part-time, full-time, volunteer):
- What state do you reside in?
- How many years of fire service do you have:
- When did you take the Target 2 Zero RSR training?

Interview Questions

1. Can you tell me about your experience with the Target 2 Zero RSR training?
2. What made you curious about participating in the Target 2 Zero RSR training?
3. How did you prepare for the training (Mentally, Emotionally, Physically)?
4. What was your first impression of the training? What were your expectations?
What were your expectations based upon?
5. How would you define stress? Can you describe your stress levels before Target 2 Zero RSR training?

Can you describe your stress levels after Target 2 Zero RSR training?

6. How would you describe disturbing memories?

How would you describe your disturbing memories before the Target 2 Zero RSR training?

How would you describe your disturbing memories after Target 2 Zero RSR training?

What impact do the memories you processed in the Target 2 Zero training have on you now?

7. How would you describe your relationship to firefighting after the Target 2 Zero RSR training?

How has your personal life been impacted by the Target 2 Zero RSR training?

8. How do you use Target 2 Zero RSR after the training?

9. What else would you tell me about your experience of completing the Target 2 Zero RSR protocol?

Appendix D: Initial IRB Application Approval



IRB Approval Letter

Principal Investigator: John O'Neal
From: Institutional Review Board
Subject: IRB Approved
Project title: A Phenomenological Study of the Lived Experiences of Firefighters using Target 2 Zero Rapid Stress Reduction Protocol
IRB Approval Number: #0724-128264
Approval Date: 2024-07-09

Thank you for submitting your materials to the IRB office. The above referenced human-subjects research project has been approved by the University of the Cumberland Institutional Review Board. This approval is limited to the approved protocols described in the application which have been reviewed as acceptable activities described by the Office of Human Research Protections (HHS.org).

It has been determined that your study meets federal criteria to qualify as an **expedited study** in accordance with the requirements set forth in 45 CFR 46.110 finding that 1) the research is minimal risk, 2) that if identification of the participants and/or their responses reasonably place them at risk of criminal or civil liability or could be damaging to the participants' financial standing, employability, insurability, or reputation, or be stigmatizing there are reasonable and appropriate protections that will be implemented so that risk related to invasion of privacy and breach of confidentiality are no greater than minimal, and 3) that the research is not classified or does not involve prisoners, with the exception that the expedited review of minor amendments for approved studies involving prisoners may be used.

However, if there are changes to research project in the following areas a modification form must be submitted to the IRB office:

- Substantial change to recruitment materials or consent documents
- Change in the data collection process
- Change in the location of the study
- Change in key personnel
- Change in instrumentation

Principal investigators are responsible for ensuring that studies are conducted according to University protocol. As a principal investigator, you have multiple responsibilities to the IRB, the research subjects and the faculty partner. If you have questions, please feel free to email me at IRB@ucumberland.edu

Please continue to work with your dissertation advisor as you proceed.

IRB Office

University of the Cumberland
6429 College Station Drive | Williamsburg, KY 40769

Appendix E: IRB Modification Approval



IRB Modification Approval

Principal Investigator: John O'Neal (003013781)
From: Institutional Review Board
Subject: IRB Modification Approved
Project Title: A Phenomenological Study of the Lived Experiences of Firefighters using Target 2 Zero Rapid Stress Reduction Protocol
IRB Approval Number: #01124-13781-02
Amendment Approval Date: 08/22/2024

Thank you for submitting your IRB modification materials to the IRB office. The above referenced modification has been approved by the University of the Cumberland Institutional Review Board. This letter serves as full approval for your study. This approval is limited to the approved protocols described in the modification application, which have been reviewed as acceptable activities described by the Office of Human Research Protections (HHS.org).

If there are additional changes to the research study in the following areas, another modification form must be submitted to the IRB office prior to changes occurring:

- Changes to inclusion criteria
- Changes to recruitment materials or process
- Changes to the Informed Consent form or process
- Changes to study instrumentation and/or protocols

This approval letter is issued with the following conditions:

- No subjects from the modified recruitment strategy may be involved in any study procedure prior to the IRB modification approval date.
- All unanticipated or serious adverse events must be reported to the IRB within five days.
- All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk.
- All protocol deviations must be reported to the IRB within five days.

Principal investigators are responsible for ensuring that studies are conducted according to University protocol. As a principal investigator, you have multiple responsibilities to the IRB, the research subjects and the faculty partner. If you have questions, please feel free to email IRB@ucumberland.edu

IRB Office
University of the Cumberland
6429 College Station Drive | Williamsburg, KY 40769