Behavioral Health Gaps in the U.S. Fire Service

Research Presented in Partial Fulfillment

of the Requirements for the

Executive Fire Officer Program

by

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March 1, 2023

Abstract

Firefighters work in stressful and dangerous environments, increasing exposure to death and destructive events. Over the last decade, firefighters have taken their lives at a higher rate than line of duty deaths. Is this a specific fire service issue or a systemic problem in society? Additionally, is the fire service exacerbating behavioral health issues or are individuals coming into the profession with pre-existing conditions? Or both? This research was administered for the Salt River Fire Department (SRFD) in Scottsdale, Arizona. SRFD has approximately 131 sworn fire personnel and serves 92 square miles of the Salt River Pima-Maricopa Indian Community. SRFD firefighters did not have a formal behavioral health program and mental health training was not part of the department's annual curriculum. The intent of this research was to comprehend the knowledge, motivation, and organizational elements necessary to develop and implement a behavioral health program, and what barriers impeded this action. Ten SRFD members participated in this study including command staff and field personnel. This qualitative research study incorporated interviews from department personnel and their anecdotal observations. While SRFD had awareness of behavioral health needs, the resources were not aligned for curriculum development and delivery. The stigma related to mental health may be associated with a lack of desire to formulate a behavioral health program. Further research is needed to determine what proactive measures produce the desired behavioral health outcomes when incorporating a behavioral health program into the departments health and wellness framework.

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CHAPTER 1. INTRODUCTION

Suicide is the 10th leading cause of death in the United States and the second leading cause for people between the ages of 15 and 34 (Center for Disease Control and Prevention, 2019). Fire service personnel report higher rates of suicidal ideations and attempts (Stanley et al., 2015) when compared to the general population (Heyman, et al., 2018). Workplace stress has been shown to influence suicides and attempted suicide in women and men (Law, 2014). Fire personnel works in rigorous conditions and challenging environments, increasing occupational and psychological stress (Henderson et al., 2016), which stimulates mental, psychological, and physical defense mechanisms (National Volunteer Fire Council, 2012).

The total number of firefighter suicides is unknown; however, since 2014, the literature indicates that firefighters have taken their own life at a higher rate than line of duty deaths (Heyman et al., 2018; Fahy et al., 2020; Firefighter Behavioral Health Alliance, 2021). One multi-state study by Vigil et al. (2020) revealed firefighters die by suicide in a greater proportion than other U.S. occupational workers. Additional evidence highlights an occupational culture within fire that fosters a reluctance to discuss feelings and allows traumatic events to manifest over time (National Volunteer Fire Council, 2012). The prevalence of mental health stigma in the fire service can make firefighters reluctant to seek help (Smith et al., 2018), propagating negative coping methods that may result in detrimental outcomes (Nock et al., 2011). The Salt River, AZ Fire Department does not currently have a behavioral health program to address suicide and other mental health complications resulting from routine job duties. An analysis of the Arizona Center for Fire Service Excellence (AZCFSE), the official state training organization for fire departments, reveals no subsidized behavioral health programs for fire personnel or any courses structured to mitigate fire service occupational stressors.

Background

The health and wellness committee (HWC) are an internal component of the Salt River Fire Department (SRFD), which is in Maricopa County, Arizona. Created in 2008, the HWC was established to facilitate fitness-oriented programs to reduce cardiovascular disease rates within the SRFD. The nature of HWC is to analyze mortality causes in the fire service and develop initiatives to promote a health-based work environment.

The Salt River Fire Department is a career municipal fire department with four fire stations. As an all-risk/full-service public safety organization, SRFD services include fire prevention, advanced life support (ALS) response, fire suppression, rescue, technical rescue, code enforcement, public education, and community partnerships. In 2020, SRFD responded to approximately 6,000 calls for service, with 92 sworn fire personnel serving roughly 53,600 acres of jurisdiction, including 19,000 acres of natural preserve. The community is predominately rural, with large tracts of agricultural and riparian areas separated by state transportation thoroughfares. A commercial corridor delineates the community's western border comprising over 25 million square feet of commercial property.

HWC is a voluntary group composed of 12 career fire personnel, a peer fitness instructor group (PFI), and a crisis intervention team (CIT). A battalion chief heads the HWC and captains, engineers, and firefighters complete the chain of command. Cardiovascular disease programs, cancer awareness initiatives, and injury prevention strategies constitute the agenda of the HWC; however, the HWC does not contain any behavioral health processes to reduce suicide and suicidal ideations or any mental health preparedness strategies. Regardless of a growing behavioral health awareness within the fire industry, suicide, post-traumatic stress, burnout, and

substance abuse continue to proliferate throughout the fire service (International Association of Firefighters, 2021).

Significance of the Study

Finding ways to address mental health is becoming an issue of growing importance in U.S. society (Case & Deaton, 2015), especially as suicide rises as a cause of death in the U.S. (Center for Disease Control and Prevention, 2019). Firefighter suicide has been improperly measured in the past, but with firefighter suicides exceeding the line of duty deaths, there is indirect evidence that it is a growing problem (Heyman et al., 2018). The fire service is inherently traditional and hierarchal (United States Fire Administration, 2019); adaptive solutions incorporating changes in response and behavior by the firefighters by necessity must come from the highest levels of leadership in fire departments around the country. Promoting adaptive coping to trauma is crucial to reducing psychological distress and suicidal behaviors in the fire service (Gulliver et al., 2016). However, coping will require changes in selection, training, screening, and operations in any department that wishes to effect positive change.

Behavioral health issues like obesity, sleep deprivation, substance abuse, suicide, depression, PTSD, burnout, and compassion fatigue are common among firefighters (Berger et al., 2012; Carey et al., 2011; Gist et al., 2011; Wieclaw et al., 2016; Soteriades et al., 2008; Haddock et al., 2015). Behavioral health programs are designed to embrace new treatment models to break mental health stigma in fire departments (Raney, 2019). SRFD is responsible for treating mental health with the same significance as physical health, providing access to critical resources for personnel to manage and overcome preexisting and current work-related problems (NVFC, 2021). Failure to embrace a behavior health program will eliminate internal pathways to recovery and exacerbate existing issues into further manifestations.

The SRFD HWC is responsible for designing and implementing new health initiatives for the SRFD, including behavioral health programs currently omitted from department policy. As a result, a goal of the HWC determined that by 2023, 100% of SRFD sworn fire personnel would receive behavioral health evaluations by a licensed psychologist as part of their annual physicals. To accomplish this, a decision was made resulting in the SRFD consulting with their contracted health care provider to include a mental health assessment simultaneously with the physical evaluations. Professional consultation would be kept private by doctor-patient confidentiality laws, eliminating the stigma associated with those who speak up about their issues. Taking part in the mutual decision-making process regarding any health condition requires effective communication between the doctor and patient (Matusitz & Spear, 2014). Additionally, the HWC determined that by 2023, 100% of recruits would be given a full week of mental health awareness in their fire academy led by a licensed psychologist to establish positive pathways to mitigate the stress of fires, abuse, suicides, shooting, stabbings, car accidents, and other distressing events of customary job duties (Chamberlin, 2019). Personnel records were planned to be kept to effectively track the completion of the mental health assessments. Finally, the HWC determined that the records should be stored in locked, secure areas following the Americans with Disabilities Act (ADA), Health Insurance Portability and Accountability Act (HIPAA), and Genetic Information Nondiscrimination Act (GINA).

The HWC is responsible for designing and implementing new health initiatives for the SRFD, including behavioral health programs currently omitted from department policy. Therefore, this group was the focus of the following research because they facilitate pathways to the above-described program execution and influence the organization's ability to assess and evaluate the mental health of fire personnel. It is important to emphasize that routine job duties

are responsible for firefighters' mental health deterioration and not just catastrophic events, putting all firefighters at risk. The stigma regarding mental health in the fire service can make firefighters reluctant to seek help, and as a result, behavioral health programs have become increasingly important to adopt.

Problem Statement

The U.S. fire service has failed to fully address and prepare firefighters to deal with chronic work stress, leading to firefighter burnout, compassion fatigue, sleep deprivation, and for some, suicidality. Firefighters work in emotionally, physically, and psychologically challenging environments, while performing under considerable time constraints (United States Fire Administration, 2018). A recent study revealed that 49% of surveyed firefighters reported high levels of emotional and physical burnout (Wolkow et al., 2019). The following study sought to evaluate the current methods utilized by the Salt River Fire Department to mitigate the behavioral effects of workplace stressors before they manifest into chronic symptoms.

Purpose Statement

The purpose of the study was to administer a case study gap analysis focused upon the knowledge, motivation, and organizational provisions essential to achieving the stakeholder goal of conceptualizing and effectively implementing a behavioral health program. The stakeholder goal aligns with the organizational goal of 100% SRFD sworn personnel receiving behavioral health evaluations as part of their annual medical exams. A comprehensive gap analysis would include all stakeholders; however, the implementation and evaluation of a behavioral health program is the responsibility of HWC; they are the stakeholders of focus for the study. The study exploration began by examining the HWC behavioral health plan, moved to identifying suboptimal behavioral health practices, and culminated with determining what variables could be

systemically incorporated to achieve desired results, while identifying the proposed major variables.

Research Question(s) or Hypothesis

The following research questions guided the following qualitative case study:

1. What knowledge, motivation, and organizational proclivities led HWC members to formulating and implementing a behavioral health program for 100% of SRFD sworn personnel?
2. What organizational barriers, if any, inhibit the motivation and knowledge of behavioral health programs for HWC personnel?
3. What is the advocated knowledge, motivation, and organizational resolutions for the identified challenges?

Summary

Five chapters were compiled for the study. Chapter One provided the reader with key concepts regarding the problem of practice being researched and the organizational structure of the SRFD. The chapter explores the SRFD's vision, goals, mission, and stakeholders, in addition to examining the suboptimal concepts creating the historical gap in the fire industry focusing on behavioral health programs and the over-arching desired performance results. Chapter Two will provide a review of the preexisting literature encompassing the totality of the study. International statistics on firefighter suicides and correlating mental health symptoms are discussed, and behavioral health program initiatives at the national (macro), state, and local (micro) levels will be analyzed. Chapter Three dissects the anticipated resources for the study, including the methodological nuances of data collection, analysis, and participant selection. In Chapter Four, the data and findings will be provided and assessed. Subsequently, Chapter Five analyzes the

findings and provides recommendations for closing performance gaps while utilizing data and literature to design and implement improvements to the behavioral health plan at SRFD.

CHAPTER 2: LITERATURE REVIEW

Behavioral health is a concern to fire service personnel due to the chronic frequency of suicidal ideations and behaviors stemming from routine job duties (Pennington et al., 2021). The National Fallen Firefighters Foundation (2014) reports firefighters are three times more likely to perish by suicide than in the line of duty. The Firefighter Behavioral Health Alliance (FBHA) statistics on firefighter suicide reveals suicide contributing to more deaths for the last seven consecutive years compared to the NFPA's line of duty death reports, which limits suicides to only on-duty events. Subsequently, the ratio of suicide to line of duty deaths has reached 2:1 in six out of the last seven years (FBHA, 2021; Fahy et a., 2020). A report by the NFPA revealed many fire departments in densely populated areas have health and wellness programs, which address cardiovascular health, cancer, obesity, sleep deprivation, and development of fitness programs. Currently, the NFPA 1500 standard formulates a behavioral health model designed to operate within health and wellness programs (NFPA, 2016). In Arizona, no behavioral health training was available through the Arizona Center for Fire Service Excellence (AZCFSE) according to their course curriculum (AZCFSE, 2019). The intention of this research was to understand why SRFD does not have a comprehensive behavioral health program, and what is needed to mitigate behavioral health issues if no program development is desired.

This chapter will encompass an inquiry of pertinent research, and a conceptual framework model that guides data collection. The review of the literature will examine firefighter suicide statistics, national and state trends, fire service behavioral health programs,

and conventional research on PTSD, compassion fatigue, burnout, sleep deprivation, and substance abuse. Behavioral health initiatives and protocols from national, state, and local jurisdictions will also be perused. Theoretical literature illustrating knowledge, motivation, and organizational relevancy will be reviewed, which will lead to influencing variables related to SRFD's behavioral health program development. After the customary research literature, the review employs Clark and Estes (2008) Gap Analysis Conceptual Framework utilizing knowledge, motivational, and organizational proclivities on SRFD's potentiality to engineer and enact a behavioral health curriculum.

Behavioral Health in the Fire Service at the National Level

This section is a summary of literature within the fire service at a national stratum. The following segment starts by analyzing the national suicide statistics in the fire service and contributing factors as documented by NFPA (2020), identified as sleep deprivation, PTSD, burnout, compassion fatigue, substance abuse, cultural stigmas, and lack of effective resources. Existing research on lifestyle factors of these issues is included and displayed using a chart, as seen in Figure 1. This section continues with a succinct summary of strategies and proposals that exist nationwide within government and non-governmental fire service organizations.

Firefighter Suicide Trends

The National Fire Protection Association (NFPA) is a global non-profit organization that is dedicated to eliminating death and injury due to fire and related hazards (NFPA, 2021). Since 1977, the NFPA has collected data each year on all firefighter fatalities that occurred on-duty. Because most firefighter suicides occur off-duty, NFPA numbers do not accurately measure the severity of the problem. Exact numbers on firefighter suicide are unknown, as there is no formal

tracking system at the national level (Antonellis Jr. & Thompson, 2012), further complicating data collection. The Firefighter Behavioral Health Alliance (FFBHA) is a non-profit organization that collects data on firefighter and EMS suicide, including categorizations by age, method, years of service and state. The following section describes historical and current trends of suicide in the fire service.

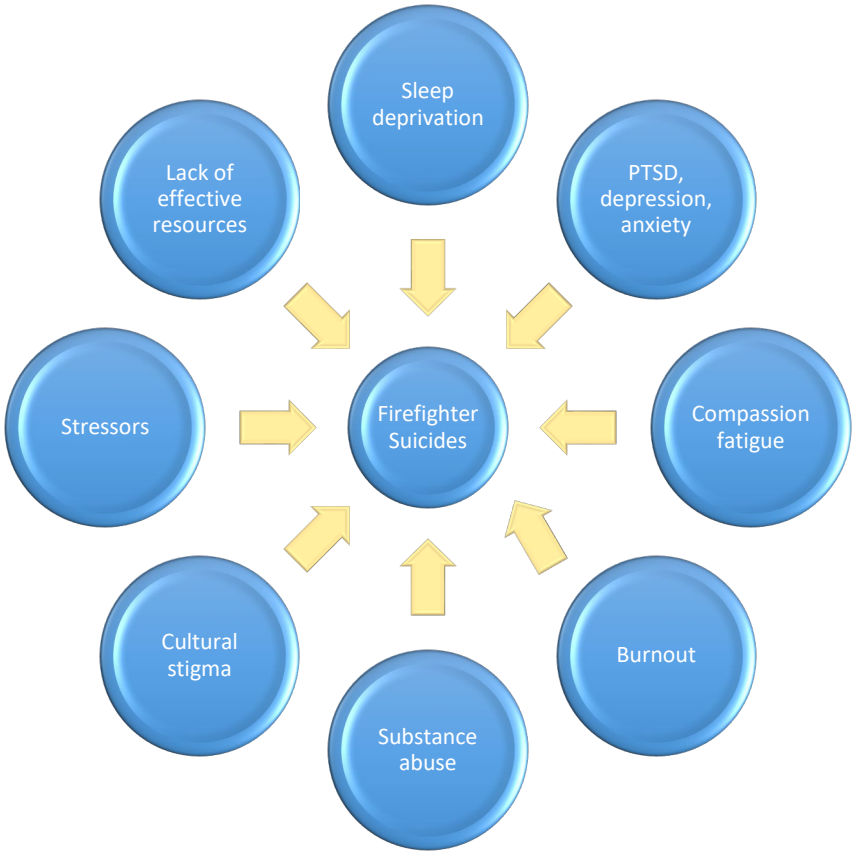

Figure 1. *Researched-based intersectionality chart between firefighter suicide and lifestyle factors.*

The impact of routine job duties on firefighter mental health has evolved over the last two decades. According to FFBHA statistics, 136 firefighter/emt suicides occurred from 1880-1999, while 1642 have been documented since 2000 (FFBHA, 2022). Fire departments are witnessing

a shift in the threat to firefighter health, as suicide surpasses line-of-duty deaths. Since 2012, there were 1,284 firefighter/emt suicides (FFBHA, 2022), compared to 668 line-of-duty deaths (NFPA, 2021). Figure 2 illustrates total firefighter deaths in the United States for the last ten years, regardless of classification. Figure 3 presents firefighter/emt suicides for the last ten years, regardless of method, age, or classification.

Firefighter Deaths

Year	Total	Career	Volunteer	Non-Municipal*
2012	64	23	30	11
2013	98	26	41	31
2014	64	23	34	7
2015	68	24	32	12
2016	69	19	39	11
2017	60	21	32	7
2018	65	25	35	5
2019	48	20	25	3
2020	62 *Excluding Covid-related deaths	23	27	12

Figure 2. *Firefighter Fatalities in the United States by year* (NFPA, 2021).

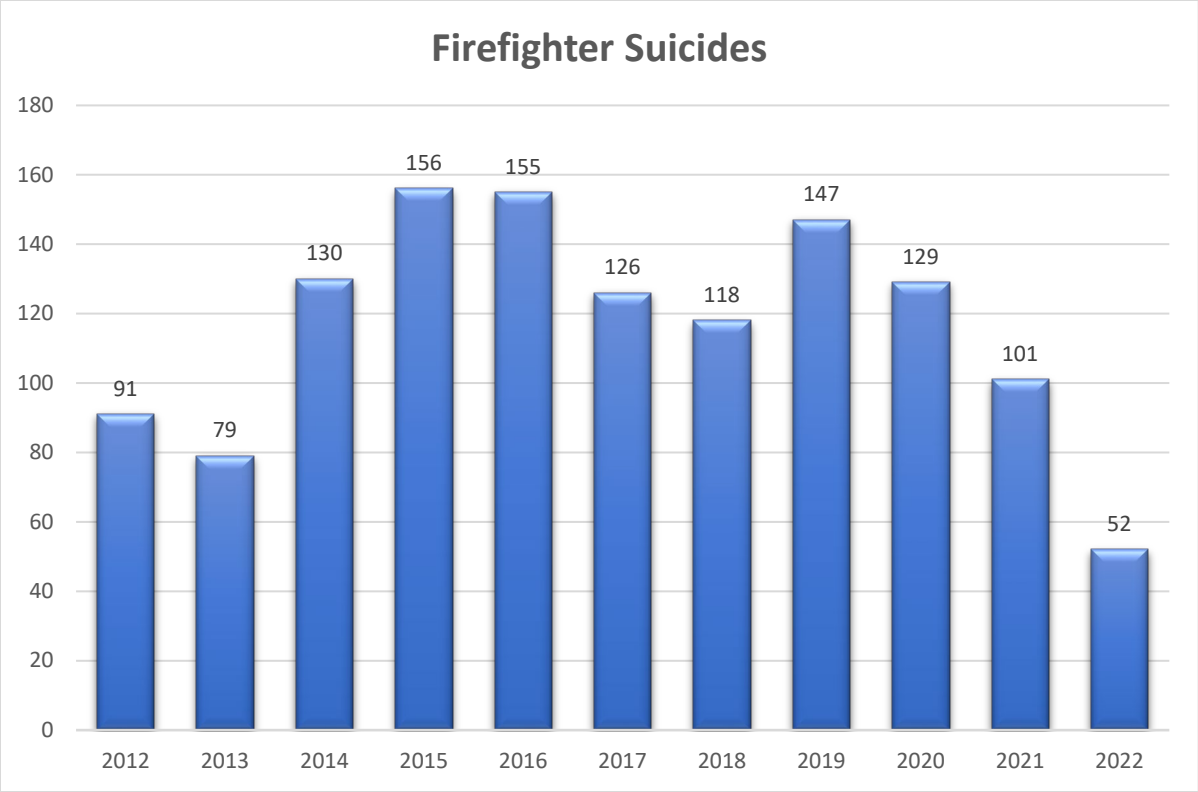

Figure 3. *Firefighter Suicides in the United States by year* (FFBHA, 2022).

Firefighter Burnout

Firefighters encounter some of the most hazardous working conditions of any workforce, including physically and psychologically taxing demands and tasks (DeJoy et al., 2017). The fact that 49% of surveyed firefighters reported high levels of physical and emotional burnout demonstrate that burnout is a widespread problem (Wolkow et al, 2019). Firefighter burnout is associated with riskier behaviors related to on-the-job safety and higher risks of injury (Smith et al., 2018). Innovative leadership in local departments and at the national level is needed to address the problem of burnout in firefighters and mitigate its negative effects.

Burnout is often a byproduct of exhaustion, depersonalization, and cynicism (ten Brummelhuis et al., 2011), which collectively lead to defiance of departmental norms and

expectations and creates diminishing safety outcomes (Smith et al., 2018). Wolkow et al. (2019) published one of the largest studies ever undertaken to address sleep disturbances and burnout in the fire service. This valuable study not only measured burnout in firefighters but also examined other factors that potentially correlated with burnout, and found that sleep disorders, insomnia, current mental health diagnoses, and disrupted sleep all correlated with specific domains measured by the Maslach Burnout Inventory (Appendix A) (Wolkow et al., 2019). These negative correlations point us to potential solutions and generate several technical-adaptive and adaptive questions for how fire departments can intervene to mitigate or prevent burnout: Can an individual firefighter experiencing burnout make necessary changes alone, or can the problem of burnout only be solved through group efforts? What patterns of behaviors related to burnout can be observed by members of a fire department, and what behaviors cannot be readily seen? What values, behaviors, or beliefs may have to change to address burnout? What departmental changes do firefighters perceive would aid in lessening their burnout? What changes have been effective for other fire departments experiencing the problem of burnout?

Burnout is a conditional response to ongoing stress, where the body's energy is depleted over time (Shirom et al., 1989). Vaulerin et al. (2016) conducted a study of 220 French firefighters to uncover associations between the Big Five personality traits and burnout, and how this relationship affected achievement goals. The findings yielded a positive correlation between neuroticism and the three dimensions of burnout, through indirect and direct mastery avoidance goals. Burnout has been explained within the origins of conservation of resource theory (CRT), which emphasizes cognitive, emotional, and physical energy expenditure (Hobfoll et al., 2000). A core principle of CRT infers that motivation to receive, retain, and protect energy resources is an innate ability, which gets depleted in firefighters through emotional exhaustion and

depersonalization by occupational stressors (Hobfoll, 2001). Fire service leaders need to understand theoretical perspectives and incorporate the theories into implementation strategies that limit the effect of psychological stressors on fire personnel.

Compassion Fatigue

Compassion fatigue is known as the emotional, mental, and physical state experienced by professionals such as firefighters, that assist others in distress (Grant et al., 2018). Figley (2002) identifies compassion fatigue as "the cost of caring," for those in careers that routinely treat and provide care for those suffering from pain and traumatic events. Compassion fatigue is a threat to firefighters' quality of life (Bouchard, 2019), that can manifest into toxic work and home environments (Mathieu, 2007). Current research estimates that up to 50% of career firefighters caring for traumatized patients may be at high risk for developing compassion fatigue (Zeidner et al., 2013). Kim et al. (2020) conducted a study of 371 firefighters to determine the relationship between compassion fatigue, burnout, and occupational environment. The study utilized the Maslach Burnout Inventory, Compassion Fatigue Self-test, and the Working Environment Inventory as the basis for their questionnaires. The findings revealed a significant correlation between a rise in compassion fatigue and a reciprocal effect in burnout and environmental risk factors. A separate study conducted by Sun et al. (2016), consisted of administering the Chinese version of the Compassion Fatigue Short Scale to 388 Shanghai firefighters, which uses a 13-item questionnaire to rank the frequency of each item on a 10-point Likert scale. The results confirmed a correlation between secondary trauma and burnout associated with compassion fatigue. Firefighters mental health needs to be protected because substantial working pressure coupled with compounding emotional stress can affect their ability to treat and care for others.

Post-Traumatic Stress Disorder (PTSD)

PTSD is a condition that results from exposure to actual or threatened serious injury, actual or threatened sexual violence, threatened death, or death (American Psychiatric Association, 2013). Firefighters are recognized as being at risk for PTSD (Chiang et al., 2020), as estimates show a rate of 17-22% for fire personnel compared to 1-8% for the general population (Lee et al., 2014). Research shows that human caused events, such as terrorist attacks, car accidents, and incendiary fires promote more negative psychological factors in survivors than do natural disasters (Berninger et al., 2010). In addition to the threat itself, subjective interpretation of the threat is a primary promoter to the advancement of PTSD symptoms (Pinto et al., 2015). Ehlers and Clark's (2000) cognitive model of PTSD illustrate a person's perception of the traumatic event has greater influence on their emotional reactions than the event itself. A 2015 self-reported cross-sectional study of 397 Portuguese firefighters examined potential correlating factors of traumatic events, such as frequency, recency, number, and perceived threats, as contributors to PTSD. The study concluded 18.8% met criteria for probable psychopathology and 12.2% probable for PTSD (Pinto et al., 2015). Fire departments cannot expect personnel to mitigate occupational stressors on their own, as everyone has their own mechanisms for processing trauma (Moore, 2020).

Fire Service Cultural Barriers

The work environment of firefighters differs from other fields, which can negatively impact the efforts to seek mental health assistance (Jones et al., 2020). The social dynamics of the fire service can suppress the outward display of emotion, as empathy can be seen as a weakness (Miller, 1999). Fire departments have adopted employee assistance programs, peer support groups and critical incident stress debriefings to address mental health complications,

however rates of PTSD, compassion fatigue, burnout, and suicide continue to rise each year (Jones et al., 2020). Currently there is no research that documents these programs as successful intervention methods (Priebe & Thomas-Olson, 2013). A study conducted in 2020, surveyed 314 firefighters to identify any perceived barriers when they attempted to report a behavioral or mental health complication (Thews et al., 2020). The study utilized an online survey format and discovered firefighters face cultural barriers such as embarrassment from co-workers on the condition, a fear of being ostracized and shunned for future promotions, and a chronic stigma of not being a fit firefighter. Additionally, structural barriers were identified, such as difficulty filing a claim, change in occupational status, and not receiving adequate recovery time.

Synthesis of the Existing Literature

The fire service is aware of the growing mental health issues within the profession, yet for the last 5 years the industry has fallen short of implementing successful solutions. According to Salas et al. (2006) organizations need training technology, learning strategies, and developmental protocols to prepare their workforce, yet the fire service has not incorporated any mental health curriculum into fire academies or annual assessments. Fire service leaders could implement learning principles from Bandura's (1977) social learning theory by clearly articulating explanations for behaviors, prepping fire personnel for the wide range of emotional variables they might face in the duration of their career. Since the fire service culture is intertwined with social norms, behavioral modeling is an effective way to practice learned skills and reinforce social expectations (Taylor et al., 2005). Firefighters train routinely and are constantly being evaluated on performance measures, however they are not trained in mental health mitigation or assessments. If fire service leaders want to curtail the rapidly increasing

mental health cases among its personnel, they must identify the behaviors required to successfully achieve those accomplishments (McGee & Johnson, 2015).

Summary

The literature review examined the primary gaps in preparation and assessment of mental health within the United States fire service. General research on firefighters experiencing mental health complications due to occupational stressors illustrates a need to reevaluate current employee assistance resources. Further examination of the literature exposes multiple symptoms, such as burnout, compassion fatigue, substance abuse and post-traumatic stress disorder (PTSD) manifesting into severe psychological factors that negatively influence firefighter behavior. Examining the evolution of mental health in the fire service demonstrates how fire departments have yet to incorporate successful solutions to aid firefighters, even as the frequency of cases increases nationwide. This review presented a detailed discussion on firefighter behavioral health utilizing evidence-based research studies, followed by literature on fire departments shortfalls in motivating senior leaders to look past traditions and formulate new programs that positively impact firefighter health. Current research on fire service culture addresses how mental health stigmatization affects firefighters desire to seek out assistance through available resources. Subsequently, this review exposed the systematic framework of how the fire service operates without principles of motivational theories in their desire to address the mental health epidemic. More research is needed to examine which organizational gaps are exacerbating firefighter behavioral health, and what motivational factors are inhibiting resource allocation to fire personnel.

CHAPTER 3: METHODOLOGY

Firefighting is mentally and psychologically demanding, resulting in higher rates of sleep disorders and behavioral factors contributing to suicide and suicidal ideations (IAFC & IAFF, 2018). 30% of first responders develop challenges in mental health, compared to 20% of the general population (Abbot et al., 2015). The literature (Rice et al., 2018) suggests that the risk factors related to suicide is manageable.; therefore, the purpose of the research was to understand why behavioral health initiatives have not been incorporated into the wellness program at SRFD. The research strove to identify the pivotal knowledge, motivational, and organizational factors (Clark & Estes, 2008) that contribute or hinder the SRFD in facilitating a behavioral health component in the annual medical evaluation of officers.

Research Questions

This study encompasses the following research questions:

1. What knowledge, motivation, and organizational proclivities led HWC members to formulating and implementing a behavioral health program for 100% of SRFD sworn personnel?

2. What organizational barriers, if any, inhibit the motivation and knowledge of behavioral health programs for HWC personnel?

3. What is the advocated knowledge, motivation, and organizational resolutions for the identified challenges?

Research Design

A triangulated approach utilizing qualitative research was used for this study. Interviews, document analysis, and observations represent multiple sources of accepted data that allow participants to share ideas freely, without constraints from predetermined instruments and scales (Creswell & Creswell, 2018). Additionally, triangulation of data sources constructs a contemporary propagation of themes (Creswell & Creswell, 2018), while strengthening internal validity and reliability (Merriam, 1988). Interviews were conducted over Zoom to evaluate knowledge, motivation, and organizational characteristics that impede SRFD from consolidating a behavioral health component into the annual medical assessment and what KMO elements should be present to establish compliance. SRFD organizational documents were examined to identify which protocols were supporting or preventing the establishment of behavioral health initiatives, aligning with NFPA 1500 standards. Observations were recorded while observing critical incident stress debriefing, specifically reconstructing the dialogue and interject reflexive notes. Observational data provides demographic information such as the date, place, and time of the field setting (Creswell& Creswell, 2018), which may enhance the validity of the data. Qualitative research emphasizes the nature of a particular phenomenon (Gibbs, 2018), and this research deploys an idiographic approach on why SRFD does not contain a behavioral health program and what components are needed to do so.

Table 1
Data Sources

Research Questions	Type of Analysis	Theoretical Framework & Data Instrument

RQ1: What organizational barriers inhibit the motivation and knowledge of behavioral health program development?	Qualitative	Clark & Estes Knowledge, Motivation, and Organizational Theory
RQ2: What is the firefighter's knowledge, motivation, and organizational proclivities to formulating and implementing a behavioral health program?	Qualitative	Clark & Estes Knowledge, Motivation, and Organizational Theory
RQ3: What is the advocated knowledge, motivation, and organizational resolutions for successful development and implementation of behavioral health programs?	Qualitative	Clark & Estes Knowledge, Motivation, and Organizational Theory

Population and Sample Size

The target population for the interviews included fire service personnel from various departments across the country. The study was centered on behavioral health programs affecting mental health in the fire service, of which fire personnel need to be the primary participants. Military and police departments have similar behavioral health characteristics that would provide a correlation to the study, so they were also included in the population. The study will utilize a semi-structured interview approach to explore ideas in more detail, while providing flexibility

for the discovery of information previously unaccounted for (Britten, 1999). The relationships I have built with firefighters in multiple states and my desire to gain insight from those outside my field (Merriam & Tisdell, 2016) will yield a diverse group of responses, that can be triangulated into common themes for analysis.

My strategy to recruitment was to identify departments from different regions of Arizona and see if I can identify common themes to behavioral health initiatives that have been successful. Additionally, some of the most robust fire departments lie outside the state of Arizona and they have the budgetary flexibility to provide the most resources to their personnel. It would be a disservice not to investigate the largest departments to see what they provide as programs to mitigate the manifestations of mental health from routine job duties. My sample size for the interviews is 10 public safety participants, as phenomenological research recommends a sample size of five to 25 (Creswell, 1998). The sample will include representatives from different ranks, genders, and age groups.

Instrument(s)

Interviews were conducted through a semi-structured format, which utilized a combination of structured and less-structured questions. The approach allowed the interviewee to define their environments in their own way (Merriam & Tisdell, 2016), illustrating a unique perspective that may be foreign to the researcher. Additionally, the approach provided the researcher flexibility to steer the conversation in an exploratory path as innovative ideas surfaced within the response (Merriam & Tisdell, 2016). The interviewing process is part of an emergent design, structuring a plan for questioning that is not prescribed (Creswell & Creswell, 2018). Interview framework consisted of 17 questions (Table 2), separated by personal and organizational categories. Clark and Estes (2008) KMO model influenced question design,

focusing on knowledge, motivation, and organizational barriers within each category. The content of questions allows the respondent to discuss the influences, factors, and individuals within their organization that have led to the development or omission of behavioral health programs. The research questions focus on the gaps in organizational practices that have contributed to shortcomings in providing a comprehensive program for employee mental health. The KMO gap analysis model was used for the conceptual framework and focuses on identifying human causes to change and discerning suitable solutions (Clark & Estes, 2008). The research questions and interview protocol were designed to expose factors influencing successful goal achievement, which may improve motivational urgency to allocate resources towards mental health within the workplace.

Table 2
Interview Questions

1.Do you work for a career fire department?
2.How long have you worked in the fire service?
3. Does your department have a behavioral health program?
4. Describe your department's behavioral health program?
5. How many critical stress events have you experienced at work?
6. Do you feel your stress as a firefighter caused unresolved psychological/emotional issues?
7. How satisfied are you with your departments managing of stress management?
8. Do you feel fire department cultural stigma forms a barrier to seeking help for behavioral issues?
9. How often have you used your employers Employee Assistance Program (EAP) for job stressors?
10. Have you ever took part in Critical Incident Stress Debriefing (CISD)?
11. Outside of EAP, are there any behavioral health services available to you?
12. Have you ever sought help from a fellow firefighter?
13. If yes, did you find that peer support beneficial?
14. Do you believe there is sufficient behavioral health services for fire personnel?
15. Do you believe increased behavioral health awareness in the fire service will lead to more resources being distributed to address these issues?
16. Do you feel your department distributes sufficient behavioral health resources?
17. How often does your department supply behavioral health awareness training?

Research Process

The stakeholders in this study consisted of fire, military, and police personnel from multiple departments in Arizona. It is important to expand the research into careers outside the fire service because public safety and military organizations work on a vertical hierarchy, following a strict chain of command, which can be quite similar. The research illustrates that firefighters, police officers, and military personnel all have higher rates of mental health complications compared to the general population (Stanley et al., 2016). These organizations operate in similar high stress environments, which lead to similar behavioral manifestations. The decision to discover, understand, and gain insight from specific examples outside my industry led me to use purposeful sampling (Merriam & Tisdell, 2016). As a form of non-probability sampling, purposeful sampling allows me to draw upon in-depth understanding of specific cases (Patton, 2015), correlating that understanding to my research questions.

The research recruitment approach was to identify individuals working in fire, police, or military fields with a similar size budget to the SRFD, or larger, as their organization would have access to more resources for employee behavioral health initiatives. Additionally, private sector companies may have more flexibility in how they operate compared to the public sector that is structured around more statutory regulations. The target sample size for interviews was ten participants. This is to increase the confidence factor, while simultaneously reducing the margin of error. Personnel from all ranks were chosen to participate to achieve higher qualitative inquiry (Creswell & Creswell, 2018).

Data collection methods consisted of interviews, document analysis, and field observations. An email was sent through the Salt River Fire Department as well as the Arizona

Center for Public Safety Excellence, discussing the purpose of the study and requesting participants. Participants were selected from the individuals who responded to the inquiry. Inclusion criteria were as follows:

1) Public safety participant: Fire, police, military, or two or more

2) Rank: At least two or more in each rank of chief officer, captains, and line personnel

3) Gender: At least one female participant among the ten, which is representative of the overall workforce.

Meetings were set up for each participant. Each interview lasted for approximately 45 minutes to an hour in length and occurred over Zoom. Informed consent was discussed and obtained at the beginning of each interview. Data was produced from recorded interviews and transcribed through the Zoom audio transcript feature. The documents were time stamped and converted to PDF format. To ensure trustworthy data, language clear to the respondent was used in each interview, and the researcher was acutely aware of potential preconceived relationships with the interviewee to remain neutral and not shape responses with personal value judgements (Merriam & Tisdell, 2016). Additionally, permission to record the interview was requested of participants, and the participant was reassured that all data would remain confidential (Creswell & Creswell, 2018). Before the data was examined, a priori codes were developed to categorize themes based on a theoretical framework and the research questions. A priori codes aid the researcher in developing abstract concepts before moving to specific themes. Line by line analysis of the interviews produced additional concepts taken from the words of the participants, resulting in new themes called in vivo codes. This style of coding gives meaning to the data and decreases the probability of researcher bias. Subsequently, codes were refined and placed into a hierarchy (Gibbs, 2018) to limit redundancy and increase analytical clarity. The Code Book,

located in Appendix B, outlines the coded framework used to categorize themes from all interviews.

Ethical Considerations

For the study to be received adventitiously, the research must be conducted with moral and ethical integrity. Multiple policies and procedures are in place by governmental organizations and institutions to facilitate ethical conduct in research, which includes my own ethics and value system (Merriam & Tisdell, 2016). I must be aware of my positionality, so I do not ask leading questions that support my desired answers, but instead ask neutral questions and allow the respondent to elaborate freely in the interview answers. I maintain a high-ranking position in my department and am cognizant that my colleagues, particularly those who are ranked below me, may seek to respond in an agreeable manner to gain favor in the workplace. Such bias in the interview process would obscure the data. To mitigate this risk, I was careful to avoid using language that provided value judgments, as well as leading questions, when guiding the interviews. I also reassured each participant that all discussions would be de-identified and remain anonymous for the study, and that no workplace repercussions could result based on our interviews.

Individuals tend to fill unknown data with assumptions created by our value system, but that is one purpose of the interview, to obtain the perspective of another in an area where I may not have accurate assumptions. My topic is sensitive within my industry, and I do have ideas on how to mitigate the negative effects from it. This bias cannot be interjected into my research because it will distort the data and influence participant responses. I identify as a cis gendered man and the words I would use to describe an event are different from what a woman would use to describe the same phenomena. In this scenario I would want to confirm that her words mean

what they do through a member check (Merriam & Tisdell, 2016). My interview is intended to measure perceptions from individuals that work in the fire service and have direct anecdotal experience not hypothetical constructs that distort the data (Creswell & Creswell, 2018).

Summary

The study utilized a qualitative methodology to extract data from specific human subjects with backgrounds in the research area. Interviewing was attractive because it allowed for an extraction of ideas from individuals in a particular setting, enriching the authenticity of the research. Ten interviews were conducted with individuals of differing backgrounds, but who were employed within the fire, police, and military fields. To protect human subjects, the research was conducted to provide the fire service options in developing behavioral health programs, while minimizing psycho-social harm to participants. The interview questions were designed to assess stakeholders ideas and perceptions about behavioral health programs in their industry, facilitating an organic approach for inquiry. Due to the subjective nature of qualitative analysis, peer review was a necessary step in the future review process. Subsequently, group think can inadvertently influence peer review, which is why individuals who do not think along similar parameters were sought out. All qualitative research was interpreted through the filter of the researcher, thus making researcher positionality a focal point to ensure personal conclusions are not taken as universal constructs.

CHAPTER 4: STUDY RESULTS

Introduction – Demographics of the Participants

The motive of this research was to guide a gap analysis of the motivation, knowledge, and organizational components needed to incorporate a mental health curriculum into the SRFD's health and wellness program. To understand the impediments of mental health implementation, the Clark and Estes (2008) gap analysis framework was utilized to study the needs of SRFD personnel. Additionally, this section uses Heifetz and Linsky's (2002) adaptive leadership model to comprehend the foundations of organization change. Heifetz and Linsky (2002) state that standard operating guidelines, policies, and rules are beneficial in solving technical problems, but lack the framework needed for adaptive challenges. Therefore, Clark and Estes (2008) gap analysis model were used to identify the gaps in knowledge, motivation, and organizational resources, while Heifetz and Linsky's (2002) adaptive leadership model categorized the themes in relation to technical or adaptive challenges, each representing different skills for resolution.

A compendious literary review was effectuated of behavioral and mental health programs, theorems on knowledge and motivation, and theories on methodological constructs. Knowledge, motivation, and organizational proclivities were ascertained amongst the literature review undertaking. This chapter illustrates the themes of interviews and observations that facilitate guidance for SRFD's motivational, organizational, and knowledge-based obligations needed to overcome barriers to mental health program design and implementation. Interviews were conducted with ten members of the SRFD who agreed to the interview but declined to be recorded for fear of retaliation. Interview replies were deconstructed for outlining themes and conceptualizations relating to the replies for each question. If 60% or more of interview respondents answered questions similarly, that theme was categorized as a majority. If interviews

and observations illustrated a similar need, that concept was labeled “action indicated” on the table under Future Exigence. Data analyzation and recommendations for actions are articulated in Chapter Five.

The interviews were started in January of 2023 and completed by the end of February 2023 with minimal interruptions. All participants declined to be audio or video recorded, as they wanted to remain anonymous. It should be noted that SRFD experienced a line of duty death on April 8th, 2022, of a probationary firefighter, which negatively impacted the department. After months of investigations, a strong dislike of the department’s command staff continues to linger and may be a catalyst for interviewee anonymity.

The following research questions were used to facilitate this study:

1. What organizational barriers inhibit the motivation and knowledge of behavioral health program development?
2. What is the firefighter’s knowledge, motivation, and organizational proclivities to formulating and implementing a behavioral health program?
3. What is the advocated knowledge, motivation, and organizational resolutions for successful development and implementation of behavioral health programs?

All interview participants are employed by the Salt River Pima-Maricopa Indian Community. Of the ten individuals who were interviewed, one (10%) was female and nine (90%) were male. There were four (40%) Native American interviewees and six (60%) Non-Native American interviewees. Five (50%) interviewees possessed 10 or more years of fire service, four (40%) had 20 years or more of fire service, and one (10%) possessed 30 or more years of fire service. Lastly, two (20%) interviewees were aged between 20-29, two (20%) interviewees were between

ages 30-39, one (10%) interviewee was aged between 40-49, and five (50%) interviewees were aged between 50-59.

Gaps in knowledge were assessed from interviews and observations. During the literature review, knowledge influences were identified utilizing Sweller's (1988) cognitive load theory, which delineates cognitive architecture as working memory and long-term memory. Discussions can activate prior knowledge from long term-memory and relocate this information into the working memory. Understanding how the declarative nature of prior knowledge can affect procedural evolution is key for this study. Prior knowledge needs for this study are illustrated in Table 3.

Table 3.
Knowledge Assessment

Prior Knowledge	Interview Data	Anticipated Needs
SRFD needs to have knowledge of firefighter behavioral and mental health issues.	Knowledge exists in ambiguous nature. Not specifically correlated to SRFD issues.	Development of behavioral health curriculum is warranted
SRFD knowledge of procedural practices used for behavioral health program.	Knowledge existed of the peer support team but no emphasis on any SRFD behavioral health program.	Development of behavioral health curriculum is warranted
SRFD needs to comprehend the requirements outlined in NFPA 1500 (*Standard on Fire Department Occupational Safety,* Health*, & Wellness Program*)	Knowledge existed of an annual medical physical but no recognition of behavioral health program outline in NFPA 1500.	Incorporation of NFPA 1500 into annual training curriculum and medical physical.

Research Results

Knowledge of Firefighter Behavioral Health Issues

The findings indicated limited knowledge actualization but promote the need for further exploration of behavioral health program development and implementation by SRFD staff. A training process existed for fire personnel to become peer support team members, which interview data revealed that SRFD had knowledge of within its members. Nevertheless, improvement opportunities were acknowledged in all three categories of interview inquiry. The interviews did not examine the depths of stakeholder knowledge on behavioral health initiatives, rather stimulated their attitudes as to whether SRFD had provided the resources necessary for program development. The following segment will examine the discoveries from interviews about SRFD personnel's familiarity of behavioral health and how it affects members of the organization.

Interview data. Table 4 characterizes interviewee knowledge of major firefighter behavioral and mental health issues within the U.S. fire service that were acknowledged in the literature review. The interviewees exhibited low cognizance of most topics effecting the fire service, verified by 0% of respondents acknowledging firefighter burnout and compassion fatigue as leading topics affecting the fire service nationwide. Cultural barriers, suicidality, and PTSD were the three topics most recognized by respondents. Approximately 30% of respondents identified three out of the six topics and 80% were able to recognize at least two of the six. Zero percent of interviewees were able to recognize more than three topics. Almost all (90%) of respondents distinguished cultural barriers as a topic influencing behavioral and mental health, which according to the literature review, discovered firefighters face cultural barriers such as embarrassment from co-workers on the condition, a fear of being ostracized or shunned

for future promotions, and a chronic stigma of not being a fit firefighter. Respondent data suggests knowledge gaps in fire personnel's familiarity with mental and behavioral health factors. Additionally, further research is warranted into SRFD's cultural barriers that inhibit the development and implementation of a formal behavioral health program aligning with NFPA 1500.

Table 4
Percentage of Respondents That Identified Firefighter Behavioral & Mental Health Topics

Firefighter Behavioral &Mental Health Topics	Number of Respondents That Identified Incidences	Percentage of Respondents That Identified Incidences	Number & Percent Who Identified All Six	Number & Percent Who Identified At Least Four	Number & Percent Who Identified At Least Three	Number & Percent Who Identified At Least Two
Suicidality	3	30%	0%	0%	3 (30%)	8 (80%)
PTSD	3	30%				
Burnout	0	0%				
Compassion Fatigue	0	0%				
Cultural Barriers	9	90%				
Sleep Deprivation	1	10%				

The interview data does not establish criteria for labeling SRFD personnel as unaware of behavioral and mental health issues affecting the fire service, rather insights of personnel who have not been properly educated by the department through a formal behavioral health program. This gap reinforces the need for the SRFD to establish a formal behavioral and mental health program under the health and wellness platform. The respondents expressed a yearning for future development of behavioral health conceptions combined with support from the departments command staff. Interviewee 1 stated, "People compartmentalize a lot of issues, they work within their small groups because they don't believe those above them will do anything." Interviewee 4

echoed the sentiment, “I hit a point where I had suicidal ideations. I was having issues with PTSD and conflict at work. Eventually I used an assistance program through the military because I didn’t trust anyone I worked with. Senior staff was brought into their ranks with little mentorship, leading to them not knowing how to handle mental health in people.” These clarifications may explicate why cultural barriers were the most common topic mentioned during interviews. Expanding on cultural barriers, Interviewee 7 indicated, “My wife didn’t even know she had access to assistance when I was overseas. Lack of knowledge. Nobody contacted my family to see if they needed help when I was gone. I came back and people started calling me ‘brother’ and shit. That pissed me off because it was the furthest from the truth.”

Interviewee 2 felt the emphasis on mental health is just starting to arise and that is why the department is slow to orchestrate a formal behavioral and mental health program: “New concept. Physicals are usually anatomy and physiology not mental health.” Furthermore, the individual continued, “Mental health evals at annual physicals doesn’t have because we would be classified as crazy. Like, when I’m at El Pollo Loco with my kids and I see the burnt chicken on the grill, I think to myself, damn I’ve seen people like that.” The respondent seemed eager to promote more mental health emphasis and said, “We need baseline mental health statistics, so we can monitor personnel over time.”

Suggestions on what resources the department should offer were discussed. Interviewee 3 stated, “We need someone spiritual to guide those in need, religious is okay too. We don’t have trust, we need a mentorship program.” Interviewee 10 shared, “We could use telemedicine with public safety psychologists. And they need to be public safety. You think I’m gonna talk to some therapist that deals with couples in real estate and what not. Hell no. We need someone relatable.” Interviewee 10 continued, “How about having a station dog? I know other agencies do

it. And (routine) quarterly psychological meetings. We should add mental health to our annual physicals. Command staff needs to step up and care for their people." Respondent data shows a gap in knowledge and motivation from SRFD regarding behavioral health. Without a plan to incorporate a mental health program, fire personnel are losing faith in the command staff to take care of them.

Summary

Interview results indicated a lack of overall knowledge about what factors in the fire service are affecting mental and behavioral health, as 0% of respondents identified compassion fatigue and burnout as topics. Interviewees denoted SRFD does not have a behavioral health program and are not in compliance with NFPA 1500. However, multiple themes arose from interview triangulation. Lack of trust from the departments command staff was the most common theme. Command staff is highly influential and may represent the cultural barriers acknowledged by multiple interviewees. Adding a mental health component to the annual physicals was mentioned numerous times, as was the need for training in interpersonal dynamics for department officers. The data revealed SRFD has not promoted mental health and historically pushed to deal with issues at the lowest level. Based on interviewee suggestions, SRFD personnel want a comprehensive behavioral health program that has annual components and is supported by the departments command staff. Subsequently, interviewees recommended their families have access to behavioral and mental health education, as well as retired personnel. Emphasizing behavioral health education during the fire academy, throughout one's career, and into retirement was an additional recommendation repeated by interviewees.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Summary of the Results

Clark & Estes (2008) KMO gap analysis model was utilized as the framework to examine the research through the lens of knowledge, motivation, and organizational influences on SRFD's goal of program development and dissemination. The data documented gaps in SRFD resources and provided insights to accomplish this objective. The assumed knowledge, motivational, and organizational requirements to accomplish behavioral health program development were organized, along with recommendations provided by scholarly research. Subsequently, the interview data suggested there was an organizational expectation by SRFD personnel that the department would provide a behavioral and mental health program, as outlined in NFPA 1500. Recommendations on a plan to initiate program development is listed below. Cultural stigmas remain prevalent within SRFD and is an inhibitor for fire personnel to seek help or talk aloud with coworkers. Attempting to change department culture is challenging and will require individuals to be placed in a state of disequilibrium. Heifetz and Linsky's (2002) adaptive leadership model was used in developing recommendations for change, as no solution for this behavioral health issue is available.

Conclusions Based Upon Your Results

The interview data implies the SRFD does not possess the minimal knowledge or motivation to create a behavioral and mental health program. Subsequently, cultural stigma was identified as the single greatest inhibitor of program development. This is significant because it shows the department has become the most noteworthy barrier to program development. Knowledge, motivation, and organizational assets are needed for program development to occur. Interview data suggested mental health training should occur at a minimum on an annual basis.

Training on cultural awareness and HIPAA are conducted annually, so there is already a platform in use to facilitate delivery of another program. The SRFD does not have a chaplain or spiritual advisor, which was a theme that originated twice during the interviews. This is valuable information because it expressions firefighters expectations of the department and where the command staff needs to prioritize resources.

Emotional intelligence (EQ) has been proven a better indicator of successful leadership than IQ, yet SRFD's promotional examination process is designed to test IQ. Multiple interviewees stated company officers and command staff need enhanced training on human dynamics because gaps exist in the ability to recognize signs and symptoms of personnel going through emotional stress. Incorporating a behavioral health interactive exercise into the process may influence candidates to spend more time learning about behavioral health, thus enhancing their EQ capability. Technology has advanced to allow communication through devices more than in-person interaction. The ability to recognize signs and symptoms in fire personnel becomes more challenging as those skills are lost. This is valuable because it places an emphasis on human interaction that has not been needed before. This implies the SRFD needs to prioritize interpersonal dynamics as much as it does operational competence. Since EQ is a better indicator of leadership success, promotional design should be adjusted to test for those skills.

Without knowledge of behavioral health issues, it is difficult for fire departments to address those challenges. For example, one interviewee stated the department needs adopt "heart saver tones," because it mimics the same sound as air raids when a military base is under assault. The interviewee stated the station tones give him PTSD as he mentally cannot remove the thoughts of his base under attack when he was deployed. This provides evidence that people

come into the fire service with pre-existing conditions such as PTSD. Therefore, they would be prone to further susceptibility while working in the fire service. If the SRFD knew of this issue, they could change the tones, so they do not mimic air raid sirens in the military. A pre-hire screening could help fire departments correlate current resources to those that are needed.

Limitations

Limitations are influences that restrict research. Limitations can be outside the sphere of control of the researcher. This research was guided within a qualitative environment, including research characters and a researcher, increasing instances to influence outcomes by human error. The truthfulness of candidates during the interviews is a limitation, as well as the mental state of candidates at the time they were interviewed. Limitations include the knowledge of both respondents and the researcher, which may influence bias because both are employees of the same fire department. This research was also limited by the region of the study, as SRFD is a tribal reservation with its own government and laws, creating a unique culture not recognized by those outside its boundaries. The number of participants in the interview and the amount of time for the interview were both limiting factors of the study.

Another limiting factor of the study was the lack of a comparative analysis to other fire departments. The research was a case study of SRFD, making it impossible to formulate a generalization that could be applied regionally or nationally. The interview structure and choice of candidates were constructed by the researcher through their own lens. However, the adaptive leadership model (Heifetz & Linsky, 2002) and KMO framework (Clark & Estes, 2008) used to evaluate the data can be used by others to build upon this study or probe questions on their own accord.

Implications and Recommendations to the Field

The framework being used for recommendations is the Heifetz and Linsky (2002) Adaptive Leadership Model. Adaptive leadership involves diagnosing, disrupting, and transforming as influences affecting organizational change. The analysis of these influences demonstrated a lack of urgency within SRFD command staff to develop a behavioral health program because the department did not diagnose the severity of the problem.

Currently, SRFD fire academies do not discuss or educate fire recruits on behavioral or mental health. One week should be set aside during the academy for mental health education taught by a clinical healthcare provider. Recruits could learn valuable lessons on what they will experience, how it can affect them, and what mitigation strategies are recommended by clinicians. Additionally, bringing in family members for a day of emersion, will illuminate what their loved one will be going through. This is valuable because they might be able to recognize changes in that person better than anyone, which translates to earlier detection of behavioral changes.

A second recommendation would be to incorporate a mental health assessment into the department's annual physical. This would be an assessment by a licensed clinician to determine baseline statistics that could be tracked over time. Due to doctor-patient confidentiality, there is no risk in information leaking out and this would mitigate the cultural stigmas that plague the SRFD. Additionally, since it would be a mandatory requirement, everyone in the department must partake, further reducing the cultural stigma by not pointing out those individuals seeking help. Cancer screenings have been added to annual physicals, as well as calcium channel screenings for heart disease. However, there is no component that addressed mental or health, and this may be a reason why it has become an issue.

A third recommendation would be to include retirees in the behavioral and mental health program. The fire service does not incorporate retirees into the statistical data on suicides, yet many in the industry know of retired fire personnel who have taken their own life. The data shows that firefighters take on the persona of the job and may create an unhealthy attachment to the image. They feel a sense of disequilibrium when they leave the profession. If SRFD would demonstrate empathy and care for their employees by offering services to retired personnel. Subsequently, it would encourage people to join the SRFD if they knew how much they were cared for, and that they would be supported even after they leave.

Recommendations for Future Research

Behavioral and mental health efforts are accelerating in the fire service. Behavioral and mental health is attracting media attention and departments have suffered the long-lasting effects of not prioritizing programs that mitigate the challenges that come with routine job duties. This research was designed to illustrate where the barriers existing in behavioral and mental health program development and implementation. Through literary review and interview data, three areas of significance materialized for future research to build upon this study.

Initially, research should be conducted to determine if the routine job responsibilities of firefighters are the cause of behavioral and mental health conditions or if the role just exacerbates pre-existing conditions. It would be instrumental to pinpoint what specific facets of the job correlate to specific behavioral health conditions. For example, what scenes/environments cause an increase in suicidality or PTSD compared to compassion fatigue? Knowing this information could contribute crucial understanding to design mitigation strategies for adverse reactions to harsh incidents. Subsequently, what if the largest contributing factor is sleep deprivation and not gruesome incidents? That would spur a larger conversation about

changing shift schedules and prioritizing sleep patterns, which would be an adaptive challenge for the fire service because resistance would be strong. Furthermore, since rates of suicide have risen consistently for the past 12 years, should the fire service conduct pre-hire behavioral health evaluations to determine if a person is more susceptible and less resilient to death and injury? Mental and behavioral health conditions cost money to mitigate and treat. If insurance companies raise premiums on fire personnel due to the prevalence of mental health (the data says it's an increasing problem), research would aid in support or opposing such future measures.

Secondly, research on peer support teams should be applied to evaluate their effectiveness on fire personnel. Peer support groups are made up of trained firefighters, retired fire personnel, or a combination of the two, that provide support for firefighters experiencing emotional, personal, or work-related stress. Fire departments began incorporating these teams over a decade ago, yet rates of PTSD, suicide, compassion fatigue, burnout, and sleep deprivation have continued to rise. Peer support teams are not legally confidential and that may be a barrier for fire personnel to use their services. Research on what departments are receiving the desired outcomes from their peer support teams could provide insight into what is working and what is failing for other departments.

Tertiary, research would be beneficial once the SRFD establishes a behavioral and mental health program. The data from interviewees revealed a general lack of behavioral health knowledge, which factors into their ability to recognize and help others experiencing similar dispositions. The SRFD does not have a clinical practitioner on staff, which may be needed for future confidentiality and assessment of department personnel. It would be valuable to see whether a contracted clinician increases the motivation of SRFD personnel to reach out for assistance and what kind of effect this has on sick leave callouts and overall department morale.

Lastly, continuing research should be piloted into assessing what behavioral and mental health education in being delivered on a national and state level. Because a fire department offers behavioral health services do not mean personnel are receiving the resources they need. What certifications and qualifications are held by individuals delivering these services? Should fire departments sponsor their own personnel through professional counseling or psychology programs? Not long ago, firefighter I and II was required to apply for a firefighter position, then emergency medical technician (EMT) was required. Should departments require additional certifications in human dynamics for new applicants? And what does this look like? Research would be valuable to the stakeholders of the fire service to know exactly what changes are needed to ensure the best delivery of internal and external service relating to behavioral and mental health.

Conclusion

The function of this research was to specify the organizational, motivational, and knowledge influences that have limited the development and implementation of a formal behavioral health program within the SRFD. Ongoing mental health education is important to SRFD because rates of suicidality, PTSD, compassion fatigue, burnout, and sleep deprivation are affecting firefighters at a greater rate than the general population. Knowing this, SRFD has failed to establish a formal behavioral and mental health program. Waiting around for state agencies to build a program SRFD can copy is not a healthy choice because the education is needed now. The research is intended to assist SRFD in building their own behavioral health program by identifying barriers that need to be alleviated. This program could be built and delivered to our regional partners if our program's objectives meat the desired outcomes.

The literature review on behavioral and mental health issues in the fire service identified numerous influences that support the need for greater knowledge within SRFD. These issues comprised significant trends of what behavioral health aspects are encompassing fire personnel, what resources are available for firefighters seeking assistance, historical and current statistics, and what local, regional, and national agencies are doing to address these issues. Suicide, burnout, compassion fatigue, and PTSD are significant challenges within the fire service and affect fire personnel greater than the general population. While research has indicated occupational stressors of routine firefighter duties influence these conditions, it is not yet known how much personal control firefighters have over these conditions. Since SRFD does not educate firefighters on stress coping mechanisms, it cannot be ascertained that all behavioral health conditions are out of our personal control.

The literature review recognized national standards, such as NFPA 1500, as a foundation for behavioral health and wellness program development. National and non-profit organizations such as the IAFC, NVFC, IAFF, NFFF, FFBHA, and NFPA have concocted initial guidelines to orchestrate proactive measures of identifying and sculpting mental health programs. Unfortunately, no national or state curriculums on firefighter behavioral health programs were identified, research has increased in this paradigm and the future is promising.

The Arizona Center for Fire Service Excellence (AzCFSE) training calendar and the National Fire Academy courses were evaluated during the literature review. Neither entity offered more than a basic awareness course on mental health. This demonstrates the need for institutions to take the lead and create urgency in this field, as they have the platform to influence the fire service substantially. Furthermore, fire departments look to their training agencies on all levels for examples to follow, and there is currently a gap in program development and

implementation. This research was specific to SRFD but if occupational stressors are affecting the fire service to such a degree, the entire industry should be trained properly to reduce the effects of these conditions. If we cannot take care of each other, what message does that send to our external stakeholders that we can take care of them?

The SRFD acknowledged a desire for efficient behavioral and mental health knowledge and education, so they can produce an effective program. The research illustrated that SRFD did not have the knowledge, motivation, or organizational resources in place to produce such a program, but it shows what is needed. From the research it is clear behavioral and mental health issues are continuing to rise in the fire service, and current solutions have not reversed this trend. Disseminating knowledge about mental health, from the academy to retirement, may be a profound first step. There is also stress mitigation tactics that should be incorporated into department training, which may alleviate many of the underlying symptoms provoking suicidality, PTSD, compassion fatigue, burnout, and others. Efforts on a local, state, and national level will be needed to establish a robust program that produces a cultural change within the fire industry. This research should be used to continue the conversation about behavioral and mental health and to motivate all levels of the SRFD to prioritize these goals.

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APPENDICES

Create a separate appendix (labeled "Appendix A," "Appendix B," and so forth) for each type of supplemental information related to your CRP. If you used interview questions or a survey, you should provide the questions or survey items as an appendix. Include qualitative coding or quantitative statistical datasets/analyses as appendices, when appropriate. You may also have an appendix for defined terms or additional data, figures, tables, etc.

APPENDIX A

High burnout associated with Any Sleep Disorder, Any Mental health Condition and an Any Sleep Disorder by Any Mental health Condition interaction term

Burnout Outcome[a], *n*[b]	Included Variables	B (SE)	OR	95% CI	*P* Value
EE	Constant	-2.729 (0.069)			
	Any Sleep Disorder[c]	1.106 (0.091)	3.022	2.528-3.613	<0.0001
	Any Mental Health Condition[c]	1.158 (0.206)	3.183	2.125-4.767	<0.0001
	Any Sleep Disorder[c] by Any Mental Health Condition[c]	-0.193 (0.243)	0.825	0.512-1.328	0.428
DP	Constant	-1.911 (0.049)			
	Any Sleep Disorder[c]	0.700 (0.072)	2.013	1.747-2.320	<0.0001
	Any Mental Health Condition[c]	0.662 (0.184)	1.938	1.352-2.779	<0.0001
	Any Sleep Disorder[c] by Any Mental Health Condition[c]	0.012 (0.222)	1.012	0.655-1.564	0.958
PA	Constant	-0.624 (0.035)			
	Any Sleep Disorder[c]	0.300 (0.057)	1.350	1.208-1.509	<0.0001
	Any Mental Health Condition[c]	0.173 (0.155)	1.189	0.878-1.610	0.264
	Any Sleep Disorder[c] by Any Mental Health Condition[c]	0.145 (0.194)	1.156	0.790-1.691	0.457
High Degree	Constant	-3.952 (0.122)			
	Any Sleep Disorder	1.133 (0.155)	3.104	2.289-4.210	<0.0001

	Any Mental Health Condition[c]	0.985 (0.363)	2.677	1.315-5.451	0.007
	Any Sleep Disorder[c] by Any Mental Health Condition[c]	0.171 (0.404)	1.187	0.538-2.618	0.671

EE, emotional exhaustion; DP, depersonalization; PA, personal accomplishment; OR Odds ratio; CI, Confidence interval; [a]High vs. low to moderate score on burnout dimension. [b]high EE, high DP, with low PA. [c]Missing or not known outcomes not included.

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APPENDIX B

Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion, or you would like to receive a copy of the final aggregate results of this study, please contact:

Dustin Zamboni
Student
National Fire Academy
Longhorns2627@gmail.com

Instructor
National Fire Academy

Giving of Consent

I have read this consent form, and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have received satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18 years of age.

☐ I give consent to be filmed and audio recorded during my interview. _____ (interviewee initials)
☐ I give consent to be audio recorded during my interview. _____ (interviewee initials)

Interviewer Signature		**Date:**	2/1/23
Interviewee Signature		**Date:**	2/1/23
Interviewee Signature		**Date:**	

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Interviewer Signature		**Date:**	2/6/23
Interviewee Signature		**Date:**	2/6/23
Interviewee Signature		**Date:**	

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Interviewer Signature	Dustin Zamboni	**Date:**	2/7/23

Interviewee Signature	[signature]	**Date:**	2/7/23
Interviewee Signature		**Date:**	

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Interviewer Signature		**Date:**	2/8/23
Interviewee Signature		**Date:**	2/8/23
Interviewee Signature		**Date:**	

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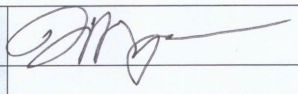
Interviewer Signature		**Date:**	2/13/23

Interviewee Signature		**Date:**	2/13/23
Interviewee Signature		**Date:**	

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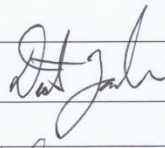
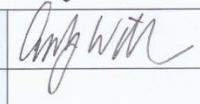
Interviewer Signature		**Date:**	2/14/23
Interviewee Signature		**Date:**	2/14/2023
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Interviewer Signature		**Date:**	2/17/23
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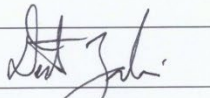
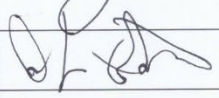
Interviewer Signature		**Date:**	2/12/23
Interviewee Signature		**Date:**	2/12/23
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Interviewee Signature		**Date:**	