

Developing a Responder Resilience Program for the Henrico County Division of Fire

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The Henrico County Division of Fire (Henrico Fire) provides significant support for members undergoing difficult times due to on-duty and off-duty stressors. Henrico Fire has a long-standing relationship with Henrico County Mental Health. Two clinicians are detailed on a part-time basis to support department members and their families. Members also have access to an active chaplain corps and a traditional employee assistance program (EAP). However, the current approach is almost entirely reactive. The problem is that the Henrico Fire does not place equivalent emphasis on building psychological resilience in the workforce prior to the manifestation of cumulative and/or chronic stress-based performance deficiencies, behavioral misconduct, or the frank manifestation of a mental health crisis. This research set out to determine the current state of responder resilience in Henrico Fire and to establish the necessary components of a responder resilience program. Utilizing descriptive methodology, this research determined the current level of psychological resilience in Henrico Fire members, established the level of current resilience-supporting behaviors, explored the link between responder resilience and performance deficiency and behavioral problems, and identified existing resilience-building strategies from the fire service and other professions. A resilience self-assessment tool, *The Resilience Checkup* (Schiraldi, 2011) was utilized along with a questionnaire. Interviews were conducted with Henrico Mental Health clinicians and Henrico Fire chaplains as well as with national experts on resilience. Results indicated a high level of self-reported resilience among Henrico Fire members. Mental health clinicians and chaplains describe Henrico firefighters as a very resilient group. Recommendations include further research in this area, the development of a psychological resilience training program for the fire service, and possible incorporation of resilience screening in the fire department hiring process.

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Introduction

Henrico County is a suburban locality of 312,000 citizens located adjacent to Richmond, Virginia. Henrico Fire is a metro-class, all-hazards emergency response agency that provides fire suppression; emergency medical services first response and transport; hazardous materials response; technical rescue services; and fire prevention and investigation services. In 2013, Henrico Fire responded to over 44,000 calls for service. The 526 sworn Henrico firefighters respond from 20 fire stations located strategically throughout Henrico County.

Henrico Fire places significant emphasis on the behavioral health and wellness of its members. The department has a long-standing relationship with Henrico County Mental Health and is one of few jurisdictions in the nation that has fully incorporated the fire department into the local Crisis Intervention Team (CIT). Two mental health clinicians are detailed on a part-time basis to support department members and their families. In addition to providing direct clinical services, the assigned mental health clinicians also provide education on stress and behavioral health during EMS continuing education classes. Each recruit academy includes a “Family Night,” where recruits and their families receive information from assigned mental health clinicians on the stresses involved in a career as a professional firefighter along with a thorough review of the resources available to respond to potential behavioral health crises and other mental and emotional issues. Henrico Fire also has an active chaplain corps led by a retired fire lieutenant and as Henrico County employees, all department members have access to a traditional Employee Assistance Program (EAP).

Fire department senior leadership has supported these efforts for many years and, as a result, both firefighters and supervisors of all ranks are quick to identify fellow members who might benefit from behavioral health services. As a whole, the organization appears to

understand the link between behavioral health and performance, and the stigma often associated with this area is not a major limiting factor for members seeking out services. Evidence of this fact lies in the number of members who frequently self-refer to obtain services for themselves or their family members (J. McCabe, personal communication, November 25, 2014). Despite this mature organizational approach to behavioral health, the current model is almost entirely reactive in its approach.

The problem is that the Henrico County Division of Fire does not place equivalent emphasis on building psychological resilience in the workforce prior to the manifestation of cumulative and/or chronic stress-based performance deficiencies, member behavioral misconduct, or the onset of a mental health crisis. The purpose of this research is to determine the current state of responder resilience in Henrico Fire and to establish the necessary components of a preventive responder resilience program. Utilizing a descriptive method, this research attempted to answer the following research questions: What is the current level of psychological resilience of Henrico Fire members? What resilience supporting behaviors and activities do members of Henrico Fire currently engage in? Is there a link between the level of responder resilience and performance deficiency and behavioral problems? And, what components of existing resilience-building approaches from the fire service and other disciplines and professions might be applicable to Henrico Fire? An existing resilience self-assessment tool, *The Resilience Checkup* (Schiraldi, 2011) was utilized along with a questionnaire developed by the author. Interviews were conducted with Henrico Mental Health clinicians and Henrico Fire chaplains as well as with national experts on resilience.

Background and Significance

In recent years the American Fire Service has recognized the importance of addressing the behavioral health of our nation's firefighters. In 2004, the National Fallen Firefighters Foundation released the 16 Firefighter Life Safety Initiatives with the stated purpose of preventing line of duty deaths and injuries (www.lifesafetyinitiatives.com). Life Safety Initiative 13, *Behavioral Health*, provided specific recommendations in the area of firefighter behavioral health. In 2011, The National Fallen Firefighters Foundation released a meeting report, *Issues of Depression and Suicide in the Fire Service* (2011) that summarized a White Paper (Gist, Taylor, & Raak, 2011) that was developed in response to a series of apparent "suicide clusters" in several large departments across the United States. In 2014, the National Fallen Firefighters Foundation reported that a fire department is three times more likely to experience a member suicide than a line-of-duty death ("Suicides Are Preventable", 2014). The 2013 International Health and Safety Week focused entirely on behavioral health. Specific behavioral health educational and training materials were provided for use by both responders and clinicians. (Everyone Goes Home, 2014)

Recent research findings have also created a heightened level of awareness of Post Traumatic Stress Disorder (PTSD) among firefighters and other responders. A 2006 study reported rates of PTSD among firefighters between 5 and 8 percent (Del Ben, Scotti, Chen, & Fortson, 2006). In addition to such scholarly efforts, the traditional fire service media, including *Fire Engineering* (Antonellis & Thompson, 2012), *Backdraft Magazine* (Sideras, 2013), and others have reported widely on the topic of behavioral health among firefighters. At the same time, social media platforms such as Facebook and numerous individual fire service blogs have

evolved as additional media platforms for communication regarding firefighter behavioral health (The Iron Firemen website, 2014; Fleitz, 2014).

In response to the realization of a significant behavioral health problem in the fire service our profession has done what it does best, respond. Affectively addressing a wide spectrum of risks will always require an effective response phase. However, the fire service has proven over the past several decades that the most effective way to deal with the fire problem is through prevention. It is reasonable to suggest that the same preventive principles apply to responder behavioral health.

For many years, Henrico Fire has placed significant emphasis on the behavioral health and wellness of its members. The author recalls a cookout held in 1995 during the 32nd Recruit Academy where a mental health clinician provided information to recruits and their spouses about the stresses of the profession and about available behavioral health resources. The department has a long-standing relationship with Henrico County Mental Health and is one of few jurisdictions in the nation that has fully incorporated the fire department into its local Crisis Intervention Team (CIT). Two mental health clinicians are detailed on a part-time basis to support Henrico Fire members and their families. In addition to providing direct clinical services, the assigned mental health clinicians also provide education on the potential impact of both critical and chronic stress on behavioral health during EMS continuing education classes. Recruit academy “Family Nights” continue to this day and now include a formal lecture as well as informal networking among clinicians, recruits, family members, training staff, and department senior leadership. All Henrico Fire members also have access to an active fire department chaplain corps and to a contracted Employee Assistance Program (EAP).

Fire department senior leadership and has supported these efforts for many years and as a result, both individual members and supervisors of all ranks are quick to identify fellow members who might benefit from behavioral health services. As a whole, the organization appears to understand the link between mental health and performance, and the stigma often associated with this area is not a major limiting factor for members seeking out services.

According to the assigned Henrico Mental Health clinicians, Henrico Fire's participation in the Henrico CIT program has reduced the stigma that often serves as a barrier to services in public safety agencies. On average, two to three Henrico Fire members self-refer to Henrico Mental Health each month and many members maintain a clinical relationship with their assigned provider for many years (J. McCabe, personal communication, November 25, 2014). Despite this mature organizational approach in response to behavioral health issues, the current model is almost entirely reactive in its approach.

For many years, Henrico Fire has spent considerable time and resources on providing an exceptional level of training in firefighting, EMS, specialized rescue, and other disciplines. The current leadership team has refocused the department on physical fitness as a foundation for operational readiness through the implementation of an annual work performance evaluation. Working in collaboration with the Henrico County Wellness and Fitness Division, the department developed a three-day program called "Fire Fit" that addresses managing personal change, physical fitness, fundamental firefighting skills, and nutrition. Department members who fail to meet the benchmark time or fail to complete the annual work performance evaluation are required to attend the Fire Fit program. The Fire Fit program addresses the four core foundational domains of resilience: the physical, mental, emotional, and spiritual. However, the program is currently limited in scope due to time and resource constraints. Initial program

feedback is generally positive. However, several Fire Fit participants have displayed significant emotional distress when confronting the challenges required to effect the major lifestyle changes associated with improved physical fitness.

Despite these efforts, Henrico Fire has experienced the tragedy of two member suicides in the last twenty years. More recently, in the last two years, there have been two physical altercations between firefighters, each of which resulted in mental health fitness for duty evaluations, temporary administrative assignments, formal internal affairs investigations, the application of formal discipline, personnel transfers, and formal grievances. These events, plus the unknown number of personal conflicts and disagreements that never rise to level of formal inquiry but nonetheless detract from the generally positive work environment, use up limited time and resources, and reduce mission readiness and operational effectiveness.

The problem of a lack of specific and intentional psychological resilience training program for Henrico Fire members is directly linked to the Executive Analysis of Fire service Operations in Emergency Management course in that it reduces the agency's overall effectiveness in fulfilling its essential emergency management role in the community in preparing for, responding to, leading through, and recovering from routine incidents as well as man-made and natural disasters. In addition, effectively addressing the issue of building responder resilience meets the United States Fire Administration's goal of moving the fire service from a reactive to a proactive force in the community. Resilient communities require resilient responders.

Literature Review

A basic definition of psychological resilience is the ability of human beings to "bounce back" from adversity (American Psychological Association, 2015). The subject of psychological

resilience is well researched across a wide range of settings and professions. Publications addressing some component of psychological resilience run the gamut from local community magazines to a wide spectrum of profession-specific media sources for the business community, the health care industry, law enforcement, the military, the fire service, emergency management, local government, and more. In addition, the academic psychological community has published extensively on the subject of responder resilience.

An Internet search for “community resilience” yields over 1.7 million Google search results including links to a myriad of organizations such as Resilient Communities (Resilient Communities, n.d.), Resilient Communities for America (Resilient Communities for America, n.d.), Healthy and Resilient Communities (Stilger, 2012), and Thriving Resilient Communities (Thriving Resilient Communities, n.d.). The city of Portland Oregon recently announced its intention to hire the city’s first-ever Chief Resilience Officer. Utilizing grant funding, the new position is charged with integrating resilience “into the work of creating healthy connected neighborhoods” (Schmidt, 2014).

The concept of resilience is also a frequent topic in the business world. A search of Google Scholar for the topic of “business resilience” yields over 390,000 results. The voluminous nature of this result illustrates the importance of the concept of resilience in the business community. The *Harvard Business Review* reported in 2011 on the application of a program designed to teach resilience-building skills to the United States Army (Seligman, 2011). This program, known as the Comprehensive Soldier Fitness Program (CSF), establishes a baseline of psychological fitness and includes a series of self-improvement courses, along with a specific training module for drill sergeants and other leaders. A conceptual paper published in the journal *Strategy and Leadership* discusses whether the focus on specific business practices

that support resilient businesses can serve as an alternative to the traditional “shareholders first” philosophy (Avery & Bergsteiner, 2011).

The medical and nursing professions also share an interest in examining resilience among their respective workforces. A Canadian study of family physicians concluded that “resilience is a dynamic, evolving process of positive attitudes and effective strategies” (Jensen, Trollope-Kumar, Waters, & Everson, 2008). In the nursing profession, researchers have attempted to address the issue of stress as a causative factor in high turnover in the critical care environment. In one study, researchers determined that resilience training was a feasible intervention for intensive care unit nurses (Meaker, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M., 2014).

The subject of psychological resilience has also been a topic of research in the corrections and law enforcement community. A 2013 literature review conducted by the US Department of Justice noted that while the causative factors for stress among corrections officers is well described in the literature, there is a scarcity of research on the effectiveness of wellness programs (Brower, 2013). In contrast, research published in 2012 suggested that resilience training could be beneficial to police departments (McCraty & Atkinson, 2012). Similar potential benefit was demonstrated among a small group of corrections officers after instruction in stress-reduction techniques (McCraty, Atkinson, Lipsenthal, & Arguelles, 2003). A recently developed wellness program employed by the Reno, Nevada, Police Department includes an emotional wellness component but is primarily focused on interventions designed to address physical manifestations of stress (Pitts, Greenwald, & Wolf, 2012). The Broward County, Florida, Sheriff’s Office implemented a behavioral health training program designed to assist officers in identifying barriers to mental health and to provide them with access to resources

within the organization and the community. According to the authors, the program was positively received. It is worth noting that Broward County Sheriff's Department also provides primary fire protection services to the community (Lopez, Garcia, Leduc, & Van Hasselt, 2014).

In 2011, the Rand Corporation published a monograph on the subject of promoting psychological resilience in the military (Meredith, L. S., Sherbourne, C. D., Gaillot, S., Hansell, L., Ritchard, H. V., Parker, A. M., & Wrenn, G., 2011). The review was conducted in order to assist the Department of Defense in identifying existing resilience-building programs and practices throughout the military community. Study authors identified fully 77 resilience programs throughout the Department of Defense. In addition, the Rand monograph conducted a comprehensive literature review that included 361 references. The authors further categorized the literature into relevant categories including individual-level factors, family-level factors, unit-level factors, and community-level factors. The monograph concludes with a series of policy recommendations, including establishing a common definition of resilience, the integration of resilience into policy and doctrine, strengthening existing resilience programs, and engaging senior military leaders.

More recently, the Commandant of the United States Marine Corps released a planning document that lays out an organizational roadmap for the future of the service. In addition to addressing future mission focus, force integration, and the imperative to provide realistic training, the document also calls for the rapid development of a psychological resilience screening process for prospective recruits. The report suggests that Marines with less resilience capacity might be steered towards less stressful assignments (Dunford, 2015).

The American Fire Service is beginning to focus on the unique risks and stressors associated with the profession and the sequelae associated with this unique set of stressors. The

awareness of suicide and PTSD as specific risks in firefighters has grown in recent years (Antonellis & Thompson, 2012; Del Ben, et al., 2006; Gist, et al., 2011; "Suicides are preventable," 2014). As noted earlier, the National Fallen Firefighters Foundation Life Safety Initiative 13, Behavioral Health, emphasizes risk recognition through a simple after action review process, the concept of stress first aid, and encourages all departments to provide access to counseling and support for firefighters and their families (www.lifesafetyinitiatives.com).

Recognition of the issue of firefighter stress and PTSD has been researched internationally for some time. A study of German firefighters determined a prevalence rate of PTSD among professional firefighters of 18%. However, the authors do not address prevention interventions (Wagner, Heinrichs, & Ehlert, 1998). A group of British professional firefighters was described by researchers as clinically resilient (Durkin & Bekerian, 2012). However, the researchers noted a distinctly lower level of resilience among certain ranks of officers. Like the German study, these authors did not address resiliency training as a preventive intervention.

This increased level of focus on behavioral health has manifested prominently in the American Fire Service media. For example, a 2014 article in *Fire Chief* magazine highlighted the multifactorial origins of firefighter stress and explained the officer's role in encouraging members to seek support. The article describes efforts by some departments to create peer support teams along with emphasizing the need for access to outside clinical resources (Willing, 2014).

A 2014 pilot study evaluated the effectiveness of a first responder resiliency-training program with a group of firefighters, EMS workers, and police officers in Colorado who had either a direct or indirect involvement with the 2012 Aurora, CO theater shooting. (Gunderson, Grill, Callahan, & Marks, 2014) The First Response Resiliency curriculum taught skills

designed to improve responders' ability to address goal-setting, sleep, relaxation, perspective, empathy, social support, and several other components known to support psychological resilience. Participants in the program demonstrated significant improvement in self-reported resiliency scores and recommended the training to others.

One study by demonstrated the effectiveness of the practice of mindfulness in reducing stress symptoms including PTSD, depression, signs of physical stress, and alcohol problems among a group of firefighters (Smith, B. W., Ortiz, J. A., Steffen, L. E., Tooley, E. M., Wiggins, K. T., Yeater, E. A., Bernard, M. L., 2011). A 2014 study of over 500 firefighters noted that participants with high levels of self-reported resilience had a lower risk of suffering from PTSD symptoms. The authors also note that their findings could be used to identify individuals at higher risk of developing PTSD symptoms (Lee, Ahn, Jeong, Chae, & Choi, 2014).

In 2014, Carlson recommended including resilience concepts in fire service education and training materials beginning with initial firefighter training as well as in officer training curricula. The author further recommended the adaptation of the US Army's Comprehensive Soldier Fitness Program (CSF) for use by the fire service (Carlson, 2014).

The fire service has clearly identified and articulated risks associated with failing to address the behavioral health of firefighters. Leaders at the national level have developed and deployed programs that, while effective in addressing post-event distress, do little to intentionally build responder resilience. The literature reveals that only very recently have any strategies been developed that approach the behavioral health of firefighters from a preventive perspective. The programs described above in Broward, Florida and Aurora, Colorado appear to have been effective in this regard. However successful these programs have been, the scope and

scale of these efforts pale in comparison to the resilience-building programs developed by the Department of Defense.

Procedures

The purpose of this research is to determine the current state of responder resilience in Henrico Fire and to establish the necessary components of a preventive responder resilience program. A literature review was undertaken in order to determine both the fire service and academic community's understanding of responder resilience and to identify any existing responder resilience programs.

In order to determine the current state of responder resilience in Henrico Fire personnel, a two-part survey was employed. The author obtained permission from Dr. Glenn R. Schiraldi, Ph.D., to utilize *The Resilience Checkup* (Appendix A). Respondents answer a series of 22 questions designed to assess the individual's relative resilience strengths. The stated intent of this particular survey tool is to provide the respondent with a starting point against which the individual may measure their progress toward developing specific resilience-building skills detailed in Schiraldi's book, *The Complete Guide to Resilience* (Schiraldi, 2011). The author also developed a 19-question *Respondent Profile* (Appendix B) designed to provide a demographic profile for each respondent and a series of variables to be compared to the respondents self-reported resilience score on *The Resilience Checkup*. The *Respondent Profile* questions were designed to determine the presence of factors in the physical, mental, emotional, and spiritual domains that are known to provide a foundation for psychological resilience.

The survey was distributed via the Henrico County electronic mail system to all members of the department, including the 526 sworn and 22 civilian employees. The research did not intend to address civilian employee resilience. However, due to a long-present perception by

civilian employees of a lack of appreciation by sworn staff for civilian employees, the author included civilian employees in the survey.

The email requesting research assistance included a brief summary of the National Fire Academy Executive Fire Officer Program as well as a summary of the intent of the research project (Appendix C). Participation in the research was entirely voluntary and anonymous. Employees who agreed to participate in the research were asked to complete the survey. They were given two methods for submitting their individual survey: return to the author via interoffice mail or scan the documents and save them to a designated folder located on the fire department server. After a period of 30 days, a second email was sent to all department employees to remind them about the opportunity to participate in the survey. A total of 66 surveys were returned. The data was then entered into an Excel spreadsheet as a platform for analysis.

Limitations to the survey included the utilization of *The Resilience Check Up* outside of its intended design. As mentioned above, *The Resilience Check Up* was designed for use by an individual currently engaged in a structured, intentional effort to improve their psychological resilience. Additional potential limitations lie in the possible inherent biases of the cohort of employees who completed and submitted the survey. A resilient, positive employee may be more likely to take the time to read the email, follow the instructions, open the attachment, and properly submit a completed survey, whereas a dissatisfied, depressed employee may be less likely to engage in this effort. The alternative of making the survey mandatory would have likely produced a degree of unnecessary organizational angst.

Results

The results of *The Resilience Checkup* and associated *Respondent Profile* indicate that the members of Henrico Fire possess a high level of psychological resilience. The mean resilience score of 175 supports this assertion. In addition, the largest percentage of respondents, over 48 percent, fell into the 175 to 199 resilience score range. When combined with the 15 percent of respondents who scored in the highest range of 200 to 220, a healthy majority of 63 percent of respondents self-reported high resilience scores.

In addition the high level of resilience reflected by the numerical resilience scores, the results of the *Respondent Profile* indicate a strong presence of lifestyle factors and behaviors that are known to support psychological resilience such as being married, owning a home, having children, and belonging to a faith-based organization. A majority of respondents engage in regular physical activity and a minority of respondents claim to struggle with weight issues. Finally, the vast majority of respondents indicated that they would reach out to others for help, regardless of the source, if confronted with a major life struggle.

When looked at as a whole, the respondents are a group of highly resilient, self-aware individuals that, intentionally or not, appear prepared to handle the unique stresses associated with being a firefighter.

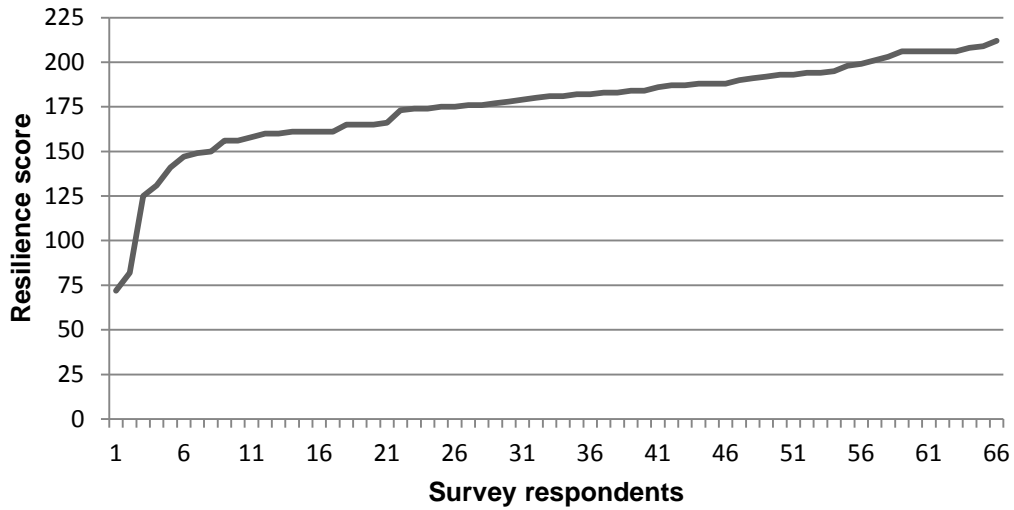


Figure 1. Resilience score distribution. A total of 66 surveys were submitted (n=66). There are 22 questions in *The Resilience Check Up*. Each question is rated from a low score of 1 to a high score of 10. The lowest possible total score is 22, and the highest possible total possible score is 220. Self-reported resilience scores ranged from a low of 72 to a high of 212. The average (mean) score was 176.

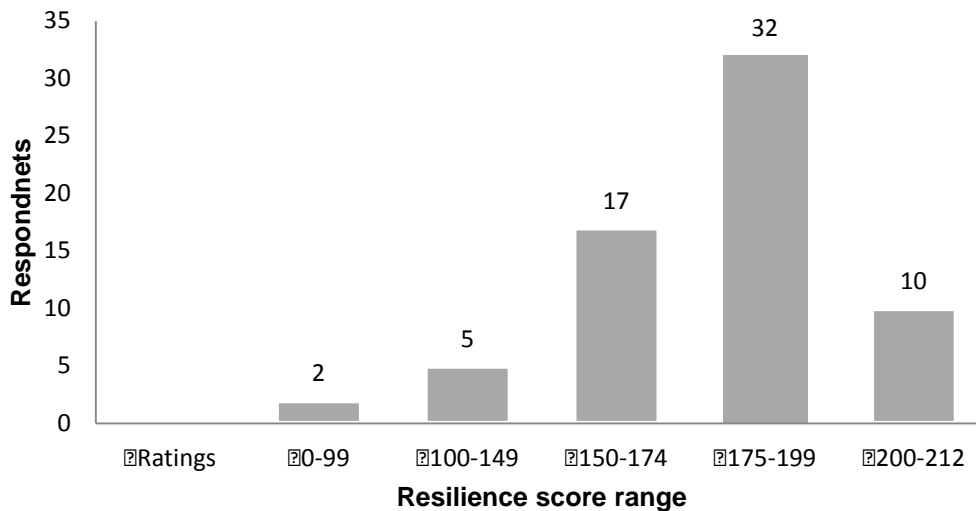


Figure 1. Resilience score range by grouping. For ease of analysis, scores were sorted into five groups, ranging from scores of 99 and below, between 100 and 149, between 150 and 174, between 175 and 199, and between 200 and the maximum score of 212. Two respondents (3%)

reported resilience scores of 99 or below. Five respondents (8%) scored between 100 and 149. Seventeen respondents (24%) scored between 150 and 174. Thirty-two respondents (48%) scored between 175 and 199, and 10 respondents (15%) reported resilience scores between 200 and 212.

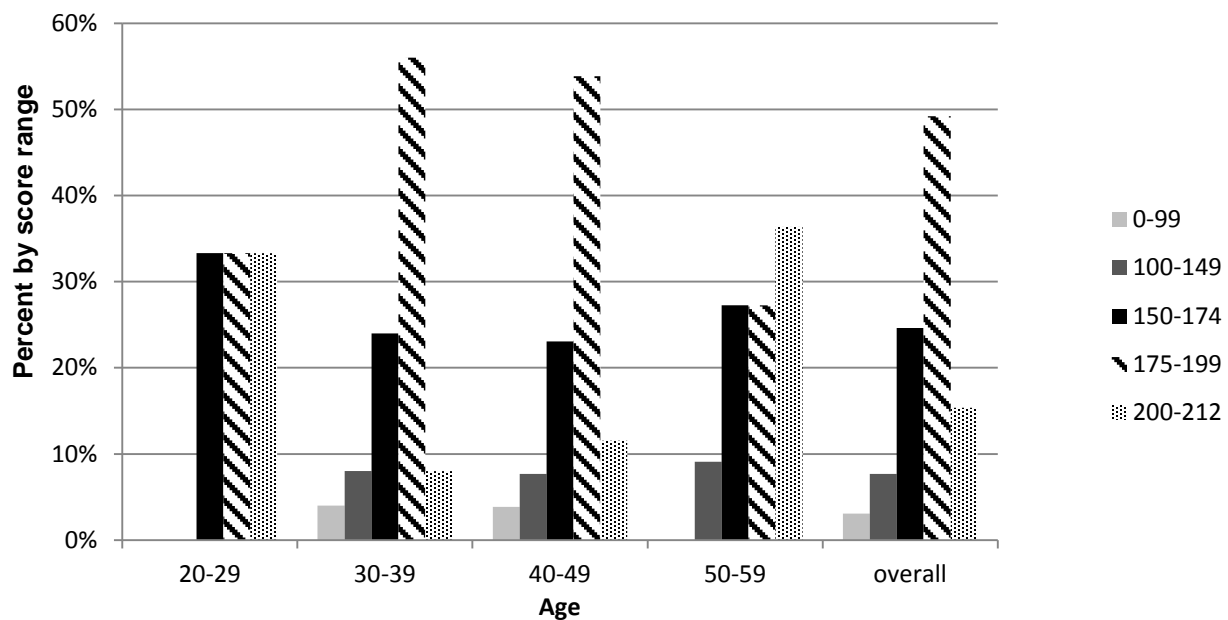


Figure 3. Resilience score range by age. A total of 65 respondents listed their age on The Resilience Checkup. One respondent did not provide an answer to this question. Of the 65 respondents, 3 (5%) were between the ages of 20 to 29, 25 (38%) were between the ages of 30 to 39, 26 (40%) were between the ages of 40 to 49, with 11 (17%) indicating age 50 or over. Respondents between the ages of 20 and 29 scored as follows: 33% between 150 and 174, 33% between 175 and 199, and 33% between 200 and 212. Respondents between the ages of 30 and 39 scored as follows: 4% at 99 or below, 8% between 100 and 149, 24% between 150 and 174, 56% between 175 and 199, and 8% between 200 and 212. Respondents between the ages of 40

and 49 scored as follows: four percent at 99 or less, eight percent between 100 and 149, 23 percent between 150 and 174, fifty-four percent between 175 and 199, and 12 percent between 200 and 212. Respondents age 50 and over scored as follows: 9% between 100 and 149, 27% between 150 and 174, 27% between 175 and 199, and 36% between 200 and 212.

The *Respondent Profile* consisted of 19 questions developed by the author. Results from Question 1 “Are you a sworn or civilian employee?” included 60 from sworn employees and 6 from civilian employees.

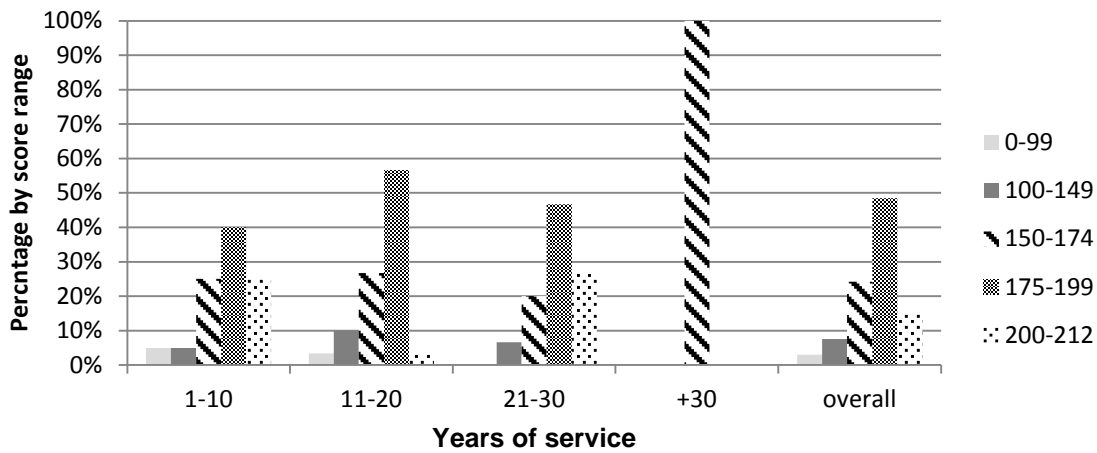


Figure 4. Resilience score range by years of service. Results for Question 2 “How many years of service do you have with the Division of Fire?” included 20 respondents (30%) indicating 1 to 10 years of service, 30 respondents (45%) indicating 11 to 20 years of service, 15 (23%) indicating 21 to 30 years of service and one respondent (2%) indicating 30-plus years of service. Resilience scores varied consistently among the years of service groups with the largest number in each group scoring in the 175 to 199 range. The one exception to this consistent pattern was the one respondent with 30-plus years of service who scored in the range between 150 and 174.

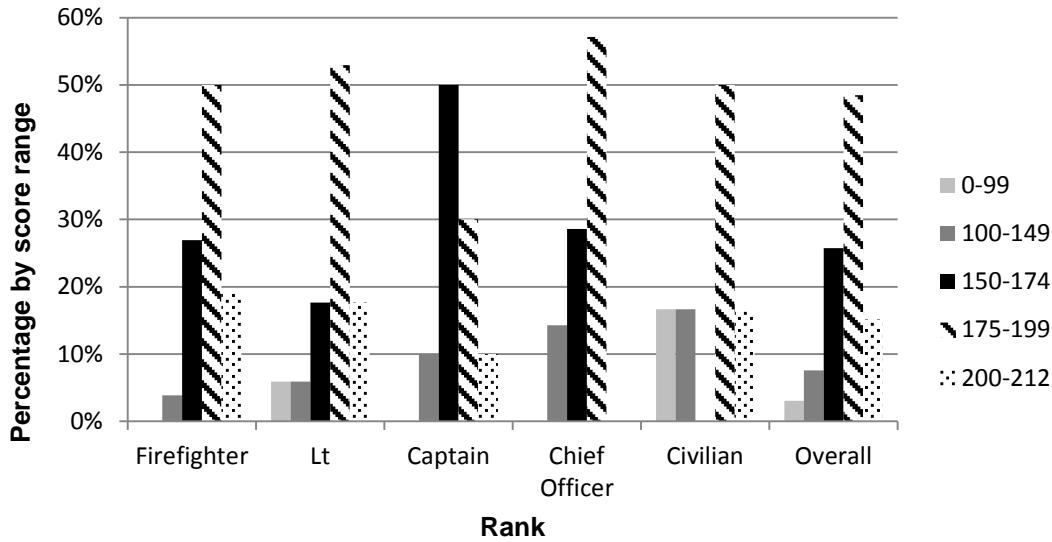


Figure 5. Resilience score distribution by rank. The 66 responses to Question 3 “What is your current rank?” included 26 firefighters (39%), 17 lieutenants (26%), 10 captains (15%), seven chief officers (11%), and six civilians (9%). Across the sworn ranks, the largest proportion of scores occurred in the 175 to 199 range with the exception of the rank of captain. The largest percentage of captains scored in the lower 150 to 174 category.

Sixty-six responses were received to Question 4 “What is your current EMS certification level?” There were no First Responders, 23 EMT-Basics, 1 EMT-Enhanced, 8 EMT-Intermediates, 31 EMT-Paramedics, and 3 Non-certified. No EMT-Basics reported scores of 99 or lower. Sixty percent of EMT-B’s scored 100 to 149.

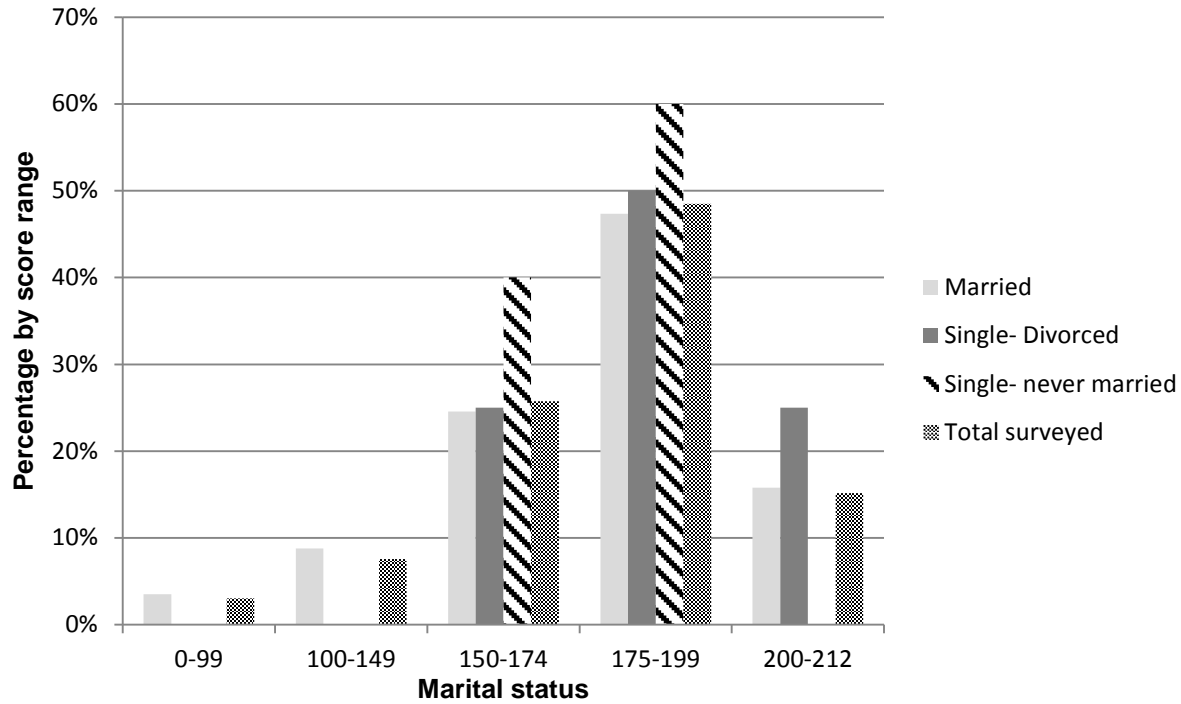


Figure 6. Resilience score range by marital status. Question 5 asked respondents to identify their current relationship status. Fifty-seven respondents (86%) identified as married. Of married respondents, 4% scored in the range 99 or below, 9% scored between 100 and 149, 25% scored between 150 and 174, 47% scored between 175 and 199, and 16% scored between 200 and 212. Four respondents (6%) identified as single-divorced. Of the single-divorced respondents, 25% scored between 150 and 174, 50% scored between 175 and 199, and 25% scored between 200 and 212. Five respondents (8%) indicated a status of single, never married. Of these respondents, 40% scored between 150 and 174 with 60% scoring between 175 and 199.

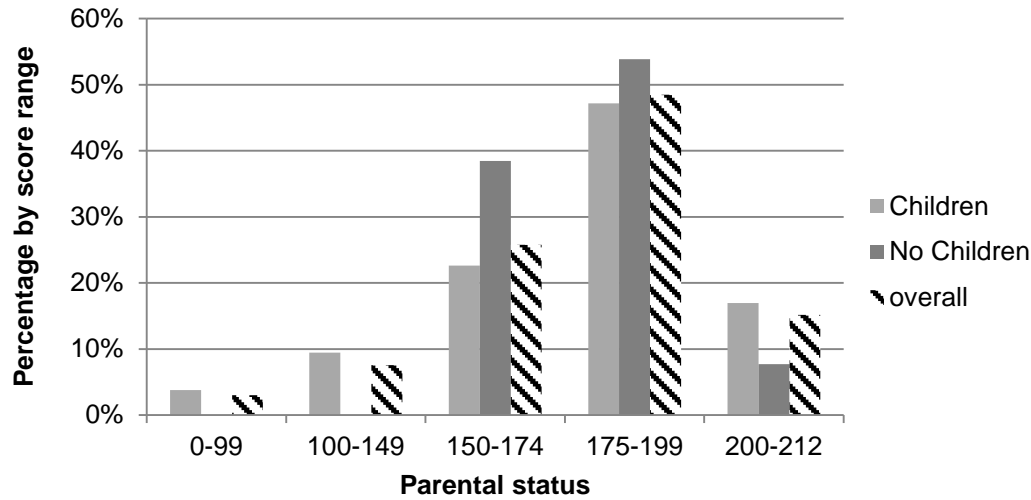


Figure 7. Resilience score range by parental status. A total of 53 respondents (80%) indicated that they have children with the remaining 13 respondents (20%) claiming no children.

Respondents with children scored in all five resilience score range categories. Of those claiming children, 4% scored in the range of 99 or below, 9% scored in the range of 100 to 149, 23% scored in the range of 150 to 174, 47% scored in the range of 175 to 199, and 17% scored in the range of 200 to 212.

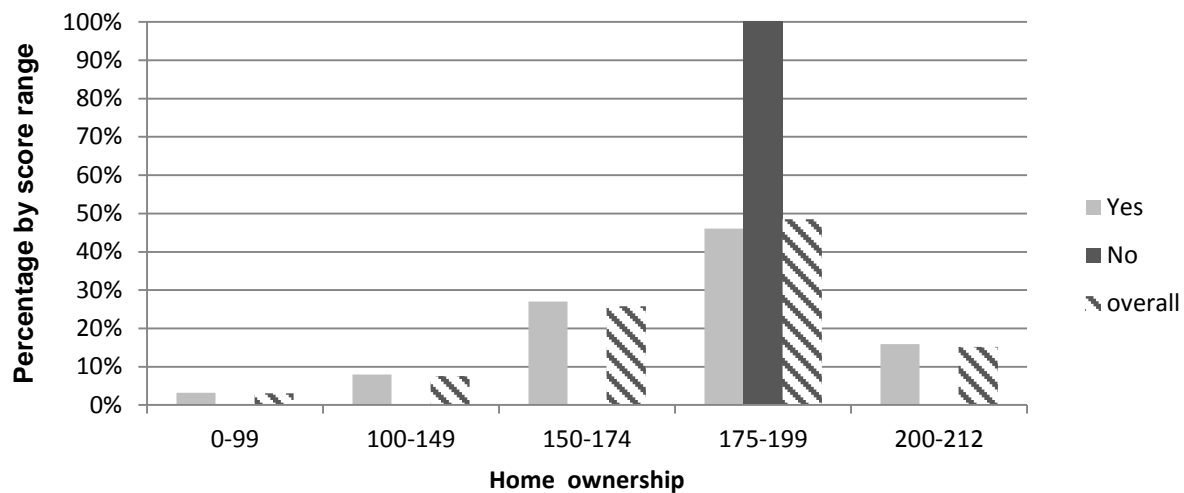


Figure 8. Resilience score range by home ownership. A total of 63 respondents (95%) indicated that they own a home. Three respondents (5%) indicated that they do not own a home.

Homeowners' scores were distributed among the five scoring categories as follows: 3% scored 99 or below, 8% scored between 100 and 149, 27% scored between 150 and 174, 46% scored between 175 and 199, and 16% scored between 200 and 212. All 3 non-homeowners scored in the 175 to 199 range.

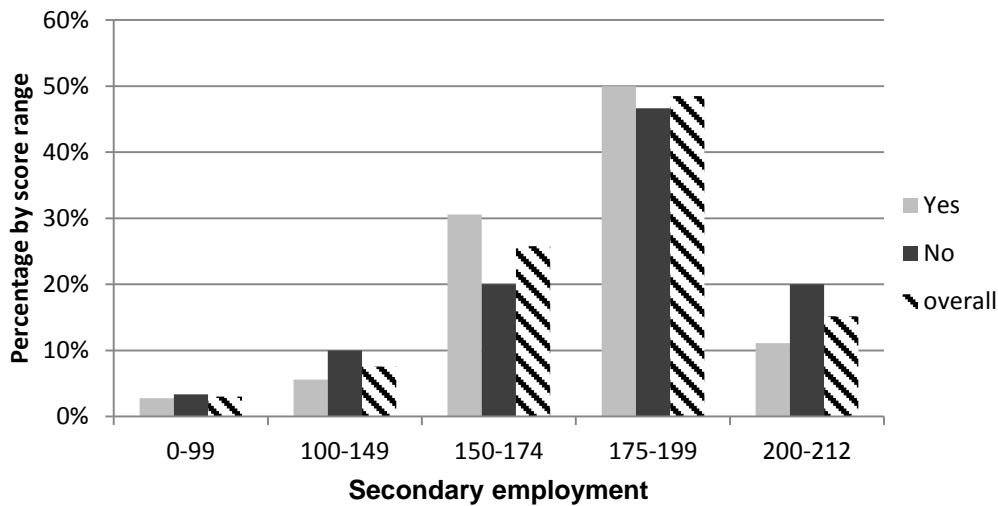


Figure 9. Resilience score range by secondary employment. Thirty-six respondents (55%) indicated that they have a second job with the remaining 30 (45%) indicating no second job. The scores of those indicating a second job were distributed as follows: 3% scored 99 or below, 6% scored between 100 and 149, 31% scored between 150 and 174, 50% scored between 175 and 199, and the remaining 11% scored between 200 and 212. Those reporting no second job scored as follows: 3% at 99 or below, 10% between 100 and 149, 20% between 150 and 174, 47% between 175 and 199, and 20% between 200 and 212.

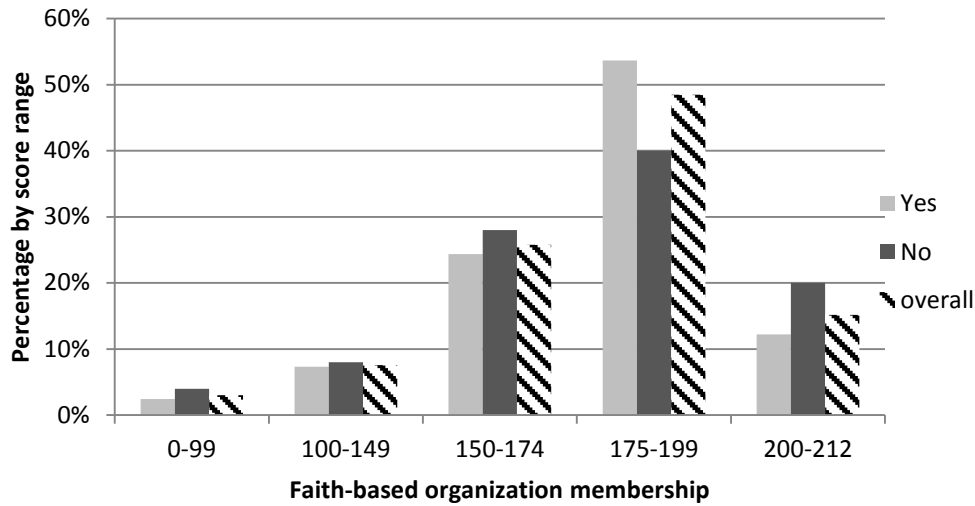


Figure 10. Resilience score range by faith-based organization membership. A total of 41 (62%) of respondents indicated that they belong to a faith-based organization with the remaining 25 respondents (38%) claiming no such affiliation. The scores of those indicating that they belong to a faith-based organization were as follows: 2% scored 99 or below, 7% scored between 100 and 149, 24% scored between 150 and 174, 54% scored between 175 and 199, and 12% scored between 200 and 212. The scores of those indicating no membership in a faith-based organization were as follows: 4% at 99 or below, 8% between 100 and 149, 28% between 150 and 174, 40% between 175 and 199, and 15% between 200 and 212.

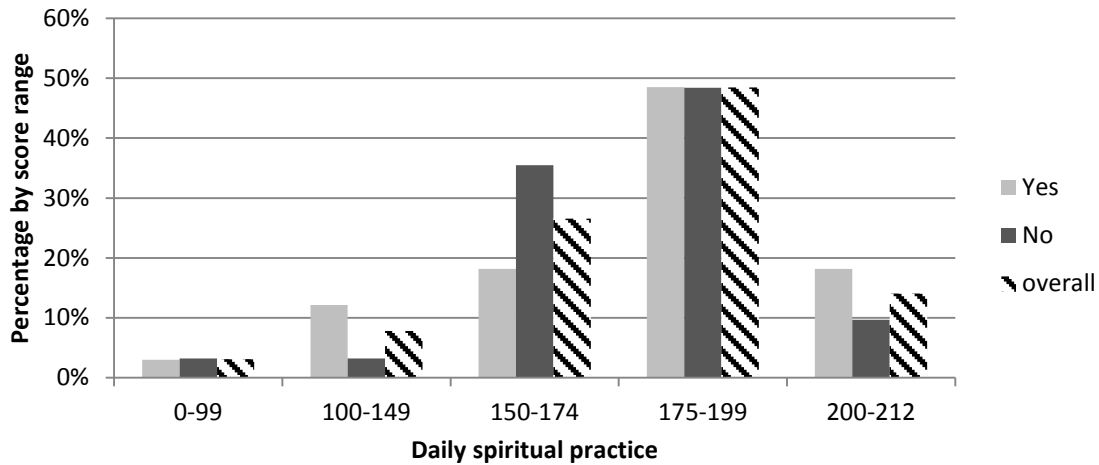


Figure 11. Resilience score range by presence of absence of daily spiritual practice. Sixty-four members completed Question 10 “Do you engage in a daily spiritual practice?” Thirty-three (52%) responded yes and 31 (48%) responded no. Of the thirty-three yes responses, 3% scored at 99 or below, 12% scored 100 to 149, 18% scored 150 to 174, 48% scored 175 to 199, and 18% scored 200 to 212. Of those answering no to Question 10, 3% scored 99 or less, 3% scored 100 to 149, 35% scored 150 to 174, 48% scored 175 to 199, and 10% scored 200 to 212.

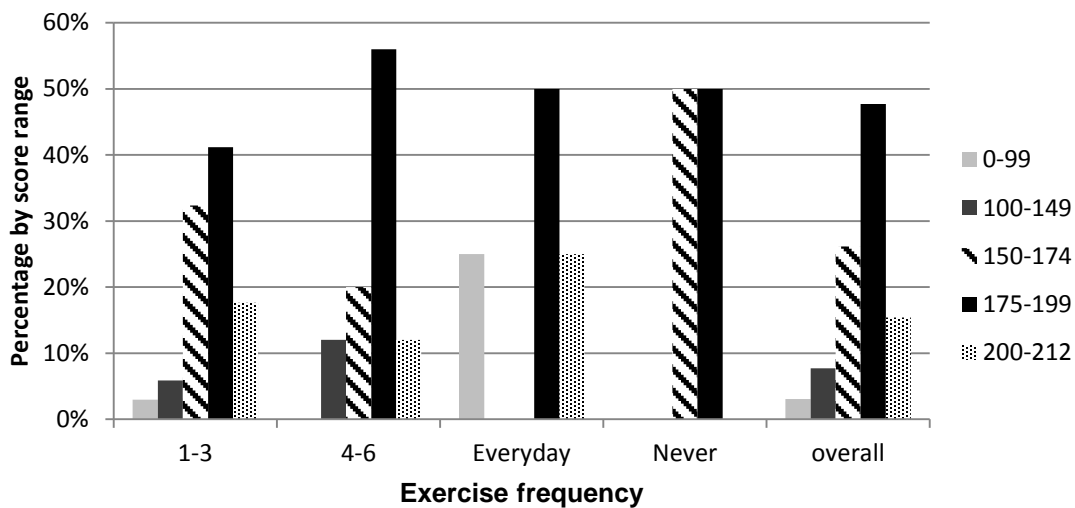


Figure 12. Resilience score range by exercise frequency. Question 11 asked, “How many times per week do you exercise?” A total of 65 respondents answered this question. Thirty-four (52%) answered 1 - 3 times per week. Twenty-five (38%) answered 4 - 6 times per week. Four (6%)

answered every day and 2 (3%) answered never. The highest percentage of answers fell into the resilience score range of 175 to 199 across all possible categories.

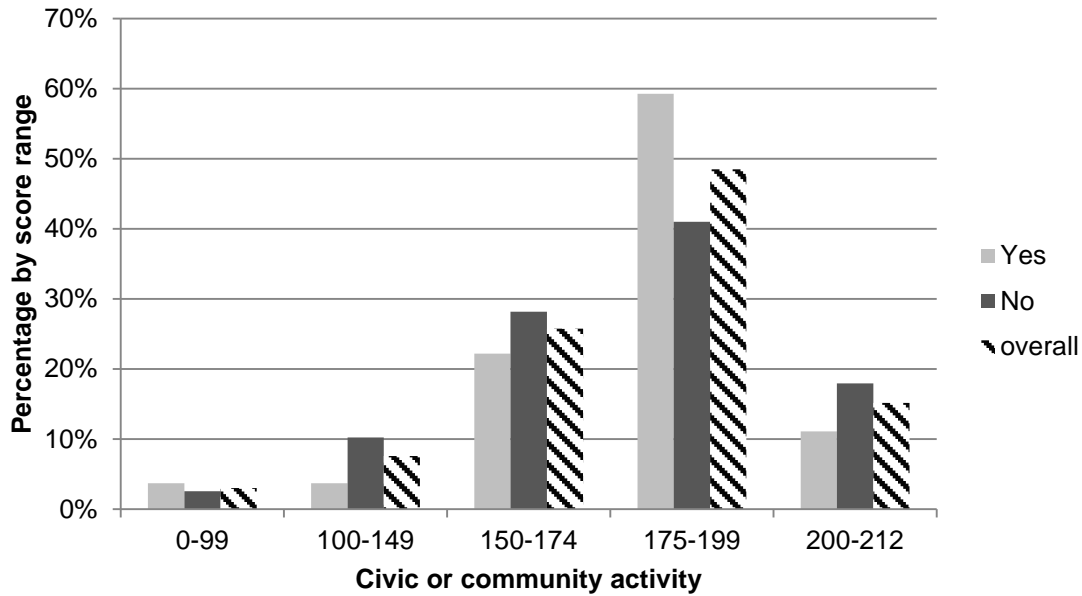


Figure 13. Resilience score range by civic or community activity. Question 12 asked “Are you active in any civic or community organization?” A total of 66 respondents answered this question with 27 (41%) answering yes and 31 (48%) answering no. The highest percentage of resilience scores were in the 175 to 199 range.

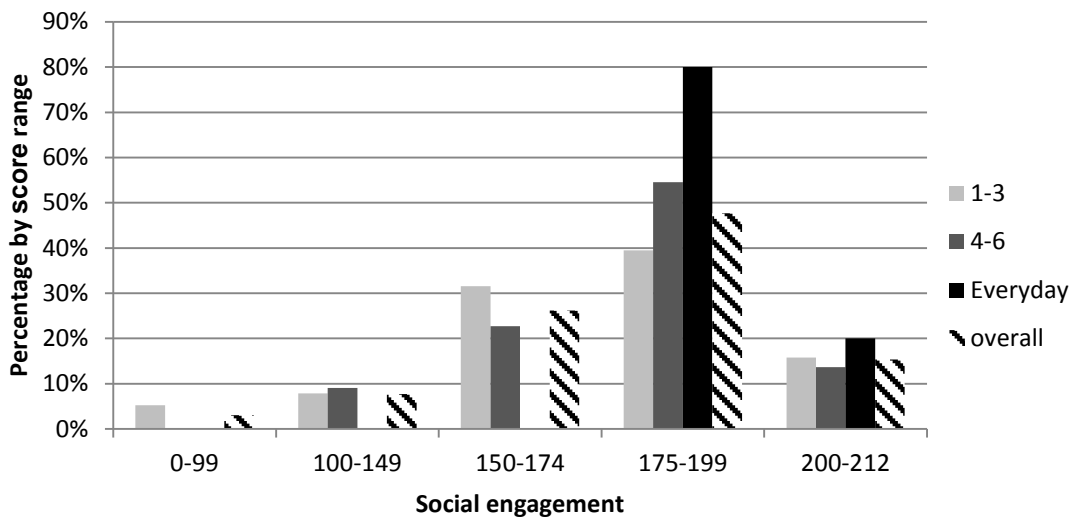


Figure 14. Resilience score range by social engagement. Question 13 asked “How many times

per month do you engage in social activity with people other than your co-workers?” Sixty-five respondents answered this question. Thirty-eight selected (58%) selected 1 - 3 times per month. Twenty-two (34%) selected 4 - 6 times per month with 5(8%) selecting every day. Regardless of answer, the highest percentage of respondents scored in the 175-199 resilience score range.

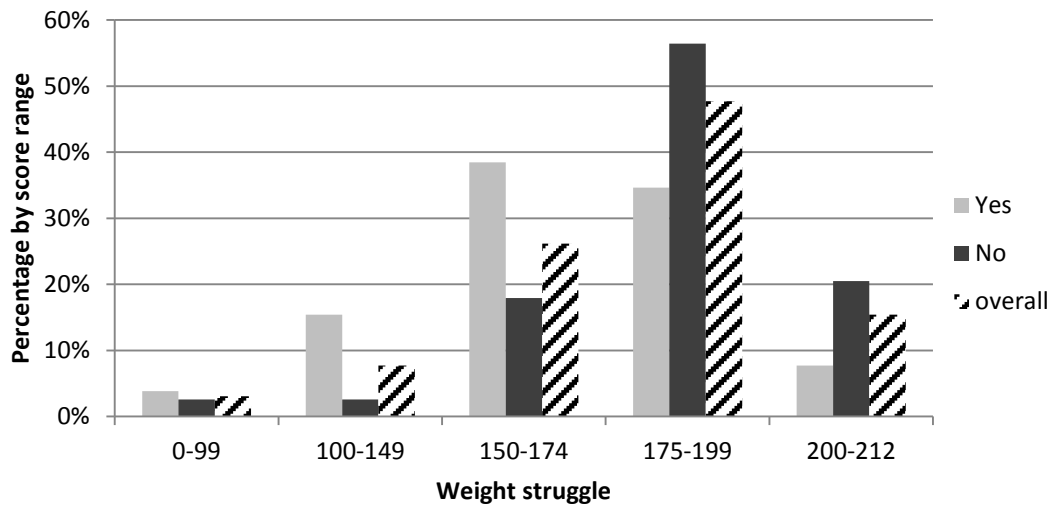


Figure 15. Resilience score range by weight struggle. Question 14 asked, “Do you currently struggle to maintain a healthy weight?” Sixty-five respondents answered this question. Twenty-six (50%) answered yes with 39 (60%) answering no. For those answering yes, the highest resilience scores were in the 150-174 range. For those answering no, the highest resilience scores were in the 175-199 range.

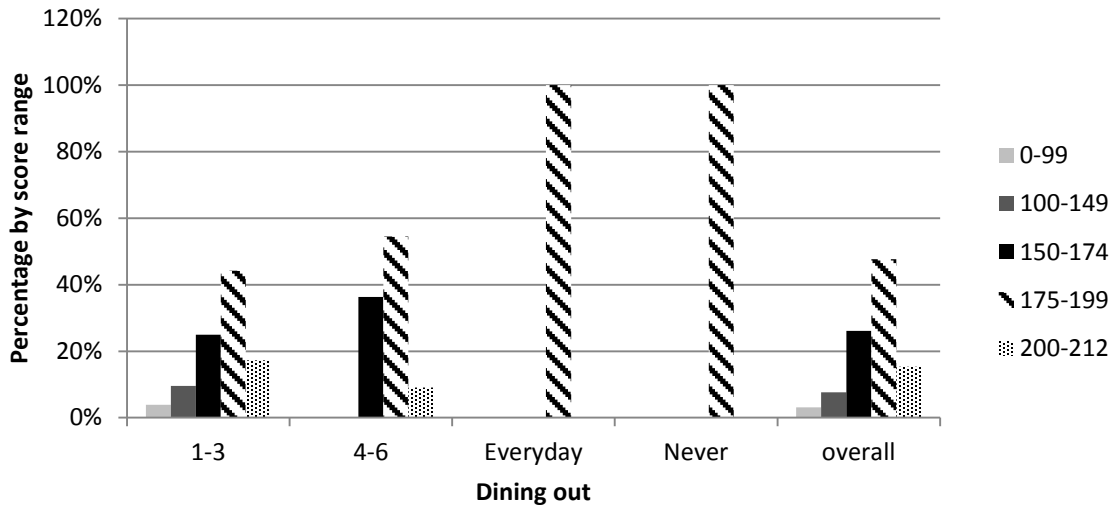


Figure 16. Resilience score range by dining out. Question 15 asked, “How many times per week do you eat out?” Sixty-five respondents answered this question. Fifty-two (80%) answered 1-3 times per week. Eleven (17%) answered 4-6 times per week. One (2%) answered every day and 1 (2%) answered never. Regardless of the answer selected, the most common resilience score fell in the 175-199 range.

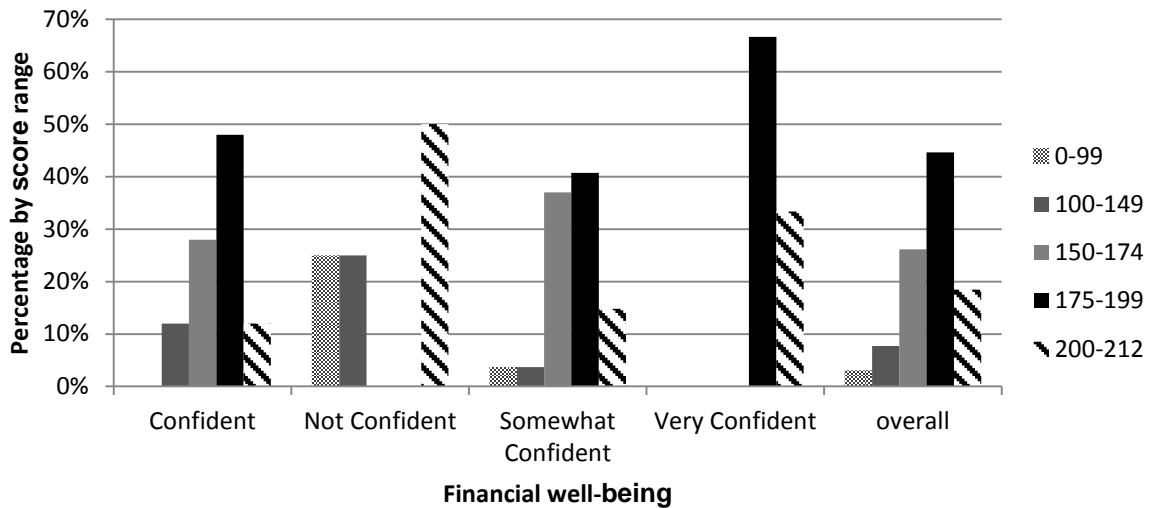


Figure 17. Score range by financial well-being subjective assessment. Question 16 asked, “How confident are you in your financial well-being?” A total of 65 respondents answered the question. Of the sixty-five respondents, nine respondents (14 percent) were very confident in

their financial well-being, 25 (38 percent) were confident, 27 (42 percent) were somewhat confident, and four (six percent) were not confident. The resilience score range as for those answering very confident were as follows: 67 percent scored between 175 and 199, and 33 percent scored between 200 and 212. The resilience score range as for those answering confident were as follows: 12 percent scored between 100 and 149, 28 percent scored between 150 and 174, 48 percent scored between 175 and 199, and 12 percent scored between 200 and 212. The resilience score range as for those answering somewhat confident were as follows: four percent scored 99 or less, four percent scored between 100 and 149, 37 percent scored between 150 and 174, 41 percent scored between 175 and 199, and 15 percent scored between 200 and 212. The resilience score range as for those answering not confident were as follows: 25 percent scored 99 or below, 25 percent scored between 100 and 149, and 50 percent scored between 200 to 212.

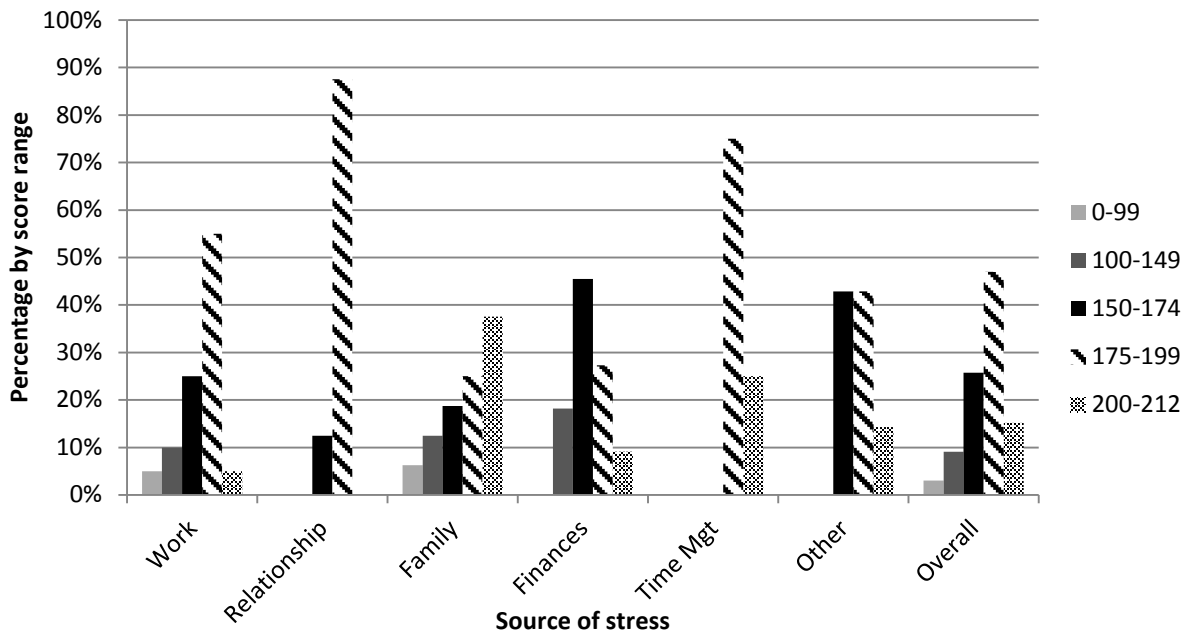


Figure 18. Resilience score range by source of stress. Question 17 asked, “What is the greatest source of stress in your life?” Sixty-six respondents answered this fill-in the blank question.

Twenty (30%) listed work. Sixteen (24%) listed family. Eleven (17%) listed finances. Eight (12%) listed relationships. Seven (11%) listed other reasons and 4 (6%) listed time management.

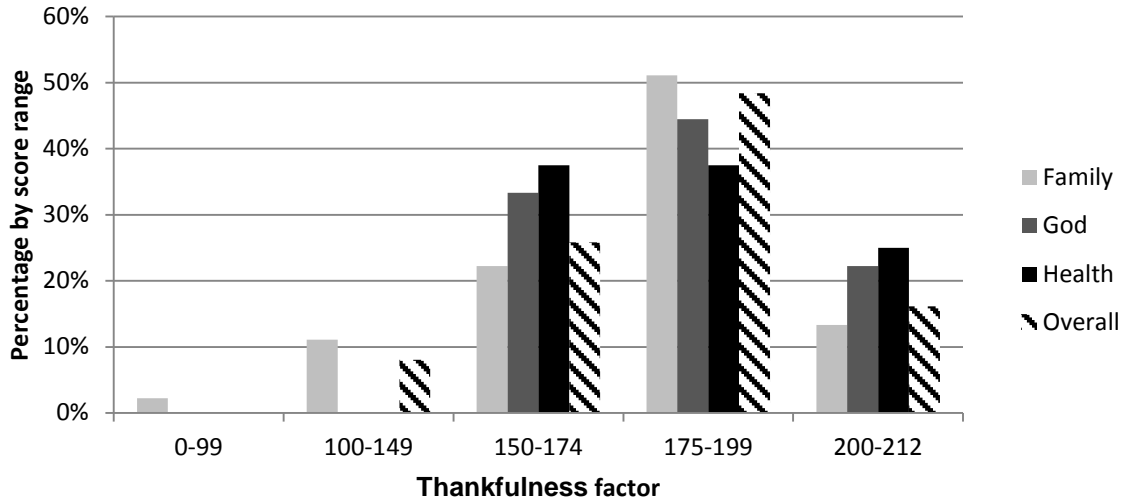


Figure 19. Resilience score range by thankfulness factor. Question 18 asked, “What are you most thankful for?” Sixty-two respondents answered this fill-in the blank question. Forty-five answered family. Nine answered God and eight answered health. The highest range of resilience scores occurred in the 175-199 range across all answers received.

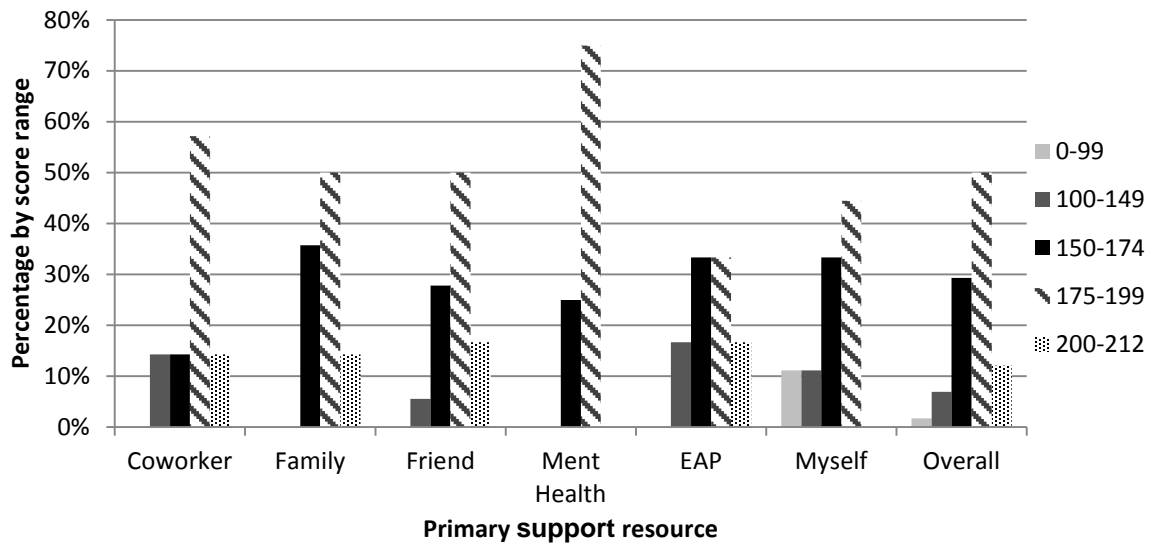


Figure 20. Resilience score range by primary support resource. Question 19 asked the respondent to identify their most likely source of support when faced with a challenging life situation. Eighteen (31%) selected friend. Fourteen respondents (24%) selected family. Nine (16%) selected themselves. Seven (12%) selected a co-worker. Six (10%) selected EAP 4 (7%) selected mental health. The highest percentage of scores occurred in the 175-199 range.

Discussion

According to Dr. Glenn Schiraldi, the mean resilience score developed in this research is consistent with previous resilience screening data he has gathered in his research. (G. R. Schiraldi, personal communication, January 26, 2015) Schiraldi also described the science of resilience as “on the frontier of psychology” and it would appear from the literature that the focus of research in this population has centered on determining the prevalence of PTSD and, more recently, the incidence of suicide among firefighters (Gist et al., 2011; Antonellis & Thompson, 2012).

Despite this lack of directly comparable data, the results of this research are consistent with the assessments derived from years of formal clinical relationships and more informal contact between Henrico firefighters and the assigned mental health clinicians. Henrico County Mental Health Director of Emergency Services, Richard Edelman describes Henrico firefighters as a resilient group who are able to effectively process critical incidents (R. Edelman, personal communication, November 25, 2014). Edelman credits operational competence as the foundation for the group's overall resilience. Other clinicians echo Edelman's assessment, describing Henrico firefighters as "open to debriefings" and "very welcoming" during clinician visits to fire stations (J. McCabe, personal communication, November 25, 2014; M. McCahill, personal communication, November 25, 2014).

Edelman, McCabe, and McCahill identified family and interpersonal relationships, including those with co-workers in the fire station, as the primary sources of stress that lead to self-referral for mental health services among Henrico firefighters. This professional assessment is supported by the findings of this research, wherein survey respondents identified family, work, finances, and relationships as the primary sources of stress in their lives. It is interesting to note, however, that the prominent issue raised by firefighters during station visits by mental health clinicians is the stress associated with "frequent flyer" patients' perceived overuse of the 911 system as a primary care resource (J. McCabe, personal communication, November 25, 2014). Edelman notes that the perception of 911 "abuse" appears to "rob" the energy of some of the firefighters. This lower energy state may leave the individual and/or the group vulnerable to additional predictable and unpredictable stressors.

The assessment of the Henrico Fire Chaplain is consistent with both the research results and the opinions of the mental health clinicians noted above (M. Woods, personal

communication, December 3, 2014). Woods describes Henrico firefighters as “very resilient.” He attributes this to the personality type that is drawn to the profession. In Woods’ opinion, firefighting is a calling as opposed to a job, and a “heart of service” tends to grow throughout one’s career leading to a more resilient firefighter. In Woods’ experience as a fire chaplain, most of his contacts are self-referrals from firefighters. The root issues he has seen are very similar to the findings in this research, and the opinions of the mental health clinicians: personal relationships, family, and work.

It is likely that the basis for this apparently resilient group of firefighters is multifactorial. Judging by the high degree of participation, there is little stigma associated with accessing behavioral health resources within Henrico fire. This is no doubt due to a high degree of participation in the Henrico Crisis Intervention Team along with frequent station visits by professional mental health clinicians and consistent behavioral health educational efforts. As Edelman suggests, the basis for resilience among firefighters is operational competence rooted in a high level of training, and Henrico firefighters have access to a wide array of outstanding, realistic training opportunities. Outcomes, such as no fire fatalities in calendar year 2014 in a population served of over 312,000 citizens, along with a 33% cardiac arrest survival rate attest to the quality of the training and the overall operational competence of the group.

One might suggest that a group demonstrating such a high level of psychological resilience would not stand to benefit from resilience-building activities. However, given the nature of the risks faced by professional firefighters over the course of a 25 to 30 year career, along with the broadening of mission inherent in the modern, all-hazards fire department, it would be wise to maximize this resilience capacity.

Henrico firefighters actively participate in physical fitness programs in order to gird themselves for the physical demands of the profession. The well-described relationship with Henrico Mental Health addresses the mental aspects of the job, and the ready access to the chaplain service develops and supports spiritual resilience. The new Fire Fit program contains elements of physical fitness and nutrition as well as personal change management. However, there is currently no specific program in place to address a critical component of psychological resilience: the emotional state.

An individual's emotional resilience capacity is described by some as an "inner battery" (B. Kabaker, personal communication, January 3, 2015). Techniques developed to maximize so-called heart coherence address the emotional "battery" in each individual. These methods were developed for the US Navy and have been applied across the US military in various settings (Schiraldi, 2011). The previously noted Rand monograph serves as evidence of the degree of commitment by the military community to addressing the need to actively build psychological resilience throughout the force (Meredith et al., 2011).

One program highlighted in the Rand monograph, and referenced throughout the resilience community, is the US Army's Comprehensive Soldier Fitness (CSF) program. The CSF program addresses the four major components of resilience and wellness: physical, mental, emotional, and spiritual. At least one fire service researcher has recommended that the fire service modify and adapt the CSF for firefighters. (Carlson, 2014)

The modification of an existing Department of Defense resiliency training program has occurred on a limited scale. In 2013, researchers developed the *First Responder Resiliency* program and presented it to 25 first responders in Colorado (Gunderson et al., 2014). Program participants demonstrated statistically significant improvement in post-program resiliency scores.

The authors recommended study replication to further validate the effectiveness of this type of program.

The nascent resilience-building programs that have been developed and applied to date in the fire service reflect a new mindset in managing the risks and stresses associated with the modern fire service. Community risk reduction has replaced fire prevention, and localities have begun to actively build community resilience in place of the more uni-dimensional disaster preparedness efforts of the past. The emergency preparedness concepts of prevent, prepare, respond, and recover can be applied directly to the individual firefighter and across fire departments. One resilience researcher put it best when he stated that “firefighters and emergency medical providers are also in a perfect place to create resilient communities; to go out and teach these skills to kids and others through their regular community activities” (Erich, 2014, p. 5).

A fundamental principle in the business world is that an enterprise is either making money or losing money. There is no static state in a competitive economy. Likewise, a fire department is either building capacity and capability or losing capacity and capability. This research provides a foundation for a continuous improvement strategy for Henrico Fire aimed at building individual firefighter psychological resilience along with collective fire department capacity, thereby improving the agency’s ability to make Henrico County a more vibrant, resilient community.

Recommendations

The problems of depression, substance abuse, and suicide are well described. The fire service has recognized this risk profile and taken action to respond. A series of efforts by the National Fallen Firefighters Foundation have raised critical awareness; strongly advocated for

adequate, profession-sensitive behavioral health services; and developed training to provide firefighters and fire department leaders with the tools necessary to identify and appropriately respond to firefighters in crisis.

Further research is needed to better quantify current levels of psychological resilience among firefighters. Additional research should also include efforts to link levels of psychological resilience to other known primary risks to firefighters such as heart disease and cancer. The fire service should now begin to shift its focus toward identifying effective strategies that approach these risks holistically and preventively, ensuring the specific inclusion of a psychological resilience component. Specifically, the National Fallen Firefighters Foundation should undertake the development of a national psychological resilience training program. This program should be deliverable on a local level and should include instruction on specific techniques to improve psychological resilience.

In addition to the development of a specific psychological resilience training program, the fire service should begin to incorporate resilience concepts throughout firefighter training programs, educational curricula, and textbooks. The concepts should be introduced during initial firefighter training and should grow in depth and complexity throughout the firefighter and officer and professional development life cycle. Finally, the fire service would be wise to explore the potential benefits of incorporating resiliency screening as a component of the hiring process for career departments and the membership process for the volunteer fire service.

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Appendix A

The Resilience Checkup*

See Where You Are Now

Resilient people are aware of, and use, their strengths. The following “Resilience Checkup” will assess your strengths, providing you with a starting point from which to measure your progress as you practice resilience skills. Taking the checkup will also begin to reinforce some of the goals of resilience training. It is reassuring to know that you already possess some measure of resilience to build upon. There is nothing tricky about this assessment, nor does it matter how your scores compare to others. So relax and be as honest as you can.

Please rate from 0 to 10 how much you believe each of the following statements. 0 means you completely disbelieve it. 10 means you think it is completely true.

Statement	Rating (1-10)
1. I generally feel strong and capable of overcoming my problems.	_____
2. When I get stressed, I usually bounce back fairly quickly.	_____
3. I generally function well in the various areas of life: job/school, relationships, and play.	_____
4. I generally stay calm and steady when the going gets tough.	_____
5. I am generally flexible, meaning if my usual way of doing things isn't working I readily try something else.	_____
6. I am in a good mood most of the time.	_____
7. I think well of myself and like who I am inside.	_____
8. Difficult times don't change the way I feel about myself.	_____
9. I believe that if I try my best things will usually turn out well.	_____
10. I am good at reaching out and connecting with people.	_____
11. I usually try to solve my problems, but I know when to bend if something is beyond my control.	_____
12. I anticipate difficult situations, make a plan, and carry out my plan.	_____
13. I enjoy life and am satisfied with what I am contributing to the world.	_____
14. I am good at coping with strong negative emotions.	_____
15. I am good at separating myself from people who get me down or upset me.	_____
16. I have goals and am optimistic about my future.	_____
17. I'm involved in a variety of activities that I enjoy.	_____
18. I don't have self-destructive habits.	_____
19. I feel at peace with myself and my past. I've grown stronger from what I've experienced.	_____
20. I don't beat myself up when my best efforts don't succeed.	_____
21. I know when to seek help, and where to find it.	_____
22. I stay focused and think clearly under pressure. I am persistent, determined, and resolved.	_____

Total Score (add the scores from items 1-22) _____

Please Indicate (for research purposes only)

Gender (M/F) _____ Age _____

*From Schiraldi, G. R. (2011). *The Complete Guide to Resilience: Why It Matters, How to Build and Maintain It*. Ashburn, VA: Resilience Training International (; glenn@umd.edu). ©2011 Glenn R. Schiraldi, Ph.D. Do not reproduce without written permission.

Appendix B

**The Resilience Checkup
Respondent Profile**

- 1. Are you a sworn or civilian employee?**
Sworn Civilian
- 2. How many years of service do you have with the Division of Fire?**
 - a. 1-10
 - b. 11-20
 - c. 21-30
 - d. 30+
- 3. What is your current rank?**
 - a. Firefighter
 - b. Lieutenant
 - c. Captain
 - d. Chief officer
 - e. Civilian
- 4. What is your current EMS certification level?**
 - a. First Responder
 - b. EMT-B
 - c. EMT-E
 - d. EMT-I
 - e. EMT-P
 - f. Not certified
- 5. What is your current relationship status?**
 - a. Single – never married
 - b. Single – divorced
 - c. Married
 - d. Other domestic partnership
- 6. Do you have children?**
Yes No
- 7. Do you own a home?**
Yes No
- 8. Do you currently have a second job?**
Yes No
- 9. Do you belong to a faith-based organization?**
Yes No
- 10. Do you engage in a daily spiritual practice?**
Yes No
- 11. How many times per week do you exercise?**
 - a. 1-3
 - b. 4-6
 - c. Every day
 - d. Never
- 12. Are you active in any civic or community organizations?**
Yes No

Appendix B (contd.)

**The Resilience Checkup
Respondent Profile**

- 13. How many times per month do you engage in social activity with people other than your co-workers?**
- a. 1-3
 - b. 4-6
 - c. Everyday
 - d. Never
- 14. Do you currently struggle to maintain a healthy weight?**
- Yes No
- 15. How many times per week do you eat out?**
- a. 1-3
 - b. 4-6
 - c. Everyday
 - d. Never
- 16. How confident are your financial well-being?**
- a. Very confident
 - b. Confident
 - c. Somewhat confident
 - d. Not confident
- 17. What is the greatest source of stress in your life?**
- 18. What are you most thankful for?**
- 19. If you were faced with a challenging life situation such as relationship difficulties, divorce, interpersonal conflict at work, challenging children, or other major life stressor, which resource listed below would you most likely turn to for support?**
- a. Henrico County Mental Health
 - b. Employee Assistance Program
 - c. Division Chaplain or other clergy
 - d. Co-worker
 - e. Friend(s)
 - f. Family
 - g. I would handle it myself

Appendix C

Baxter, Andrew

From: Baxter, Andrew
Sent: Wednesday, November 12, 2014 9:23 AM
To: FireAll
Subject: Research Assistance
Attachments: Resilience Survey.pdf

Division Members,

I am currently enrolled in the Executive Fire Officer Program (EFOP) at the United States Fire Administration's National Fire Academy. The EFOP is a four-year, graduate-level program designed to prepare chief officers for executive leadership positions. Students enrolled in the EFOP attend four, two-week courses in residence at the National Fire Academy located in Emmittsburg, Maryland. Upon successful completion of each class, students are required to submit an Applied Research Project. One of the primary objectives of the EFOP is to develop a body of original research for the fire service.

I am currently conducting research on the topic of psychological resilience, specifically as it pertains to professional firefighters and the civilian staff who support them. Psychological resilience is commonly defined as "the ability to bounce back and thrive." (Schiraldi, 2001) The first step in determining what strategies might assist our members in developing resilience skills is to measure our current level of resilience. The above attachment contains two brief questionnaires that are intended to provide data on the current, self-reported state of resilience of our workforce.

Participation in this research is completely voluntary and your responses are completely anonymous.

If you are interested in supporting this research project, please open and print the attachment and follow the instructions.

Please don't hesitate to contact me directly if you have questions, comments, or concerns regarding this research or the survey instruments.

Be safe.
Be fit.
Be kind.
Do the right thing.

Andrew

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