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## Humor as a Predictor of Life Satisfaction and Burnout Among Firefighters

Kayla Marie Kovach  
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# Walden University

College of Allied Health

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Kayla Marie Kovach

has been found to be complete and satisfactory in all respects,  
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Walden University  
2025

Abstract

Humor as a Predictor of Life Satisfaction and Burnout Among Firefighters

by

Kayla Marie Kovach

MA, Xavier University, 2014

BA, Walsh University, 2011

Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

November 2025

## Abstract

Notwithstanding knowledge of the high stress levels experienced by firefighters, little is known about their coping strategies as compared with the general population. To address this gap, the differences in humor styles between firefighters and nonfirefighters in the prediction of life satisfaction and burnout were assessed. The study was grounded in the PERMA theory of well-being and the job demands-resources theory. A cross-sectional, correlational survey research design was used to assess if there are differences between firefighters and nonfirefighters in the types of humor (i.e., self-enhancing, affiliative, aggressive, and self-defeating) used and in the prediction of burnout and life satisfaction by humor types. A nonprobabilistic sample of 153 firefighters and 175 nonfirefighters was used for data analyses. A MANOVA yielded that firefighters use all four humor categories more than nonfirefighters, with the largest difference being in aggressive humor. Moderated multiple regression analyses yielded that firefighter status was not moderator of the relationship between humor styles and burnout, but it did moderate the relationship between affiliative humor and life satisfaction. The study's findings have the potential to inform social change initiatives by providing a better understanding of how firefighters cope with their stressful occupational demands. Furthermore, the results can also help increase awareness within the firefighter community of how to more effectively use humor as a strategy for protecting against potentially traumatic stressors.

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## Dedication

I dedicate this dissertation to my children, Jackson and Zoe. You are the best part of my life, and I am infinitely blessed to be your mom. I pursued this dream to show you that with determination and hard work, anything is possible and to always follow your passions. You can be anything and do anything you set your mind to. Remember, you can only control your attitude and effort, so give your best, and roll with the rest. Whatever your dreams may be, set your goals, work hard, and know that I will always be your biggest fan. I love you most.

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To the firefighters, thank you for your bravery, selflessness, and the skills you bring to keeping our communities safe. I am deeply grateful for your willingness to open your brotherhood/sisterhood to me, and for trusting me to carry out this research. Your stories, humor, and resilience inspired every page of this work. Keep laughing. It is one of your greatest strengths.

To my parents: thank you for being my steadfast supporters and biggest cheerleaders, not just during this dissertation, but throughout my life. You have shown me what hard work, respect, and unconditional love truly looks like. Words cannot fully express how much you both mean to me. Your warm home, always filled with laughter, has helped shape who I am and inspired this research.

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## Chapter 1: Introduction to the Study

### **Introduction**

Human instinct is to run away from danger, yet firefighters go against this and move themselves towards it. It is common for society to highlight their bravery and strength, and to their credit they absolutely are. However, firefighters deserve a more in-depth look and understanding of the type of mental stress and trauma they endure, how they cope with it, and the impact these factors have on their life satisfaction and burnout.

Firefighters are exposed to chronic and complex trauma throughout their careers, which can lead to higher levels of work-related stress, burnout, anxiety, and depression (Duran et al., 2019; Eriksen, 2019; Huang et al., 2022; Kim et al., 2020; Smith et al., 2018). Recent research has found that humor is an important coping skill. It buffers mental health symptoms and influences overall well-being in first responders (Dangermond et al., 2022; Sliter et al., 2014). Findings show that humor helps first responders to cope with the high pressures of their work environment, used for meaning making, and builds comradery (Bochantin, 2017; Charman, 2013). Research has identified different types of humor and shows the highest levels of well-being are linked with individuals that use self-enhancing and affiliative humor and do not use aggressive or self-defeating humor styles (Schneider et al., 2018).

This chapter is an overview of the research study. Definitions of key terms, such as, different types of humor, life satisfaction, and burnout are listed. A summary of pertinent research results is presented in the background section. The research gap is identified and discussed in the problem statement section. Next, I discuss the purpose of

the study, followed by the research questions and hypotheses. The next section identifies and discusses the theoretical frameworks for this study. There is also an assumptions section, scope and delimitations section, and a limitations section. A rationale and justification for the study are discussed in the significance section. Lastly, there is a summary of Chapter 1 provided.

### **Background**

In the United States, there are approximately 336,874 firefighters (Data USA, 2022). This profession is chronically exposed to trauma which leads to increased mental health symptoms (Duran et al., 2019; Eriksen, 2019; Huang et al., 2022; Kim et al., 2020; Smith et al., 2018). Recent research has focused on symptoms and coping skills of emergency responders, which include firefighters. Humor has been identified as one of the coping skills used in the fire service culture. This study may help build on the existing literature about firefighters' use of humor, the types of humor, and their effectiveness in buffering individuals from burnout and low life satisfaction.

Life satisfaction, or well-being, is an individual's culmination of health and happiness in multiple aspects of their lives: mental, physical, emotional, social, financial, etc. (Centers for Disease Control and Prevention [CDC], 2022). Studies about life satisfaction in firefighters have compared different first responder groups to one another or within group comparisons. For example, one life satisfaction study compared 28 firefighters, 28 police officers, and 28 office administrators and the differences between their well-being (life satisfaction), anxiety, depression, personality, and stress levels (Tommasi et al., 2021). The results did not show any significant differences between the

three groups' psychological well-being, but results did show that firefighters had the lowest levels of negative mental health symptoms. The authors listed possible reasons for this as high emotion regulation to perform physically under pressure, high levels of work engagement and intrinsic motivation, and/or viewed as positive figures in the community. Another life satisfaction study compared 177 firefighters from two different urban communities in Canada (Pasca & Wagner, 2022). The researchers gathered data on three different categories: psychological state (e.g., depression and anxiety), work state (e.g., job stress), and overall satisfaction (e.g., job, marital, and overall life satisfaction). The results showed that life satisfaction is influenced by job satisfaction and psychological symptoms, that high job stress is a predictor of low life satisfaction and high mental health symptoms, and the importance of social support amongst firefighters (in their personal lives and within the department). Overall, more knowledge is needed to identify predictors of lower negative mental health symptoms and effective coping strategies for first responders.

Burnout is a state of being that is caused by chronic stress and the lack of or insufficient coping skills. It can occur in different domains in an individual's life, however for the purpose of this study the focus is on occupational burnout. Firefighters have a greater chance of developing burnout due to the nature of their job (Maslach & Leiter, 2016). Kim et al. (2020) focused on 371 Korean firefighters and the moderating effect of compassion fatigue (working with victims of trauma) between risk factors and burnout (Kim et al., 2020). The results showed that the firefighters that could effectively manage their compassion fatigue had lower burnout rates. Additional knowledge is

needed to identify coping skills that help firefighters effectively manage various factors of their job.

Humor is defined as a coping skill that individuals use to improve their mood (Bochantin, 2017; Sliter et al., 2014). It has been shown to be used by firefighters to help them discuss uncomfortable topics, create a bond/support, and increase personal gratification (Bochantin, 2017). A recent study about humor in the firefighter culture had 72 Dutch firefighters from different stations. The themes highlighted by the interviews were: humor is a part of the firefighter culture and helped create a positive environment, a form of communication and way to avoid arguments, to challenge one another, and form bonds (Dangermond et al., 2022). This study can add quantitative evidence about the effectiveness different types of humor do or do not have on firefighter culture.

Overall, there are recent studies that have highlighted the impact occupational stress has on firefighters. Studies have laid groundwork about life satisfaction, burnout, and humor in the first responder populations. I built on the existing knowledge about types of humor as significant predictors of the variables, life satisfaction and burnout in firefighters compared to nonfirefighters. Comparing firefighters to nonfirefighters may help identify significant differences and similarities between the two groups and provide generalizability of the results.

### **Problem Statement**

Although researchers have investigated the link between firefighters' use of humor and negative mental health outcomes (Bochantin, 2017; Dangermond et al., 2022; Eriksen, 2019; Reiersen, 2022) there are no studies on the specific types of humor and its

relationship with life-satisfaction as compared with non-firefighters. Several studies have been conducted to understand the relationships between well-being, burnout, and humor among first responders (e.g., Charman, 2013; Duran et al., 2013; Huang et al., 2022; Kim et al., 2020; Sliter & Yuan, 2014; Smith et al., 2018). However, there are no studies comparing firefighters to non-firefighters on these three aspects.

### **Purpose of the Study**

The purpose of this quantitative study was to examine differences in the types of humor used among firefighters and non-firefighters. More specifically, I evaluated whether the different types of humor significantly predict life satisfaction and burnout in these two populations. The relationship between some of these variables has been studied, but there has not been a comparison between firefighters and nonfirefighters or the breakdown of humor on the other variables. This study has the potential to significantly contribute to our understanding of the mental health needs and effective coping of individuals whose career exposes them to high rates of traumatic stressors.

### **Research Questions and Hypotheses**

RQ1: Are there differences in the types of humor (i.e. self-enhancing, affiliative, aggressive, and self-defeating) used between firefighters and nonfirefighters?

$H_{01}$ : There are no differences in self-enhancing humor between firefighters and nonfirefighters.

$H_{11}$ : Firefighters will have higher scores on self-enhancing humor as compared with nonfirefighters.

$H_{012}$ : There are no differences on affiliative humor between firefighters and nonfirefighters.

$H_{112}$  Firefighters will have higher scores on affiliative humor as compared with nonfirefighters.

$H_{013}$ : There are no differences on aggressive humor between firefighters and nonfirefighters.

$H_{113}$ : Firefighters will score lower on aggressive humor as compared with nonfirefighters.

$H_{014}$ : There are no differences on self-defeating humor between firefighters and nonfirefighters.

$H_{114}$ : Firefighters will score lower on self-defeating humor as compared with nonfirefighters.

RQ2: Is type of humor a better predictor of life satisfaction for firefighters as compared with nonfirefighters?

$H_{021}$ : Self-enhancing humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{121}$ : Self-enhancing humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{022}$ : Affiliative humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{122}$ : Affiliative humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

*H*<sub>023</sub>: Aggressive humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

*H*<sub>123</sub>: Aggressive humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

*H*<sub>024</sub>: Self-defeating humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

*H*<sub>124</sub>: Self-defeating humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

RQ3: Is type of humor a better predictor of burnout for firefighters as compared with nonfirefighters?

*H*<sub>031</sub>: Affiliative humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>131</sub>: Affiliative humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>032</sub>: Self-enhancing humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>132</sub>: Self-enhancing humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>033</sub>: Aggressive humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>133</sub>: Aggressive humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H<sub>034</sub>*: Self-defeating humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H<sub>134</sub>*: Self-defeating humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

### **Theoretical Frameworks for the Study**

Two main theories anchor the conceptual framework of this study: the PERMA theory of well-being and the demands-resources theory (JD-R). The PERMA theory of well-being focuses on a five-factor model of positive emotion, engagement, relationships, meaning, and accomplishments (Deppa, n.d.; Umucu, 2021). Based on Seligman's theory, it proposes that an individual's overall level of thriving increases as they fulfill each of the five core elements. There are few research studies using this theory to explain the mental health behavior specific to firefighters. Most studies focus on emergency services or veterans. This is a strong foundation for life satisfaction as research has supported a positive relationship between well-being, the five factors in the PERMA theory, and in populations that experience chronic stress (Umucu, 2021).

The JD-R addressed the second dependent variable of burnout. This theoretical framework views burnout through the lens of an imbalance between the job demands and job resources (Edu-Valsania et al., 2022). Demands of a job are tasks, pressure, time constraints, and interpersonal dynamics. Resources include physical, emotional, mental, and physiological costs used to cope with the demands. These two theories complement each other well, as they cover both the complex nature of a firefighter's job and the multiple variables being researched in this study.

The logical connections between the framework presented and the nature of my study include the following. The PERMA theory of well-being provided a lens for the first dependent variable, life satisfaction. This study's independent variable, humor, is linked with several factors from the PERMA theory: positive emotion, relationships, engagement, and meaning (Deppa, n.d.; Umucu, 2021). Humor can produce elation in a person or group of people, thus leading to a positive emotion (Dangermond et al., 2022; Sliter et al., 2014). Humor can also be used to cope with a shared experience with others and build a deeper connection (Dangermond et al., 2022). Engagement can be increased or captured using humor, as it is entertaining and can help make a point (Dangermond et al., 2022). Lastly, humor can be used to make meaning or sense of a stressful situation (Bochantin, 2017). Thus, humor fits with the theory's assumption of positive emotion, relationships, engagement, and meaning being associated with subjective well-being/life satisfaction.

The JD-R provided a lens for the second dependent variable, burnout. Humor can be understood as a perspective and a resource which lends itself to the JD-R (Edu-Valsania et al., 2022). Humor has been shown to be helpful in maintaining a positive perspective and relationships in stressful situations and can be considered a type of psychological resource (Eriksen, 2019; Reiersen, 2022; Sliter et al., 2014; Smith et al., 2020). Thus, humor can be conceptualized as a personal resource that may protect against the demands of daily stressful situations. A more detailed explanation of these two theoretical frameworks will be given in Chapter 2.

### **Nature of the Study**

The research questions were addressed in this quantitative study through a cross-sectional correlational survey approach. Correlational research studies assess the relationship among key constructs. Although the direction and strength of associations could be assessed through correlational designs, inferences about the causal relationship among variables cannot be made (Cozby & Bates, 2015). Cross-sectional studies collect data from participants at one time, as compared with longitudinal studies in which measures are completed at several points in time.

The study's hypotheses were tested by a multivariate analysis of variance (MANOVA) in which the relationship between types of humor and the dependent variables life satisfaction and burnout were compared between firefighters and nonfirefighters. A MANOVA is a "generalization of an ANOVA to a situation in which there are several DVs" (Tabachnick & Fidell, 2013, p. 245). In this study, the two dependent variables were life-satisfaction and burnout. A moderated multiple regression analysis (MMR) was performed to test the other two hypotheses regarding the relationship between firefighter status (Firefighter/No Firefighter), and humor styles on life satisfaction and burnout. An MMR analysis is used for complex relationships that include "y is treated as the criterion, x the predictor, and m the moderator and a second in which x is the criterion and y the predictor" (Landis & Dunlap, 2000, p. 254).

### **Definitions**

This section includes the name of terms used in the context of this study.

*Affiliative humor:* Affiliative humor focuses on improving relationships with others (Martin et al., 2003).

*Aggressive humor:* Aggressive humor refers to putting others down (refer et al., 2003).

*Burnout:* burnout is defined as an occupational circumstance that is brought on by chronic stress in a work setting (Edu-Valsania et al., 2022).

*Humor:* A type of coping skill that has multiple types and purposes, including discussing uncomfortable topics, helping create or maintain support, or increasing personal satisfaction (Bochantin, 2017).

*Life satisfaction:* An individual's subjective judgement about their overall emotional, psychological, and social happiness (Basinska & Wiciak, 2013; CDC, 2022).

*Self-defeating humor:* Self-defeating humor uses humor to improve relationships with others by putting the self-down (Martin et al., 2003).

*Self-enhancing humor:* Self-enhancing humor uses neutral humor to improve one's own mood (Martin et al., 2003).

### **Assumptions**

One assumption I made was that all participants answered all the items honestly and to the best of their ability to draw valid conclusions. My second assumption was that all participants understood all the assessment questions.

### **Scope and Delimitations**

In this study, I focused on firefighters and nonfirefighters in the United States of America who were 18 years or older.

### **Limitations**

I used a cross-sectional correlational survey design to assess the research questions. Correlational studies could be used to predict the relationship among variables of interest (Cone & Foster, 2008). However, no causal relationships can be inferred from the analysis, and thus this is a limitation as compared with experimental or quasi-experimental research designs. Furthermore, self-report measures were used to collect data from participants. Self-report measures have the limitation of increasing the likelihood of response sets and social desirability biases (Cone & Foster, 2008).

### **Significance**

This study is significant in that it fills a gap and increases understanding by focusing specifically on humor as a predictor of life satisfaction and burnout in firefighters. Although these factors have been studied previously, there were no studies, to the best of my knowledge, on the specific types of humor and their relationship with life-satisfaction and burnout. In addition, this study is unique as it also compared firefighters to non-firefighters. The results of this study may aid clinical psychologists in understanding the mental health needs, effective coping, treatment, and diagnosis of this population whose career exposes them to high rates of traumatic stressors. Positive social change could result from this study by increasing firefighters' awareness of how their high pressures at work influence life satisfaction and burnout and the impact different types of humor have on these factors. Because firefighters are a necessity for civilian safety, supporting their well-being allows for effectiveness at work and higher life

satisfaction. Results from this study will be used within fire departments and in clinical work to advance social change in this population.

### **Summary**

The purpose of this quantitative study was to examine differences in the types of humor used among firefighters and non-firefighters. The types of humor that were explored were self-enhancing, affiliative, aggressive, and self-defeating (see Leist & Muller, 2012). The purpose of this chapter was to give an overview of the research study. This study may help fill several gaps in knowledge for the firefighter and non-firefighter populations in the United States. I used a cross-sectional correlational survey approach. Various surveys were used to measure the predictor and variables. This study contributes to positive social change by increasing firefighters' cognizance of how their high occupational stress influenced their life satisfaction and burnout and the impact different types of humor have on these factors. Firefighters are a necessity for civilian safety, and supporting their psychological well-being allows for effectiveness at work and higher life satisfaction. Results from this study can be used within firefighter departments and in clinical work to advance social change in this population. Chapter 2 includes the literature search strategy, theoretical foundation, and literature review related to key variables.

## Chapter 2: Literature Review

### Introduction

Firefighters are exposed to chronic and complex trauma throughout their careers, which can lead to higher levels of work-related stress, burnout, anxiety, and depression (Duran et al., 2019; Eriksen, 2019; Huang et al., 2022; Kim et al., 2020; Smith et al., 2018). Research has provided useful insights into the symptoms and coping skills of emergency responders, yet little is known about the relationship between humor, life satisfaction, and burnout among firefighters. There was also scant information in the literature on the differences between firefighters and nonfirefighters in the use of humor as a tool in coping with burnout. Humor has been found to buffer mental health symptoms and influence overall well-being in first responders (Dangermond et al., 2022; Sliter et al., 2014). Findings also show that humor helps first responders to cope with the high pressures of their work environment, develop meaning making, and build comradery (Bochantin, 2017). Research shows the highest levels of well-being are linked with first responders that use self-enhancing and affiliative humor and do not use aggressive or self-defeating humor styles (Schneider et al., 2018).

In this quantitative study, I examined differences in the types of humor used among firefighters and nonfirefighters. More specifically, I evaluated whether the different types of humor significantly predicted life satisfaction and burnout in these two populations. The relationship between some of these variables have been studied, but there has not been a comparison between firefighters and nonfirefighters or the breakdown of humor on the other variables. This study has the potential to significantly

contribute to our understanding of the mental health needs and effective coping of individuals whose career exposes them to high rates of traumatic stressors. In the literature review I present the PERMA theory and the JD-R. The greater part of this review is focused on types of humor, life satisfaction, and burnout among first responders.

In this chapter, I explore the research available on the various predictors of life satisfaction and burnout and how they apply to first responders. The chapter is organized into three main areas: literature research strategies, the theoretical foundations, and a review of empirical research on this study's variables. The chapter ends with a summary and a conclusion.

### **Literature Search Strategy**

The literature search for this dissertation was conducted using the following electronic databases: PsycINFO, EBSCO discovery service, and Google Scholar. The search was limited to peer reviewed journal articles, books, and theses. Keywords used were, but not limited to, *firefighters, fire service, firefighting, firemen, fire department, well-being, happiness, life satisfaction, quality of life, burnout, humor, comedy, laughter, jokes, PERMA theory, and JD-R.*

### **Theoretical Foundation**

The two theories used in this study were the PERMA theory and JD-R. The source of the theories and their empirical research outcomes follow.

## **PERMA Theory**

PERMA theory was developed by Seligman (2011) who proposed that a nonsuffering person will choose to fulfill five factors of positive emotion, engagement, relationships, meaning, and accomplishments. Positive emotion is feeling good about the past, present, or future through gratitude, mindfulness, or hope, respectively. Engagement is a person putting forth their attention and skills towards an activity. Relationships are a bidirectional factor of support and connection. Meaning helps provide a person with purpose and to give back to the greater good. Lastly, accomplishment equates to success or mastery in a variety of contexts and activities. This theory is a part of the larger positive psychology, a framework created by Seligman. In his early career, he studied depression and learned helplessness and after a witty comment from his 5-year-old daughter became curious about how what an individual focuses on can influence their mood (Gibbon, 2020). Positive psychology focuses on what is fulfilling for a person versus what their current issues are, it incorporates positive reframing and gratitude. The PERMA theory was built on positive reframing and how people innately want to grow and thrive and attempts to define how people can “flourish” (Coffey et al., 2016; PERMA, n.d.; Umucu, 2021; University of Pennsylvania, 2013). Lastly, PERMA respects human diversity through the five building blocks and encourages people to identify their motivations and values to pursue what they are lacking, leading to increased well-being.

### ***Empirical Support for the PERMA Theory***

Both qualitative and quantitative studies have been conducted using PERMA as the theoretical foundation regarding diverse types of employment (Choi, 2020; Davis, 2023; Thoen et al., 2020; Umucu, 2021; Yang et al., 2022). Choi (2020) showed emergency workers' PERMA levels were directly linked with depression, quality of life, and life satisfaction. Thoen et al. (2020) showed that the overall well-being of police officers on the PERMA profile was significantly lower than the average well-being reported in the general population in previous studies. A qualitative study focusing on the flourishing of 911 communication workers through the lens of the PERMA theory identified several major themes: professional development, support systems, and work-life balance (Davis, 2023). Researchers examined general workplace populations and found significant correlations between PERMA and job control, supervisor support, and coworker support (Yang et al., 2022). Overall, research has supported a positive relationship between well-being and the five factors of the PERMA theory in populations that experience chronic stress (Choi, 2020; Thoen et al., 2020; Umucu, 2021). I built upon existing knowledge of this theory with a focus on a new combination of variables, specifically in firefighters.

### ***Rationale for Selecting PERMA Theory to Build Upon Existing Research***

Seligman's positive psychology model has often been used to study populations that experience trauma or stress (Choi, 2020; Miao et al., 2024; Umucu, 2021). This theory was selected for this study based on its holistic view of an individual's well-being. Unlike other positive psychology theories, this model considers five different elements

and how they interconnect to help an individual flourish. Another reason this theory stands out is that it is focused on individuals applying it, for example, individuals can focus on the specified categories to help improve their well-being or life satisfaction. Lastly, this theory focuses on the actions individuals can take to thrive versus focusing on their symptoms and disorders.

This study helps build more representative results for the PERMA theory, which was listed in other research's future suggestions (see Choi, 2020). This study built information for emergency and nonemergency workers in the United States. I found that this theory has been studied amongst nurses, firefighters, emergency workers, and veterans in various countries, including, but not limited to, China and South Korea (Choi, 2020; Umucu, 2021). I focused on the potential influence different types of humor might have on firefighters' and nonfirefighters' life-satisfaction and burnout, which could lead to specific strategies under the PERMA theory. Therefore, Seligman's PERMA theory offers to provide a core theoretical foundation for this study to build upon.

### **Demands-Resources Theory**

JD-R was developed by Demerouti and colleagues (2001). According to the theory, occupational burnout results from an imbalance between job demands and job resources (Edu-Valsania et al., 2022). Job demands, which include tasks, pressure, time constraints, and interpersonal dynamics, are linked to fatigue (Demerouti et al., 2001). Resources include physical, emotional, mental, and physiological costs used to cope with employment demands and are associated with disengagement (Demerouti et al., 2001). The theory intentionally did not name specifics for demands and resources so it could be

applied to all occupations (Bakker & Demerouti, 2024). Its developers recognized that work stress can be physiological and psychological depending on the job's nature, e.g., a stockbroker versus construction worker.

### ***Demands-Resources Empirical Support***

Research shows that job resources create a buffer to job demands (Bakker & Demerouti, 2017). For example, one study showed firefighters with a negative or high demand working environment that outweighed job resources increased psychological symptoms and decreased satisfaction and well-being (Pasca & Wagner, 2022). Another study focused on how leadership played a role in the JD-R theory and found that an increase in job resources negated burnout (Arnold & Rigotti, 2023). This supports that burnout can be impacted by resources both proactively and in real time.

### ***Rationale for Selecting Job Demands Resources to Build Upon Existing Research***

The JD-R theory was created a little over 2 decades ago and has been used by thousands of companies (Bakker & Demerouti, 2017). This theory has been used to study the variables such as well-being and burnout, both variables in this study (Bakker & Demerouti, 2017). This theory was selected for this study due to its intentionally general definitions of demands and resources, which allowed for the complex nature of a firefighter's job (see Bakker & Demerouti, 2024). This study built upon existing research for the JD-R theory by exploring how types of humor, or a job resource, contributed to firefighters' psychological states and symptoms. It is the theory's authors' wishes for future studies to focus on improving life satisfaction and efficiency in employees, which is what this study aimed to do (Bakker & Demerouti, 2017).

## **Literature Review Related to Key Variables**

In this section, I present a review of the relevant literature related to the key variables of the study: burnout, life satisfaction, and humor.

### **Burnout**

Although burnout can go beyond work environments, I focused on occupational circumstances when there is a lack of resources to effectively cope with chronic stress (see Edu-Valsania et al., 2022; World Health Organization [WHO], 2019). It develops when individuals do not manage or cope well with their work stress. The three characteristics of burnout are identified as: increased fatigue, cynicism, and decreased effectiveness at work (Bianchi & Schonfeld, 2016; CDC, 2023; Maslach & Leiter, 2016; WHO, 2019). Individuals who are burned out at work show exhaustion or lack of energy, express a negative attitude towards patients/clients, are irritable, and have a decline in productivity. Although burnout can occur in any occupation, it is most often associated with helping professions. Emergency workers, such as firefighters are particularly at risk (Maslach & Leiter, 2016). Firefighters provide direct care to clients and/or patients and usually involve strong emotions, leaving employees more susceptible to burnout.

Burnout has been associated with the experience of firefighters (Kim et al., 2020). A recent study explored the occupational environmental predictors of burnout in firefighters and compassion fatigue's moderating effect between risk factors and burnout (Kim, et al., 2020). Burnout and compassion fatigue are alike in symptoms, but it is important to note that burnout originates from occupational stress and compassion fatigue originates from working with victims of trauma. Kim et al. (2020) surveyed 371 Korean

firefighters and multiple statistical analyses were run to determine the results, which are as follows. The authors identified four risk factors in the work environment as the following. The lack of challenge or prospects for growth and independence. Second, was role conflict or struggles while carrying out work duties. Third was role ambiguity, defined as how clear work duties are or are not. Finally, overwork or whether job duties assigned can be completed in an allotted time and with the training and skills an individual has. One last point to highlight is the possible cultural differences between this Korean study and American society. The authors used a logistic regression model which showed there was a positive correlation between each individual factor with burnout (Kim et al., 2020). Simply stated, as each risk factor is present or intensifies, it increases the chance for burnout. The study used a hierarchical regression analysis to determine the moderating effects of compassion fatigue between the risk factors and burnout. The results showed there was a statistically significant interaction between them (Kim et al., 2020). Meaning, compassion fatigue does have an influence on the relationship between the work environment risk factors (lack of challenge, role conflict, role ambiguity, and overworking) and burnout in firefighters. In conclusion, the study's results support that firefighters can reduce their level of burnout, despite their risk factors' level of intensity, if they can successfully regulate their compassion fatigue.

Another study explored the relationship between burnout and emergency workers from an agency in a suburban hospital in New York. Maloney et al. (2024) examined the impact a program that included informal peer support and intentional acts of kindness had on the burnout rates of emergency workers. The surveys focused on three variables:

burnout, secondary traumatic stress, which the authors noted was synonymous with compassion fatigue, and compassion satisfaction, defined as, a sense of accomplishment derived from helping others. Sub-scales of the variables also included emotional exhaustion, depersonalization, and personal accomplishment. Emotional exhaustion is fatigue from chronic work stress, depersonalization is a nonchalant and cynical attitude at work, and personal accomplishment is a work goal that has been met. The pretest included 77 survey responses, and the posttest included 108 survey responses over a 20-month period from emergency medical technicians, paramedics, and transport nurses. During this 20-month period a program called the EMS Code Lavendar was provided to the emergency workers when a stressful work situation occurred which provided positive recognition, peer support, and acts of kindness from supervisors, management, and peers. Results showed there were no significant differences from pre- to posttests among compassion satisfaction, secondary traumatic stress, or burnout. There were no significant differences between respondents by gender or job title. Lastly, high depersonalization scores or high emotional exhaustion scores were positively correlated with burnout. An important note for this study is that it took place during the onset of the COVID-19 pandemic. The authors suggested the increased stress may have played a role in the lack of significant changes from the program and which may have been higher if the program was not already in place. Overall, the results suggested workplace support plays a role in decreasing occupational stress in emergency workers.

Reierson (2022) explored the relationships of humor, sleep, and social support on burnout, depression, and post-traumatic stress disorder (PTSD) in firefighters . Online

surveys were sent out and returned from a sample of 153 active firefighters in Southern California. The variables were burnout, the response to long-term occupational stress that leads to fatigue and cynicism, and PTSD, the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5; American Psychological Association, 2013) diagnosis that can occur through experiencing or witnessing traumatic situations and leads to symptoms such as, flashbacks, ruminations, and nightmares. Other variables were social support identified as a positive mental health factor that can increase a firefighter's well-being through assistance and encouragement. There are two types of support. General social support is an individual's peers, family, and friends. Community support consists of coworkers at the fire station. The instrument used was the DASS-21 which measures depression, anxiety, and stress. Lastly, humor was defined as a coping skill that is often used by emergency workers and works as a cathartic release and bonding experience (Reierson, 2022).

Correlational analyses were run among the variables (Reierson, 2022). Trauma exposure was significantly positively correlated with burnout and trauma symptoms and the DASS score and significantly negatively correlated with community support. Trauma symptoms were significantly negatively correlated with social support and community support and positively correlated with burnout symptoms and DASS score. Coping humor was significantly and positively correlated with community support but not with social support. Social support and community support were significantly negatively correlated with burnout and DASS. Lastly, sleep on shift significantly moderated the relationship between trauma exposure and burnout symptoms. Overall, when a firefighter

was exposed to traumatic experiences this increased their chances of higher levels of PTSD, burnout, and depression/anxiety/stress. Also, when firefighters received positive social and community support and adequate sleep, these factors could act as buffers to their well-being. However, it was also found that if firefighters received negative social or community support or had less than adequate sleep these could potentially lead to an increase in their depression and trauma symptoms (Reierson, 2022).

Other findings from Reierson's (2022) study were no moderating relationship between social or community support and PTSD or burnout. The authors suggested this could be that social support was measured with different factors in this study compared to other research. They showed that coping humor was positively correlated with community support, but not with social support. Simply stated, the firefighters have a community within their department, and they use humor amongst each other to cope with the trauma they are exposed to on shift. The authors further suggested that their specific trauma and humor may not be understood outside of the department, thus the reason behind general social support not having any correlational relationship with humor.

### **Life Satisfaction**

Life satisfaction, often used interchangeably with well-being, is an individual's subjective judgement about their overall emotional, psychological, and social happiness (Basinska & Wiciak, 2013; CDC, 2022). Data from the National Health Interview Survey (NHIS) revealed that in 2021, 4.8% of adults were dissatisfied with life. Overall, lower levels of life satisfaction are found in adults making less than 200% of the federal poverty line and in men compared to women, and in White individuals compared to Black

individuals. A popular theory about life satisfaction is the onion theory of happiness (Czapinski & Peeters, 1991). This theory views happiness as three layers (starting with the innermost layer): the will to live, general subjective well-being, and daily satisfaction. It is comprised of two models: the 'top-down' model and the 'bottom-up' model. The top-down model takes the perspective that the three layers influence life satisfaction in other areas of life. The bottom-up model is that happiness is the sum of its parts. The work aspect consists of the physical environment, job demands, and leadership styles.

In a recent study, it was found that firefighters adhered to the top-down model of the onion theory (Basinska & Wiciak, 2013). This study consisted of 499 total participants, including 195 police officers and 304 firefighters. The researchers focused on the influence positive and negative factors at work have on the well-being or life satisfaction of police officers and firefighters. A life satisfaction Likert scale was used to assess how much work influenced four other areas of the participants' life, social, health, economic, and self-esteem. The social aspect was defined as relationships with family, friends, or coworkers. Economic satisfaction was based on finances and living conditions. The health aspect was based on a person's medical health (diagnoses, weight, physical abilities). Lastly, self-esteem was based on personal achievements, future opportunities, and amount of leisure time. The results of this survey were divided into positive or negative effects at work and an indicator was used to obtain a ratio of positivity to negativity. Results showed that firefighters were more satisfied with the influence work had on categories. The lowest score for firefighters, although still positively satisfied with

it, was in the economic category. More than half of the police officers reported work had a negative influence on their overall life satisfaction, specifically, health, economic, and leisure opportunities. The researchers theorized possible reasons for the results. One, is that firefighters may receive more recognition due to their rescue-based calls. Second, firefighters have a closer relationship with family and friends and they feel a part of a 'brotherhood' while on duty (p. 253). Lastly, although there was a similar trend of health problems increasing with length of service, it was more significant in police officers. Overall, firefighters experience more life satisfaction when compared to police officers.

In another recent study, researchers explored the differences between well-being (life satisfaction), anxiety, depression, personality, and stress in firefighters, police officers, and administrative staff. The study compared 28 firefighters, 28 police officers, and 28 office administrators in Italy (Tommasi et al., 2021). The participants were given in-person self-report surveys for the following variables: psychological well-being, personality, mental health, anxiety, depression, and stress. The researchers used MANOVAs and ANOVAs to establish the presence of any significant differences between the variables. The results showed no significant difference between the three groups' psychological well-being. Results did show that firefighters have lower levels of anxiety, depression, and stress compared to police officers and administrative staff. There were no significant interactions between gender and type of work. The researchers hypothesized explanations for their findings including, firefighters receiving extensive training for emergency and risky situations they encounter. They also highlighted firefighters' high level of engagement at work, which involves energy, problem solving,

dedication, and focus. Another reason influencing the results could be the firefighters' high level of support by general society and high level of intrinsic motivation. In conclusion, although there was no significant difference in overall well-being or life satisfaction between the groups, firefighters did report lower levels of negative emotions.

In another study about life satisfaction, the researchers studied 177 firefighters from two urban communities in Canada (Pasca & Wagner, 2022). Several surveys were administered to obtain data on demographics, life satisfaction, symptoms, personality, job satisfaction, job content, job stress, and marital satisfaction. The researchers used a hierarchy system with PsychState (interpersonal skills, depression, anxiety, hostility, phobic anxiety, OCD, paranoid ideation, psychoticism, and somatization) as the top tier. The second tier was comprised of WorkState (job stress and exposure to hazards and toxic environments) and OverallSatisfaction (job satisfaction, marital satisfaction, and life satisfaction). The results showed a significant correlation between WorkState to PsychState and WorkState to OverallSatisfaction. Results also found a negative relationship between WorkState and OverallSatisfaction, e.g., higher levels of work stress resulted in lower levels of life satisfaction. Lastly, WorkState had a positive relationship with PsychState, e.g., higher levels of work stress resulted in higher levels of psychological symptoms. There was no significant correlation between the states and hostility, age, work experience, or personality traits. The researchers' findings supported the notion that life satisfaction is interrelated with job satisfaction and psychological symptom satisfaction. A second conclusion is that a high level of job stress is a predictor of low life satisfaction and high mental health symptoms. Lastly, the researchers

highlighted the importance of social support for firefighters from their spouses and from each other at the department. These findings are consistent with previous research on negative work factors on mental health.

### **Humor**

Humor is a type of coping skill that has multiple types and purposes, including discussing uncomfortable topics, helping create or maintain support, or increasing personal satisfaction (Bochantin, 2017). Humor can be traced back to ancient Greece with references to jesters, use by philosophers, and is also noted when pioneers met aboriginals in Australia (Polimeni & Reiss, 2006). Humor is the use of several mental capacities including, but not limited to, language, abstract thinking, and social constructs (Polimeni & Reiss, 2006). It has been shown in history to be cross-cultural and at its core, can connect people through its release of endorphins, reinforcing social connection and communication.

In the field of psychology, humor has been referenced as early as Freud for being a main coping skill (Sliter et al., 2014). Since then, humor has been studied and found to have multiple types and used for a variety of purposes. The different types can be used for the following purposes: to discuss uncomfortable topics, help create or maintain support, or increase personal satisfaction (Bochantin, 2017). This is especially true in the firefighter culture to deal with negative work stress (Bochantin 2017; Dangermond et al., 2022).

A recent study looked even further into what role humor plays as part of the fire service culture in general and specifically when coping with critical incidents, life

threatening or loss, at work (Dangermond et al., 2022). This was an ethnographic field study that completed 20 observations with six different crews. They also interviewed 72 Dutch firefighters from 37 fire stations. This type of study was chosen due to the high level of trust needed by the firefighters to share about this topic. The results highlighted the themes that emerged from observations and interviews. Humor is part of the fire service culture and represented a positive environment, a way to communicate and avoid direct confrontation, to test one another, and create ‘collective’ moments (Results: 3.1.3). A negative side to the departments’ humor is it can be used to highlight differences among the crew, e.g., females or minorities. It was noted by the firefighters that there is a fine line between bullying or discrimination and some of the jokes used at the station. A second major theme was the use of black humor after critical incidents. Black humor, also referred to as gallows, dark, or cynical humor, is making fun of a life threatening or scary situation. During the interviews, many firefighters recognized black humor is used to cope, build a bond, and discuss the event. It was also recognized among the crew that there are unwritten rules with black humor, meaning there are certain populations or events when black humor is not used, for example, accidents or deaths involving children. Lastly, the firefighters recognized that their general humor and black humor is not understood by civilians. The jokes can be misunderstood as disrespectful to the victims; however, the intent is for the firefighters to vent and cope. That is why there is a reported “brotherhood” amongst firefighters.

Another study explored the influence negative work stress, like trauma, has on firefighters and if humor is a buffer between work stress and mental health symptoms

(Sliter et al., 2014). The study used two waves of surveys, Time 1 and three months later, Time 2. In Time 1, 208 firefighters responded and in Time 2, 179 firefighters responded. The surveys measured in Time 1 were traumatic stressors and coping humor. The traumatic stressors survey used a Likert scale and listed different threatening scenarios. The second survey to measure coping humor, determined how often an individual uses humor to cope with stressful events. In Time 2 the variables measured were burnout, post-traumatic stress disorder (PTSD), absenteeism, and two control variables: work experience and negative affectivity. Burnout was measured by two categories: disengagement or disconnection from work and exhaustion. Post-traumatic stress in this study is defined as symptoms of intrusive thoughts and avoidance behaviors. Absenteeism, or the number of days an individual missed work, was determined by the fire station's management records. The results found that traumatic stressors were a predictor for PTSD, burnout, and absenteeism. Additional results supported that people with high coping humor have lower PTSD and burnout symptoms from traumatic events. Lastly, the results showed that coping humor does not buffer the effects of traumatic stressors and absenteeism. The researchers concluded that coping humor works due to the following: reappraisal of a situation, social bonding, and physiological effects. The reappraisal is derived from the transactional theory of emotion and coping (Folkman & Lazarus, 1988, as referenced by, Sliter et al., 2014). This theory states that an individual is exposed to a stressor, which they interpret as either negatively or positively impacting their well-being. The individual then reappraises the stressor and determines if they can cope, e.g., humor, and hold a more positive perspective. Social bonding, or social

support, creates a sense of connection, which can improve coping with stress. Humor can often help individuals build social bonds. The third explanation for why humor works as a coping skill is the physiological effects of it. When people experience humor, their brain releases endorphins and leads to a person feeling better. Overall, research supports the use of humor to buffer the effects of negative work stress.

### **Summary and Conclusion**

Research has indicated that firefighters' occupational duties expose them to first-hand trauma which can lead to increased burnout (Kim et al., 2020; Maloney et al., 2024). Research has also shown that firefighters' workplace duties can also lead to decreased life satisfaction (Reierson, 2022). The context for the literature review was the following. One, was how types of humor used within the firefighter culture as a coping skill for the traumatic situations they are consistently exposed to. Second, was the comparison of firefighters' burnout and life satisfaction compared to other populations. Third, the role social support plays within and outside of the fire department. The review presented research findings identifying predictors of burnout and life satisfaction in firefighters.

Predictors of burnout in firefighters included lack of challenge, role conflict, role ambiguity, and overworking and can be moderated through compassion fatigue (Kim et al., 2020). Another study showed that workplace support is a predictor of occupational stress in emergency workers, such as, firefighters (Maloney et al., 2024). In another study, predictors of burnout included social and community support and adequate sleep (Reierson, 2022).

Predictors of life satisfaction in firefighters included social support, health, economic, and self-esteem (Basinska & Wiciak, 2013). In this same study, it was found that firefighters experience more life satisfaction than police officers. In another study, it was found that level of engagement on duty, support, intrinsic motivation, and amount of training for emergency situations were predictors for life satisfaction and negative emotions (anxiety, depression, and stress) (Tommasi et al., 2021). The researchers in this study also found that firefighters have lower levels of negative emotions compared to police officers and administrative staff. In a third study, high job stress is a predictor of low life satisfaction and high mental health symptoms (Pasca & Wagner, 2022). The second finding was the vital role firefighters' social support from their spouses and coworkers in improving their mental health.

The last variable this review explored was humor. One study explored the themes of humor used in the fire department and the positive and negative effects of them (Dangermond, et al., 2022). Positive effects include communicating, such as venting or coping, avoiding direct confrontation, testing each other's limits, and creating bonding moments. Negative effects include bullying or discrimination. A second study about humor found that humor moderates the effects of negative work stress (Sliter et al., 2014).

One last point to highlight is the impact COVID-19 has had on the culture of firefighters. Although COVID-19 is not a variable being explored in this study, it is important to consider in the context of life satisfaction and burnout in this population. A mixed methods study showed the pandemic increased occupational stress, burnout,

isolation, and frustration in first responders (Headley et al., 2023). This already stressful job was compounded with worry about lack of personal protective equipment (PPE), increased exposure to COVID-19, and increased risk of exposing family and friends. Policies implemented during the pandemic were focused on building positives in the first responders' personal lives to buffer against burnout. This study suggested for first responder agencies to take what was learned from the pandemic and provide trainings about public health emergencies, increase PPE inventory, improve communication between levels of rank, improve employee control and decisions at the workplace, and improve mental health resources. This is the landscape of firefighter culture entering into this study.

The literature review showed different methodologies to explore if key variables predicted either burnout or life satisfaction. The most common means of data collection across the studies was self-reporting standardized questionnaires or surveys. All the studies about burnout and life satisfaction were quantitative studies (Basinska & Wiciak, 2013; Kim et al., 2020; Maloney et al., 2024; Pasca & Wagner, 2022; Reiersen, 2022; Tommasi et al., 2021). There was one quantitative study (Sliter et al., 2014) and one qualitative study (Dangermond et al., 2022) about the variable humor. Some of the studies identified the following areas for future research. One included exploring the different types of humor used by firefighters beyond gallows or black humor (Sliter et al., 2014). Other areas for future research are studying firefighters in other countries, other than Korea, and finding other moderating factors for burnout, rather than compassion

fatigue (Kim et al., 2020). In the next chapter, Chapter 3, I will discuss the methodology and research design used in this study.

## Chapter 3: Research Method

### **Introduction**

The purpose of this quantitative study was to examine differences in the types of humor used among firefighters and nonfirefighters. More specifically, I aimed at evaluating whether the different types of humor significantly predicted life satisfaction and burnout in these two populations. The relationship between some of these variables has been studied, but there has not been a comparison between firefighters and nonfirefighters or the breakdown of humor on the other variables. In this chapter, I describe the research design and rationale for its selection. Next, a description of the sampling procedures and details about the power analysis used to determine the study's sample size is provided. I then discuss recruitment procedures, informed consent, survey participation, and data collection from firefighters and non-firefighters. Data collection was based on the reliability and validity of a brief demographic survey and three data collection instruments. Following this section is the description of the data analysis plan, research question, and hypothesis. To conclude, I discuss the threats to validity and ethical procedures for the study.

### **Research Design and Rationale**

The present study was a quantitative research methodology. This type of methodology is based on statistical data from questionnaires or surveys with measurable variables (Henline-Hall, 2024). Quantitative studies use data that is analyzed mathematically and can be used to predict outcomes (Henline-Hall, 2024). This is unlike qualitative studies which explore human experiences or perceptions and collect non-

numerical data through interviews. For this current study, quantitative was the most appropriate to explore which types of humor were predictors of burnout or life satisfaction.

I examined if types of humor: affiliative, self-enhancing, aggressive, and self-defeating (independent variables) predicted life satisfaction and burnout (dependent variables) among firefighters compared to nonfirefighters (see Martin et al., 2003). A cross-sectional correlational survey approach was used to explore the relationship between the independent and dependent variables. This correlational research study assessed if burnout and life satisfaction were predicted by different types of humor. Although the direction and strength of associations could be assessed through correlational designs, inferences about the causal relationship among variables could not be made (Cozby & Bates, 2015). Cross-sectional studies collect data from participants at one time, as compared with longitudinal studies in which measures are completed at several points in time. The study's first hypothesis was tested by a MANOVA in which the relationship between types of humor used between firefighter status (Firefighter/No Firefighter). A MANOVA is the difference in means among variables and includes several DVs (Tabachnick & Fidell, 2013). In this study the two dependent variables were life-satisfaction and burnout. A MMR analysis was performed to test the relationship between firefighter status and humor styles on life satisfaction and burnout. An MMR analysis focuses on complex relationships with a criterion, a predictor, and a moderator (Landis & Dunlap, 2000).

## **Methodology**

In this section, the methods used to address the study's research question were described. Detailed information on the target population, sampling strategies, procedures, and instrumentation were provided.

### **Population**

I aimed to compare firefighters and nonfirefighters. Thus, the focus was on two different populations. Initially, the scope focused on a single department located in urban Northeast Ohio, and a snowball sampling method was employed from there. The firefighter community is a diverse one which is comprised mostly of volunteers. This makes it difficult to estimate its exact population numbers. However, according to Data USA (2022), the firefighter population in the United States is approximately 336,874 people. Men comprise almost the totality of this population. The gender ratio is reported at 95.6% males and 4.43% females. Most firefighters are young. The age group demographics are reported as: 30–34-year-olds: 17.3%, 35–39-year-olds: 17.0%, and 25–29-year-olds: 13.6%.

The second target population was the general population in the United States. According to the 2020 Census Bureau (2023), the total U.S. population is approximately 331.5 million people. The census also reported the gender ratio to be 50.9% female and 49.1% male. The age demographics are: 18–44-year-olds: 35.9% and 45–64-year-olds: 25.2%.

## **Sampling and Sampling Procedures**

A nonprobabilistic convenience sampling approach was appropriate for this research study. Quantitative research uses sampling of populations versus testing them in totality for cost and time efficiency (Ellis, 2020). Due to researching a percentage of a population, it is vital in quantitative research to have generalizable results (Ellis, 2020). Sampling is broken down into two types, probabilistic and nonprobabilistic. Probabilistic is a random selection of research participants and non-probabilistic obtains participants through accessibility (Ellis, 2020). Due to the tightknit community of firefighters, it was more appropriate to do a nonprobabilistic approach. Therefore, one cannot assume the results of this study apply to all firefighters in the United States.

Quantitative studies require a certain level of confidence in the accuracy and validity of the measured constructs. A main part of this is power analysis, which is the minimum number of participants needed to show statistically significant results in a study (Faul et al., 2007). A software program, G\*Power 3.1.9.7, was used by social and behavioral researchers to calculate the power analysis for studies, including the significance level, sample size, and the effect size parameter (Faul et al., 2007). The G\*Power program was used to calculate this study's sample size using a MANOVA. The parameters were set at .95 for power and .05 for the alpha level. The power has been suggested as .90. Power influences the chance an error can occur regarding the researchers accepting or rejecting null hypotheses. Sample sizes can influence power, such that, a smaller sample size creates a diminished power in the study (Serdar et al., 2021). G\*Power estimated 186 participants for conducting a MANOVA (with Special

Effects and Interactions, effect size was set at .0625, statistical power of .95, alpha of .05, and four predictors).

### **Procedures for Recruitment, Participation, and Data Collection**

Two different strategies were used to recruit participants due to the study comparing two populations: firefighters and nonfirefighters. With regards to the recruitment of firefighters, I contacted the chief of a local fire department located in the Midwestern region of the United States and obtained permission to recruit participants through the department. A recruitment flyer with the link to the online survey was provided to the fire department chief. The flyer was posted at the department's bulletin board and emailed to firefighters. Additional firefighter participants were needed, and a snowball sampling recruitment technique was used to recruit more firefighter participants. Snowball sampling is a method used to recruit additional participants by using word of mouth within a specific population, e.g. firefighters (Sheu et al., 2009). As a token of gratitude for cooperating with my research, I volunteered to provide a brief presentation of my results to the local department.

Survey Monkey was contracted to recruit general population participants, with the criterion of those being 18 years of age. The survey's link remained open until the target number of participants was recruited. The research survey was developed and housed on the Survey Monkey website. Participation was anonymous. No identifiable information was requested from participants. General demographic information was asked on the survey, such as, age, gender, occupation (excluding other first responders, including law enforcement, EMS or paramedics), and numbers of years working. The participant

information was further protected by coding the surveys. I saved the data on a password protected laptop that only the researcher and the dissertation chair had access to.

As explained in more detail in the ethical procedures section, prospective participants were asked first to review the study's informed consent, made available on the SurveyMonkey website. Participant recruitment started only after Walden University's Institutional Review Board approved data collection. Participants received information about the study's purpose, possible risks, benefits, confidentiality, and expected time to complete the survey (approximately 20-30 minutes). Individuals consented to this survey being voluntary and that they could withdraw at any time, even if they had already started it. Participants were provided with a list of local resources to reach out to if they felt at risk or discomfort before, during, or after the surveys.

The four surveys were made available through the link on the SurveyMonkey website. The sociodemographic survey (see Appendix B), the Satisfaction with Life Scale (SWLS; Diener et al., 1985), the Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005), and the Humor Styles Questionnaire (Martin et al., 2003). A single link was used for all the surveys and consent which provided a time efficient and less frustrating process for the participants. The survey remained open for 5 weeks, and an approximately even ratio of firefighters to nonfirefighters was collected (total of 372 participants: 170 firefighters and 200 nonfirefighters). This number was higher than the power analysis identified to compensate for incomplete or invalid surveys. The IBM SPSS program was used for all data analyses.

## **Instrumentation and Operationalization of Constructs**

In this study, I assessed humor as a predictor of life satisfaction and burnout among firefighters compared to nonfirefighters. A sociodemographic survey was used to identify the age, gender, ethnicity, occupation, years of service, marital status, average hours of sleep per night, if participant have ever sought mental health treatment, and how comfortable the participant was about seeking mental health services. To measure life satisfaction, this study used the SWLS. To measure burnout the CBI was used. Finally, the Humor Styles Questionnaire was used to measure different types of humor. In the section below, a more detailed description of the instruments will be provided.

### ***The Sociodemographic Survey***

This survey included questions on the participants' age, gender, ethnicity, occupation, years of service, marital status, average hours of sleep per night, if participant have ever sought mental health treatment, and how comfortable the participant was about seeking mental health services.

### ***The Satisfaction with Life Scale (SWLS; Diener et al., 1985)***

The SWLS is a 5-item self-report scale measured overall life satisfaction (Diener et al., 1985). The instrument employed a 7-point Likert scale with the following options: (1) strongly disagree, (2) disagree, (3) slightly disagree, (4) neither agree nor disagree, (5) slightly agree, (6) agree, and (7) strongly agree. The scores ranged from 5 to 35 with higher scores indicating a higher level of satisfaction with life. The SWLS has shown itself to be consistently reliable over time and previous studies have had Cronbach alpha scores ranging from .80 up to .96 (Diener et al., 2013).

This scale has been tested for decades on an international level, and it continuously is found to be a valid tool. A meta-analysis of forty-four studies found a mean correlation of .42 between self-reports and reports from friends and family of life satisfaction (Schneider & Schimmack, 2009). This was found to be higher than other surveys that study mood and emotional states. Convergent validity, or how a scale correlates to other assessments measuring a similar construct, has been supported by moderate Pearson correlations with the Cantril's ladder, measuring well-being, ( $r = .62, p < .05$ ;  $r = .66, p < .05$ ) and the Andrew and Withey's Delighted-Terrible, measuring happiness, ( $r = .68, p < .05$ ;  $r = .62, p < .05$ ) scales (Diener et al., 1985).

***The Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005)***

The CBI is a 19-item, self-report, Likert scale that measured burnout with three sub-scales: personal burnout, work-related burnout, and client-related burnout (Kristensen et al., 2005). Responses were coded on a 5-point scale of 100=*Always or To a very high degree*, 75=*Often or To a high degree*, 50=*Sometimes or somewhat*, 25=*Seldom or To a low degree*, 0=*Never/almost never or To a very low degree* (Kristensen et al., 2005). There were six items specific to *personal burnout*, seven items specific to *work-related burnout*, and six items specific to *client-related burnout*. Personal burnout relates to the level of exhaustion in the general population despite their occupation or lack thereof. An example of a question for this subscale is: "How often do you think: "I can't take it anymore?". Work-related burnout is defined as an individual's perception of the level of stress from their occupation. An example of a question for this subscale is: "Are you exhausted in the morning at the thought of another day at work?". Client-related

burnout is defined as an individual's perception of the level of stress from working with clients (clients, patients, students, residents, etc.). An example of a question for this subscale is: "Do you find it frustrating to work with clients?"

CBI is a valid and reliable instrument (Kristensen et al., 2005; Ogunsuji et al., 2022). A recent study analyzed the reliability and validity of the scale using 100 resident doctors, 69 males and 31 females (Ogunsuji et al., 2022). The internal consistency yielded an alpha value above 0.83 ( $\alpha = 0.91$  for personal,  $\alpha = .87$  for work-related,  $\alpha = 0.83$  for client-related). The CBI had a strong positive correlation between the work-related burnout ( $r = 0.79, p < 0.001$ ) and personal burnout ( $r = 0.69, p < 0.001$ ). The alpha coefficients, correlations, and values showed that the CBI presents with adequate internal reliability and validity (Ogunsuji et al., 2022).

#### ***The Humor Styles Questionnaire (HSQ; Martin et al., 2003)***

The HSQ is a 32-item, self-report, Likert scale that measured the levels of different ways people experience humor as it relates to their psychological well-being (Martin et al., 2003). Responses were coded in a 7-point scale of 1= *Totally Disagree*, 2= *Moderately Disagree*, 3= *Slightly Disagree*, 4= *Neither Agree nor Disagree*, 5= *Slightly Agree*, 6= *Moderately Agree*, 7= *Totally Agree* (Martin et al., 2003). There are eight items specific to *affiliative humor*, eight items specific to *self-enhancing humor*, eight items specific to *aggressive humor*, and eight items specific to *self-defeating humor*, as follows: affiliative refers to improving relationship with others, self-enhancing is defined as neutral humor to improve one's mood, aggressive refers to putting others down, and self-defeating is used to improve relationships with others by putting the self-down.

Examples of specific question for each subscale are “I usually don’t like to tell jokes or amuse people” (affiliative); “If I am feeling depressed, I can usually cheer myself up with humor” (self-enhancing); “If someone makes a mistake, I will often tease them about it” (aggressive); “I let people laugh at me or make fun at my expense more than I should” (self-defeating).

The HSQ is a reliable instrument (Martin et al., 2003; Miriam et al., 2023). In a recent study, the reliability and validity of this scale using 250 Spanish healthcare professionals, 10 doctors, 141 nurses, 95 auxiliary nurses, and 4 other hospital staff. The Cronbach’s alpha of the overall tool was 0.82 ( $\alpha = 0.79$  for affiliative,  $\alpha = .79$  for self-enhancing,  $\alpha = 0.64$  for aggressive, and  $\alpha = 0.79$  for self-defeating). The alpha coefficients showed that the HSQ presents with adequate internal reliability (Miriam et al., 2023).

### **Data Analysis Plan**

SPSS statistical program was used to analyze the data. This included examining the means, standard deviations, and medians to evaluate the skewness, identify outliers, and detect missing data. A MANOVA was used to test the study’s first hypothesis and an moderated multiple regression analysis was performed for the second and third hypotheses to test the relationship between firefighter status (Firefighter/No Firefighter) and humor styles on life satisfaction and burnout. A MANOVA is a “generalization of an ANOVA to a situation in which there are several DVs” (Tabachnick & Fidell, 2013, p. 245). In this study the two dependent variables were life-satisfaction and burnout. An MMR analysis is used for complex relationships that include “y is treated as the criterion,

x the predictor, and m the moderator and a second in which x is the criterion and y the predictor” (Landis & Dunlap, 2000, p. 254). The alpha level will be set at a 5% level to identify the statistical significance when testing the hypothesis ( $p < .05$ ).

The research questions and hypotheses for this study are as follows:

RQ1: Are there differences in the types of humor (i.e. self-enhancing, affiliative, aggressive, and self-defeating) used between firefighters and non-firefighters?

$H_01$ : There are no differences on self-enhancing humor between firefighters and non-firefighters.

$H_11$ : Firefighters will have higher scores on self-enhancing humor as compared with non-firefighters.

$H_02$ : There are no differences on affiliative humor between firefighters and non-firefighters.

$H_12$  Firefighters will have higher scores on affiliative humor as compared with non-firefighters.

$H_03$ : There are no differences on aggressive humor between firefighters and non-firefighters.

$H_13$ : Firefighters will score lower on aggressive humor as compared with non-firefighters.

$H_04$ : There are no differences on self-defeating humor between firefighters and non-firefighters.

$H_14$ : Firefighters will score lower on self-defeating humor as compared with non-firefighters.

RQ2: Is type of humor a better predictor of life satisfaction for firefighters as compared with non-firefighters?

*H*<sub>05</sub>: Self-enhancing humor is not a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>15</sub>: Self-enhancing humor will be a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>06</sub>: Affiliative humor is not a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>16</sub>: Affiliative humor will be a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>07</sub>: Aggressive humor is not a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>17</sub>: Aggressive humor will be a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>08</sub>: Self-defeating humor is not a better predictor of life satisfaction for firefighters as compared with non-firefighters.

*H*<sub>18</sub>: Self-defeating humor will be a better predictor of life satisfaction for firefighters as compared with non-firefighters.

RQ3: Is type of humor a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{09}$ : Affiliative humor is not a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{19}$ : Affiliative humor will be a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{010}$ : Self-enhancing humor is not a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{110}$ : Self-enhancing humor will be a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{011}$ : Aggressive humor is not a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{111}$ : Aggressive humor will be a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{012}$ : Self-defeating humor is not a better predictor of burnout for firefighters as compared with non-firefighters.

$H_{112}$ : Self-defeating humor will be a better predictor of burnout for firefighters as compared with non-firefighters.

### **Threats to Validity**

Validity is defined as how well a study measures what it claims to measure. There are two types of validity in research, internal and external. Internal validity is how well a study is set up and executed to obtain the results (Daniels et al., 2024). External validity is “the usefulness of a description or theoretical construct to elucidate and provide control

over behavioral phenomena in a specific naturally occurring situation” (Bartels et al., 2018, p. 11). It means how well the results can be applied to the real world.

### **Threats to Internal Validity**

There are several threats to internal validity that could have arisen in this research study. These included selection bias, groups of participants with the same characteristics, mortality, or participants that dropped out. To minimize the threat to internal validity via selection, the demographic survey was utilized. To minimize the mortality threat to internal validity, which can occur for various reasons like fatigue or discomfort, a large sample size was obtained. It is relevant to note that most threats to internal validity are usually considered when assessing the causal relationship in experimental and quasi-experimental research studies. Most of these internal validity threats are not relevant in the case of cross-sectional correlational studies.

### **Threats to External Validity**

External validity refers to the potential problems affecting the researcher’s ability to generalize findings from the study’s sample to the target population. A threat to this study’s external validity was selection interaction. This study used convenience sampling of firefighters and therefore was not representative of or generalizable to all firefighters. This means that the results cannot be applied to all people who are firefighters.

### **Ethical Procedures**

The research proposal was submitted to Walden University’s Institutional Review Board (IRB) for review and was approved. This was done to ensure the study was conducted in an ethical manner and posed minimal risks to the participants. The

participants received informed consent prior to completing the surveys online so they were aware of the time and risks involved. They were provided with the researcher's and university's contact information. The consent form also included all necessary details about the study, so the participants fully understood the nature of the research before agreeing. The data that was collected is being maintained securely and will be destroyed after five years, according to Walden University's policy.

### **Summary**

The purpose of this quantitative cross-sectional, correlational study was to explore self-enhancing, affiliative, self-defeating, and aggressive humor as predictors of burnout and life satisfaction in firefighters compared to non-firefighters. G-Power software indicated a minimum of 186 participants were needed for data analysis. Participants accessed the informed consent and research instruments via the SurveyMonkey website. SPSS software was used for data entry and data analysis purposes. The main hypotheses of the study were tested with a MANOVA and an MMR analysis. The instruments that were used were the sociodemographic survey, the SWLS (Diener et al., 1985), the CBI (Kristensen et al., 2005), and the HSQ (Martin et al., 2003). Participant confidentiality and safety were prioritized throughout the entirety of the study. All participants were provided with informed consent. The study was submitted to Walden University's IRB and was approved.

Chapter 4 will present in detail the results of the study. The next chapter will also include quantitative and statistical analysis reports of the significant and nonsignificant

findings. Descriptive statistics, results of the MANOVA and MMR analyses, and the study's hypotheses will be presented as well.

## Chapter 4: Results

### Introduction

In this quantitative study, I focused on humor as a predictor of life satisfaction and burnout in firefighters compared to nonfirefighters. Men and women participants 18 years and over participated in the study. I assessed if the four different humor styles (affiliative, aggressive, self-enhancing, and self-defeating) better predicted life satisfaction and burnout in firefighters compared to nonfirefighters.

The following research questions and hypotheses were proposed:

RQ1: Are there differences in the types of humor (i.e. self-enhancing, affiliative, aggressive, and self-defeating) used between firefighters and nonfirefighters?

$H_{01_1}$ : There are no differences in self-enhancing humor between firefighters and nonfirefighters.

$H_{11_1}$ : Firefighters will have higher scores on self-enhancing humor as compared with nonfirefighters.

$H_{01_2}$ : There are no differences on affiliative humor between firefighters and nonfirefighters.

$H_{11_2}$ : Firefighters will have higher scores on affiliative humor as compared with nonfirefighters.

$H_{01_3}$ : There are no differences on aggressive humor between firefighters and nonfirefighters.

$H_{11_3}$ : Firefighters will score lower on aggressive humor as compared with nonfirefighters.

$H_{014}$ : There are no differences on self-defeating humor between firefighters and nonfirefighters.

$H_{114}$ : Firefighters will score lower on self-defeating humor as compared with nonfirefighters.

RQ2: Is type of humor a better predictor of life satisfaction for firefighters as compared with nonfirefighters?

$H_{021}$ : Self-enhancing humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{121}$ : Self-enhancing humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{022}$ : Affiliative humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{122}$ : Affiliative humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{023}$ : Aggressive humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{123}$ : Aggressive humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{024}$ : Self-defeating humor is not a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

$H_{124}$ : Self-defeating humor will be a better predictor of life satisfaction for firefighters as compared with nonfirefighters.

RQ3: Is type of humor a better predictor of burnout for firefighters as compared with nonfirefighters?

*H*<sub>031</sub>: Affiliative humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>131</sub>: Affiliative humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>032</sub>: Self-enhancing humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>132</sub>: Self-enhancing humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>033</sub>: Aggressive humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>133</sub>: Aggressive humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>034</sub>: Self-defeating humor is not a better predictor of burnout for firefighters as compared with nonfirefighters.

*H*<sub>134</sub>: Self-defeating humor will be a better predictor of burnout for firefighters as compared with nonfirefighters.

The dependent variables were life satisfaction and burnout. The independent variable was the four styles of humor: affiliative, self-enhancing, self-defeating, and aggressive.

## **Data Collection**

The following issues associated with data collection appear in this section: (a) data collection timeframe, response rates, and discrepancies, (b) demographic characteristics of the sample, (c) an analysis of the representativeness of the sample, and (d) results of basic univariate analyses.

### **Timeframe, Response Rates, and Discrepancies**

After receiving approval from Walden University's IRB (approval number 04-15-25-1042369), data collection was initiated. The recruitment flyer, sociodemographic survey, and each of the surveys to be administered were created in SurveyMonkey. Two distinct recruitment processes were implemented to accommodate the differences between the two populations. The process for the firefighter population was contacting a local fire chief and gaining his approval to conduct the study with his department. The chief shared a physical flyer at their three stations that included the SurveyMonkey link to the online survey and snowball sampling was employed to expand participation. The recruitment process of nonfirefighters was conducted by electronically sharing the flyer via Facebook.

After 5 weeks, a total of 370 participants completed the survey (170 firefighters and 200 nonfirefighters). Furthermore, 42 participants left significant portions of the survey incomplete. After removing these cases, the final number of participants available for data analyses was 328 (153 firefighters and 175 nonfirefighters). The final sample size exceeded the minimum requirement of 186 participants, as determined by a prior power analysis using G\*Power software. Some items have various missing values, and

these values were computed for the missing data using the item mean. There were no discrepancies in data procedures.

### **Demographic Characteristics of the Sample**

Of the 328 participants, 198 (60.4%) were males and 129 (39.3%) were females; one of the participants did not report their gender. Regarding ethnicity, 290 (88.4%) reported being European American, 11 (3.4%) Black/African American, two (.6%) Asian or Asian American, six (1.8%) Hispanic or Latino, and 15 (4.6%) Multiethnic; there were four (1.2%) missing items. Of the total participants, 153 (46.6%) were firefighters and 175 (53.4%) were nonfirefighters. With regards to occupation type, 153 (46.6%) were first responders, 28 (8.5%) were in management/business/sales, seven (2.1%) were in computer/IT, seven (2.1%) were in architecture/engineering, 29 (8.8%) were in social services/mental health, six (1.8%) were in legal services, 28 (8.5%) were in education, seven (2.1%) were in arts/entertainment/sports, 45 (13.7%) were in healthcare services, three (.9%) were in food/restaurant, four (1.2%) were in building or grounds cleaning/maintenance, and five (1.5%) were in administrative and office support; there were 6 (1.8%) missing items. Three quarters of the participants ( $n=246$ ; 75%) reported being married, 17 (5.2%) reported being divorced, 30 (9.1%) reported dating, with 33 (10.1%) reported being single, and two (.6%) reported being separated.

Regarding receiving treatment for mental health, 156 (47.6%) reported they have or are currently receiving treatment and 172 (52.4%) reported they have not. Regarding how comfortable participants would feel about seeking mental health services if needed 122 (37.2%) reported feeling very comfortable, 113 (34.5%) reported feeling

comfortable, 71 (21.6%) reported feeling neutral, 19 (5.8%) reported feeling uncomfortable, and three (.9%) reported feeling very uncomfortable. The mean age was 41.24 years ( $M = 41.24$ ;  $SD = 11.36$ ). The mean number of years worked in this occupation was 16.56 years ( $M = 16.56$ ;  $SD = 10.01$ ). The mean number of hours slept per night was 6.5 hours ( $M = 6.5$ ;  $SD = 1.01$ ).

### **Representativeness of the Sample**

In the United States there are approximately 336,874 firefighters (Data USA, 2022). Studies have shown that this profession is chronically exposed to trauma which leads to increased mental health symptoms (Duran et al., 2019; Eriksen, 2019; Huang et al., 2022; Kim et al., 2020; Smith et al., 2018). According to the nonprofit organization Retired Firefighters of Washington (RFFOW, 2025), the average age of a firefighter in the United States is 48 years old. This organization also reported the following common ethnicities among firefighters: White (76.8%), Hispanic or Latino (8.2%), Unknown (5.9%), and Black or African American (5.8%). All in all, the most significant representativeness discrepancy between the sample in this study and the national statistics was ethnicity composition.

### **Basic Univariate Analyses**

The means and standard deviations for relevant variables in the study are as follows. For the types of humor: affiliative humor ( $M = 47.74$ ;  $SD = 6.58$ ), self-enhancing humor ( $M = 40.28$ ;  $SD = 7.62$ ), aggressive humor ( $M = 28.51$ ;  $SD = 9.21$ ), and self-defeating humor ( $M = 28.96$ ;  $SD = 9.24$ ). For the study's dependent variables: life

satisfaction ( $M = 26.21$ ;  $SD = 6.48$ ) and burnout ( $M = 50.8$ ;  $SD = 13.84$ ). Age and gender statistics appear in the demographic characteristics section.

### **Reliability Analyses**

The main statistical analyses included the four Humor Styles Questionnaire (HSQ) scales, the SWLS and the CBI. To evaluate the internal reliability of these instruments Cronbach alpha coefficients were computed. The SWLS has shown itself to be consistently reliable over time and studies with a Cronbach alpha score ranging from .80 up to .96 (Diener et al., 2013). In my study, the Cronbach alpha coefficient was .89. According to a recent study, the HSQ demonstrated adequate internal consistency, with a Cronbach's alpha of .82 (Miriam et al., 2023). In my study the Cronbach alpha coefficient was .87. Lastly, in another recent study the CBI has also shown consistently good internal reliability yielding an alpha value of .83 (Ogunsuji et al., 2022). My study's Cronbach alpha coefficient was .95.

### **Results of the Statistical Analyses Testing the Study's Hypotheses**

In this section, I present the results of statistical tests evaluating the study's hypotheses. I proposed three research questions each with four hypotheses and four null hypotheses. The first question assessed whether there are any differences in the types of humor (i.e. self-enhancing, affiliative, aggressive, and self-defeating) used between firefighters and nonfirefighters. The second research question assessed if a type of humor is a better predictor of life satisfaction for firefighters as compared with non-firefighters. Lastly, the third research question assessed if a type of humor was a better predictor of burnout for firefighters as compared with nonfirefighters.

### Bivariate Correlational Analyses

To assess the relationships among the key variables of interest, one-tailed bivariate correlational analyses were performed. The results of these analyses are presented in Table 1.

**Table 1**

*Bivariate Correlations Among Variables*

|   |                   | 1      | 2      | 3      | 4      | 5     | 6     | 7      | 8    | 9  |
|---|-------------------|--------|--------|--------|--------|-------|-------|--------|------|----|
| 1 | Gender            | --     |        |        |        |       |       |        |      |    |
| 2 | Firefighter       | .60**  | --     |        |        |       |       |        |      |    |
| 3 | Life Satisfaction | .15**  | .20**  | --     |        |       |       |        |      |    |
| 4 | Burnout           | -.20** | -.16** | -.49** | --     |       |       |        |      |    |
| 5 | Affiliative       | .13*   | .15**  | .15**  | -.06   | --    |       |        |      |    |
| 6 | Self-Enhancing    | .20**  | .18**  | .34**  | -.33** | .43** | --    |        |      |    |
| 7 | Aggressive        | .53**  | .46**  | .02    | -.02   | .26** | .22** | --     |      |    |
| 8 | Self-Defeating    | .22**  | .18**  | -.12*  | .14**  | .24** | .26** | .35**  | --   |    |
| 9 | Age               | .11*   | .05    | .08    | -.18** | -.05  | .09   | -.15** | -.05 | -- |

*Note.* \* $p < .05$ , \*\* $p < .01$ .

There were significant differences between firefighters and non-firefighters in all four humor styles. More specifically, there were weak positive associations between being a firefighter and affiliative humor, self-enhancing humor, and self-defeating humor and a moderate association with aggressive humor. In short, firefighters reported engaging in more humor as compared to their non-firefighter counterparts. Being a

firefighter was positively associated with life satisfaction and negatively associated with burnout. That is, as compared with non-firefighters, firefighters reported higher life satisfaction and lower burnout. The bivariate correlation showed the following directions and strengths between life satisfaction and the other variables: a moderate negative correlation with burnout, a weak and positive correlation with affiliative humor, a moderate positive correlation with self-enhancing humor, no relationship with aggressive humor, a weak negative correlation with self-defeating humor, and no relationship with age. Burnout was not correlated with affiliative humor and aggressive humor but showed a moderate negative correlation with self-enhancing humor, a weak positive association with self-defeating humor, and a weak negative correlation with age.

### **Multivariate Analysis of Variance**

A Multivariate Analysis of Variance was performed to test if firefighters and non-firefighters differed significantly on humor styles (affiliative, self-enhancing, aggressive, and self-defeating). This statistical analysis thus evaluated the hypotheses associated with the study's first research question. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was a statistically significant difference between firefighters and non-firefighters on the dependent variables,  $F(4, 323) = 22.80, p < .001$ , Wilks' Lambda = .98, partial eta squared = .22. When the results for the dependent variables were considered separately, all four humor styles had a statistically significant difference using a Bonferroni adjusted alpha level of .012. As compared with non-firefighters, firefighters reported higher levels

of affiliative humor  $F(1, 326) = 7.10, p = .008$ , partial eta squared = .021, self-enhancing humor,  $F(1, 326) = 10.37, p = .001$ , partial eta squared = .031, aggressive humor,  $F(1, 326) = 88.98, p < .001$ , partial eta squared = .214, and self-defeating humor,  $F(1, 326) = 10.59, p = .001$ , partial eta squared = .031. Group means for all four dependent variables are presented in table 2.

**Table 2**

*Mean Scores and Standard Deviations for Humor Styles as a Function of Occupation*

| Group            | Affiliative |           | Self-enhancing |           | Aggressive |           | Self-Defeating |           |
|------------------|-------------|-----------|----------------|-----------|------------|-----------|----------------|-----------|
|                  | <i>M</i>    | <i>SD</i> | <i>M</i>       | <i>SD</i> | <i>M</i>   | <i>SD</i> | <i>M</i>       | <i>SD</i> |
| Firefighters     | 48.77       | 6.36      | 41.71          | 7.36      | 33.07      | 8.55      | 30.71          | 9.14      |
| Non-firefighters | 46.85       | 6.62      | 39.03          | 7.64      | 24.53      | 7.83      | 27.43          | 9.17      |

### **Moderated Multiple Regression Analyses**

The second and third research questions considered if occupational status (firefighters versus non-firefighters) moderate the relationship between humor styles and the dependent variables: burnout and life satisfaction. To assess the hypotheses related to these two research questions, two multiple regression analyses were performed on the moderating effects of occupational status: one for each of the dependent variables. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. In both multiple regression analyses firefighter status, all four humor styles, and the intersection of firefighter status

and the humor styles were entered in the model as predictors. These analyses are presented in Tables 3 and 4.

**Table 3**

*Moderated Multiple Regression Analysis Predicting Burnout*

| Variable                     | <i>B</i> | <i>SE B</i> | $\beta$ | <i>T</i> | <i>p</i> |
|------------------------------|----------|-------------|---------|----------|----------|
| Firefighter Status           | -1.97    | 11.27       | -.07    | -.18     | .861     |
| Affiliative Humor            | .31      | .16         | .15     | 2.01     | .045     |
| Self-enhancing Humor         | -.89     | .14         | -.49    | -6.53    | <.001    |
| Aggressive Humor             | -.06     | .13         | -.04    | -.50     | .616     |
| Self-defeating Humor         | .45      | .12         | .30     | 4.14     | <.001    |
| Firefighter X Affiliative    | -.42     | .24         | -.75    | -1.73    | .085     |
| Firefighter X Self-enhancing | .36      | .21         | .56     | 1.75     | .080     |
| Firefighter X Aggressive     | .28      | .18         | .35     | 1.53     | .128     |
| Firefighter X Self-defeating | -.18     | .17         | -.21    | -1.06    | .288     |

*Note.* Dummy coding for firefighter status: 0 = non-firefighter, 1 = firefighter

Affiliative, self-enhancing and self-defeating humors contributed to the variance in burnout. None of the interactions were statistically significant. The total variance explained by the model was 20%,  $F(9, 318) = 9.20, p < .001$ . In the case of life satisfaction, firefighter status, self-enhancing humor, aggressive humor, self-defeating humor, and the interaction between affiliative humor and firefighter status reached statistical significance. The total variance explained by the model was 22%,  $F(9, 318) = 10.11, p < .001$ .

**Table 4***Moderated Multiple Regression Analysis Predicting Life Satisfaction*

| Variable                     | <i>B</i> | <i>SE B</i> | $\beta$ | <i>t</i> | <i>p</i> |
|------------------------------|----------|-------------|---------|----------|----------|
| Firefighter Status           | -10.72   | 5.22        | -.83    | -2.05    | .041     |
| Affiliative Humor            | -.09     | .07         | -.09    | -1.17    | .242     |
| Self-enhancing Humor         | .36      | .06         | .42     | 5.65     | <.001    |
| Aggressive Humor             | -.12     | .06         | -.17    | -2.03    | .043     |
| Self-defeating Humor         | -.21     | .05         | -.30    | -4.12    | <.001    |
| Firefighter X Affiliative    | .27      | .11         | 1.03    | 2.38     | .018     |
| Firefighter X Self-enhancing | -.12     | .10         | -.40    | -1.27    | .206     |
| Firefighter X Aggressive     | .10      | .08         | .26     | 1.14     | .25      |
| Firefighter X Self-defeating | .10      | .08         | .25     | 1.24     | .214     |

*Note.* Dummy coding for firefighter status: 0 = non-firefighter, 1 = firefighter

### Summary

This chapter presents the results of the statistical analysis of the survey responses of 328 participants. The descriptive data showed a diverse sample of adults with regards to age, gender, ethnicity, firefighter/non-firefighter, occupation, years worked, marital status, average hours of sleep per night, history of mental health treatment, and comfortability seeking mental health services. Bivariate correlations were performed to assess relationships among key variables in the study. The bivariate correlation showed that firefighters have a positive, moderate relationship with life satisfaction and a negative correlation with burnout, a weak and positive correlation with affiliative humor,

a moderate and positive correlation with self-enhancing humor, a weak and negative correlation with self-defeating humor. The bivariate correlation also showed that burnout had a moderate and negative correlation with self-enhancing humor, a weak and positive correlation with self-defeating humor, and a weak relationship and negative correlation with age.

A Multivariate Analysis of Variance was performed to test the relationship between firefighter status (Firefighter/No Firefighter) and humor styles (affiliative, self-enhancing, aggressive, and self-defeating). Results showed that overall firefighters use more humor in all four categories than non-firefighters, with aggressive humor being the largest difference. A Moderated Multiple Regression Analysis was performed to test the relationship between firefighter status (Firefighter/No Firefighter), and humor styles on life satisfaction and burnout. Regarding burnout, affiliative, self-enhancing and self-defeating humors contributed to the variance in burnout. None of the interactions were statistically significant. Regarding life satisfaction, firefighter status, self-enhancing humor, aggressive humor, self-defeating humor, and the interaction between affiliative humor and firefighter status reached statistical significance.

Chapter 5 presents the key results from the study. The discussion includes implications for PERMA theory of well-being and the JD-R to understand humor as a predictor of life satisfaction and burnout. The chapter also presents implications for the practice of professionals supporting the mental health needs of firefighters and non-firefighters.

## Chapter 5: Discussion, Conclusions, and Recommendations

### **Introduction**

In this chapter, I include the interpretation of the results. Discussion is grounded in the PERMA theory of well-being and the JD-R. A cross-sectional correlational survey design was used to examine if humor predicts life satisfaction and burnout. The targeted population was firefighters and non-firefighter adults, ages 18 and older. A sample of 370 participants were recruited. After discarding surveys with a high number of missing data, 328 cases were included in the statistical analyses.

A MANOVA was used to test the study's first hypothesis. I identified that firefighters use all four humor categories more than non-firefighters, with the largest difference being in aggressive humor. Regarding burnout, affiliative, self-enhancing and self-defeating humors contributed to the variance in burnout although none of the interactions were statistically significant. Regarding life satisfaction, firefighter status, self-enhancing humor, aggressive humor, self-defeating humor, and the interaction between affiliative humor and firefighter status reached statistical significance. This chapter includes the interpretation of findings, limitations of the study, recommendations for further research, implications for social change, and the conclusion.

### **Interpretation of the Findings**

#### **Firefighter Status and Humor**

The study's research questions were generated with the assumption that humor is central in the life of firefighters. Previous studies had evaluated first responders' use of humor as a coping skill (e.g., Charman, 2013; Dangermond et al., 2022; Eriksen, 2019;

Lancaster et al., 2021; Leñero-Cirujano et al., 2023; Sliter et al., 2014; Tuttle et al., 2022). However, these studies did not differentiate between firefighters and the general public or individuals in non-first responder occupations. The results from my study confirmed the hypothesis that there is a higher use of humor among firefighters as compared with other occupations. This result is similar to what other researchers have found on first responders, an occupational category which includes firefighters. Still, the question remains as to why firefighters use more humor than other occupations, and particularly why such a marked difference in the use of aggressive humor.

Firefighters are exposed and experience consistent and chronic trauma with their crew. Firefighting is a male dominated field which is influenced by factors, such as, mental health stigma and the perception that expressing emotions is a sign of weakness (Thurnell-Read & Parker, 2008). One possible explanation for why firefighters use all types of humor more than those in other occupations is that humor serves as a socially acceptable coping mechanism. The firefighters may not seek out mental health treatment as often as other professions and may resort to other skills and tools to cope, such as humor. Humor is used for different situations, and because firefighters are exposed to a myriad of circumstances, they have more opportunities to use all humor types.

Regarding the significant difference in the use of aggressive humor, gender roles may explain at least part of this finding. That is, it may be that regardless of occupation, males engage in higher use of aggressive humor as compared to females (Duarte & Zhang, 2023; Stieger et al., 2011; Rieger et al., 2022). Furthermore, these differences are likely to be exacerbated by the stressful job demands of a firefighter. Humor is an

important element of the fire service culture which serves several purposes (Dangermond, 2022). One of those purposes is increasing the bond between the crew, specifically using aggressive humor, because being the target of it creates a sense of inclusion. In another study, focused on first responders (police officers and ambulance staff) it was theorized that humor was used to cope with their job duties, reaffirm the values amongst the crew, and increase the bond (Charman, 2013).

The JD-R theory views occupational burnout as an imbalance between a job's demands (e.g. tasks and pressures) and a job's resources (i.e. physical or emotional costs to meet the demands; Edu-Valsania et al., 2022). Firefighters' occupational demands include high exposure to chronic trauma and pressure to perform. It seems likely that they are more likely to use humor overall to cope with the stress associated with the job's demands. This theory could also help explain that aggressive humor helps to build group cohesion, release tension, and reinforce social hierarchies (veterans, rookies, and officers). It may seem that affiliative humor would serve the logical purpose of developing camaraderie. However, in the context of a highly stressful and physically and psychologically demanding job, firefighters may use aggressive humor for bonding through development of mental toughness. That is, the use of aggressive humor may serve the purpose of what is usually referred in lay terms as "tough love". Further research may assist in clarifying the motives behind the high use of aggressive humor among firefighters. What seems clear, though, is that regardless of the motivations, the high use of aggressive humor is not a healthy coping strategy for firefighters as shown by

its relationship with burnout and life satisfaction. This finding will be explained in more detail in the following sections.

### **Prediction of Burnout**

Due to the stressful job aspects, a high level of burnout amount firefighters could be expected. However, results from the bivariate correlations showed that firefighters had statistically significant lower levels of burnout than their nonfirefighter counterparts. Nevertheless, in the MMR analysis occupation status did not predict burnout. This lack of statistical significance could be explained by the high number of variables entered in the regression model. The inconsistent results between the bivariate and the moderated multiple regression analyses results could be attributed to multicollinearity issues since firefighter status was also entered as an interaction term. It is also possible that contribution of other variables, particularly types of humor, may have reduced the predictive power of firefighter status.

Another possible explanation of the MMR results is that the firefighter participants underreported burnout symptoms due to their cultural values of mental toughness and stoicism. The stigma around mental health in the firefighter culture and use of self-report measures could have led to the firefighter participants minimizing or denying their symptoms. This further supports the importance of psychoeducation and training of professionals that work with firefighters and firefighter departments about the effects of their occupation on their life satisfaction and burnout rates and effective, evidence-based interventions. It is also possible that there are other variables which mediate the relationship between firefighter status and burnout. Exposure to traumatic

experiences may be such a mediator. Future studies may benefit from the inclusion of trauma exposure as a mediating variable and thus assess if firefighters with a higher exposure to trauma have higher levels of burnout.

A second result that this author wants to highlight is that a significant, positive relationship was found between affiliative humor and burnout. Meaning, the higher an individual's use of affiliative humor the higher their burnout level is. This seems counterintuitive as burnout symptoms can include feeling down or social withdrawal. However, there are several possible explanations. It is possible that participants with higher levels of burnout were using more affiliative humor as an attempt to cope with increased stress. Since firefighters are exposed to high rates of trauma this leads to their higher utilization of humor, and affiliative humor's significant rate may be due to firefighters' value of camaraderie and shared experiences. In this way, firefighters are using affiliative humor to compensate and buffer against burnout. It may also be that humor does not necessarily prevent burnout, but the firefighters are already experiencing burnout and using affiliative humor to navigate it. Firefighters may use affiliative humor to minimize or mask their burnout symptoms. This can be a temporary way to cope with their distress. However, they may be avoiding directly facing or processing difficult experiences. Finally, it is possible that this relationship was statistically inflated by the high number of variables entered in the model as well as the multicollinearity among variables. It is telling, for example, that the bivariate association between affiliative humor and burnout was non-significant.

The JD-R theory helps explain burnout through the lens of an imbalance between the job demands and job resources (see Edu-Valsania et al., 2022). My results have aligned with previous research, in finding that humor has been shown to be helpful in maintaining a positive perspective and relationships in stressful situations and can be considered a type of psychological resource (see Eriksen, 2019; Reiersen, 2022; Sliter et al., 2014; Smith et al., 2020). This theory helps explain the positive correlation between affiliative humor and burnout. Affiliative humor is a resource used to increase group cohesion and normalize their high burnout rates, while still performing their job duties and continued exposure to trauma. Affiliative humor through this lens may be being used to strengthen the group's social norms and maintain a sense of emotional support and connection.

### **Prediction of Life Satisfaction**

The bivariate analysis results showed that firefighters had statistically significant higher levels of life satisfaction than their nonfirefighter counterparts. In the moderated multiple regression analysis humor, firefighter status was also found to predict life satisfaction. These findings highlight that firefighters possess strong coping skills. The results of my study align with prior research, indicating that firefighters report higher levels of life satisfaction compared to other populations. Although these researchers examined different variables and comparison groups, a consistent pattern emerged: firefighters demonstrated elevated life satisfaction across contexts. For example, one study found that, compared to law enforcement, firefighters held a more positive perception of how their work impacted their private life and overall well-being (Basinska

& Wiciak, 2013). The authors attributed this finding to the strong social support firefighters receive from family, their communities, and within their departments. While the variables assessed in the present study differ, it is noteworthy that support systems identified in prior research may be further strengthened through the intentional use of humor, which served as the central focus of this study.

Affiliative humor was found to be a significant predictor of life satisfaction in firefighters, yet not in their non-firefighter counterparts. Affiliative humor was also found to be associated with higher levels of life satisfaction/well-being in a previous meta-analytical study on humor styles and mental health (Schneider et al., 2018). In this study, no significant interaction was found between firefighter status and self-enhancing, aggressive, or self-defeating humor styles. My results partially aligned with previous research that stated the highest levels of well-being are linked with first responders that use self-enhancing and do not use aggressive or self-defeating humor styles (see Schneider et al., 2018).

My study's significant and positive relationship between affiliative humor and life satisfaction among firefighters holds meaningful implications for both practice and intervention, as explained in the following paragraph. A possible explanation why affiliative humor has a significant relationship while other humor styles did not, is that affiliative humor focuses on positive reframing and social connectedness. Given the demanding nature of the profession, this result can be used to encourage firefighters to intentionally use affiliative humor, to build comradery and support each other (Martin et al., 2003). This promotes higher well-being in highly stressful occupations, such as

firefighting. Incorporating psychoeducation about different types of humor and their relationships with life satisfaction into training for professionals and firefighter wellness programs could enhance psychological resilience, improve team cohesion, and reduce symptoms related to occupational stress.

Overall, my study indicates the importance of the PERMA theory of well-being as a framework for understanding the relationships among humor styles, firefighter status, and life satisfaction. The PERMA theory focuses on five factors of well-being and proposes that an individual's overall level of thriving increases as they fulfill each of the five core elements (Umucu, 2021). Humor pertains to four of the five elements in the PERMA theory, eliciting positive emotion, improving relationships, engagement, and assists with meaning making. First, humor naturally elicits positive emotional reactions such as joy, amusement, and relief. Second, humor plays an important role in strengthening social bonds by building trust, shared understanding, and a sense of community. Third, humor can assist with engaging others using positivity and laughter. Fourth, humor can build meaning by helping firefighters positively reframe stress into more purposeful interpretations. These all can help improve resiliency and improve life satisfaction. My study's results regarding life satisfaction among firefighters adds nuanced knowledge to the existing body of research about the PERMA theory and emergency responders.

### **Limitations of the Study**

There are several limitations in this study. First, due to the study using a correlational research design it cannot determine causal relationships among the variables

(Cozby & Bates, 2015; Lau & Kuziemsky, 2016). This research design can identify relationship strengths and direction, however it cannot identify causation or why a connection may exist.

This study used self-report measures for assessing the variables. A limitation with self-report measures is the susceptibility to response biases. This includes social desirability bias or participants answering questions to be viewed more favorably by underreporting maladaptive behaviors or overreporting adaptive ones (Roberts, 2010).

Although moderated multiple regression analyses were appropriate in testing the study's hypotheses, entering all key variables and the interaction terms into a single analysis for each variable generated a multicollinearity issue which most likely reduced our ability to evaluate the independent contribution of each variable.

### **Recommendations for Further Study**

Humor has been studied as a coping skill in firefighters; however, researchers had not explored the relationship of humor, life satisfaction, and burnout in the same study. This study was also the first to compare firefighters to the general population. Future researchers can build upon this study's results to conduct future scholarly research inquiry into types and amount of humor predictors in firefighters and the general population.

Future research is likely to benefit from addressing the limitations as noted in the previous section. This includes the use of experimental designs to assess the causal link among variables, specifically, to establish the cause of the positive correlation between affiliative humor and burnout found in the multiple regression data. Researchers should

consider more robust research designs to continue building upon existing results. One example includes experimental and quasi-experimental to be assigned to different levels of coping with humor interventions and compared on pre- and post-burnout and life satisfaction measures. Another recommendation is the use of longitudinal studies to analyze how individuals' use of humor changes over time. Furthermore, researchers should also consider utilizing a qualitative research approach to explore firefighters' experience in using different types of humor.

Researchers are encouraged to expand the range of predictors and explore other variables such as the differences in amount and type of humor used in different geographic regions and departments, gender differences, years of service worked, and different occupation types. These results could help increase understanding about these various groups and tailor services, resources, and support for each group. Two additional predictors and variables to explore are mental health stigma and help seeking behaviors. Previous studies have explored mental health issues amongst first responders, and the results have confirmed increased levels of mental health symptoms (Bochantin, 2017; Dangermond et al., 2022; Kim et al., 2020; Maloney et al., 2024; Reiersen, 2022; Schneider et al., 2018; Sliter et al., 2014). There is still a large stigma related to mental health amongst first responders, in part due to it being a male-dominated field and exploring mental health stigma and help seeking behaviors would help fill this gap.

### **Implications**

This study focused on humor as a predictor of life satisfaction and burnout in firefighters compared to non-firefighters. Specifically, how often the participants used

different types of humor. In this section, the clinical and social change implications of the study's findings will be discussed.

### **Clinical Practice**

Clinical psychologists and other healthcare professionals have the ethical responsibility to provide quality care to firefighters. The main goal of these providers is to increase the health and well-being of individuals in this population, which in turn helps firefighters to better protect the people and property of their communities. Consequently, it is important to consider how the results from the present study assist health care professionals in better understanding the needs of firefighters.

First, this study's findings contribute to the existing knowledge about the mental health needs of the firefighter population. Like other first responders, there are a lot of stigmas around mental health treatment in firefighters. Interestingly, this study showed that different types of humor can help predict life satisfaction and burnout. Results showed that overall, firefighters use more humor in all four categories than non-firefighters, with aggressive humor being the largest difference. Results also showed that individuals who use more self-enhancing humor had lower levels of burnout and higher levels of life satisfaction. Individuals that used more affiliative and self-defeating humor experienced higher levels of burnout. Individuals that used more aggressive and self-defeating humor reported lower levels of life-satisfaction. Firefighters reported lower overall life-satisfaction than their non-firefighter counterparts. Lastly, affiliative humor and firefighter status suggest that affiliative humor may be more beneficial for firefighters in increasing life satisfaction.

The findings of this study suggest that agency policies and funding should incorporate alternative care options like coping skills training and appropriate mental health professional referrals. Mental health professionals might want to include psychoeducation on different styles of humor as coping interventions and build awareness of how to be more intentional in utilizing them. They can include coping humor as part of the treatment plans and set goals accordingly. Other medical professionals may utilize the results of this study to develop programs focused on humor styles as coping strategies, which could include workshops, professional trainings, and webinars.

### **Social Change**

Walden University defines positive social change as “a deliberate process of creating and applying ideas, strategies, and actions to promote the worth, dignity, and development of individuals, communities, organizations, institutions, cultures, and societies” (2024). The ultimate goal of social change is to improve human and social conditions and utilize a strengths-based approach (Walden University, 2024). The results from this study will assist psychologists, behavioral scientists, and health care policymakers in implementing social change by understanding various predictors and other psychological variables associated with types of humor as predictors of life satisfaction and burnout in firefighters. Findings may contribute to future research and motivate other professionals to explore other predictors of burnout and life satisfaction, the benefits of humor as a coping skill, and effective coping skills of firefighters. Findings from this study could lead to a positive social change by exploring how different

types of humor can influence life satisfaction and burnout amongst firefighters. These results indicate that firefighters, as a group, may possess stronger coping strategies than initially anticipated by this researcher. Specifically, humor emerged as a notable psychological strength within this population, serving as a protective factor against occupational stressors. It is important to note, however, that high levels of aggressive or self-defeating humor may have unintended negative consequences. Rather than serving as an adaptive coping strategy, these forms of humor might exacerbate stress and strain interpersonal relationships. Such patterns of humor may be detrimental to the social support within the department and potentially undermine the protective benefits associated with more constructive humor styles, such as affiliative or self-enhancing humor. Because firefighters are a necessity for civilian safety, supporting their well-being allows for effectiveness at work and higher life satisfaction. The results from this study could encourage practitioners to assess other predictors. Behavioral health clinical, support groups and organizations working with this population may focus on humor as an effective coping skill while considering nuances. Hence, the results from this study have the potential to effect positive social change by encouraging health care and mental health professionals to provide better care when working with this population and encourage fire departments to provide psychoeducational trainings to inform this population.

### **Conclusion**

Researchers have previously explored burnout, life satisfaction, first responders, and humor through different variable combinations and the use of various theoretical

frameworks. However, the specific types of humor as predictors of burnout and life satisfaction within the firefighter population compared to non-firefighters had not been explored. This study aimed at increasing knowledge regarding specific humor types as predictors of burnout and life satisfaction. The results of this research showed the predictors of burnout and life satisfaction among firefighters. This study was grounded in two theoretical frameworks: PERMA theory of well-being and JD-R. The PERMA theory was an appropriate framework for this study because it provided a lens for the first dependent variable, life satisfaction. This study's independent variable, humor, is also linked with several factors from this theory: positive emotion, relationships, engagement, and meaning (Deppa, n.d.; Umucu, 2021). The JD-R was also an appropriate framework for this study because it provided a lens for the second dependent variable, burnout. This framework also considered a perspective for humor, as evidenced by, as a resource to cope with the occupational stress (Edu-Valsania et al., 2022).

There were three research questions for this study. It was hypothesized that firefighters would use higher levels of self-enhancing and affiliative humor and lower levels of aggressive and self-defeating humor compared to non-firefighters. Two of these were supported by the data. Results showed that overall firefighters use more humor in all four categories than non-firefighters, with aggressive humor being the largest difference. It was also hypothesized that the different types of humor would be stronger predictors of life satisfaction for firefighters than for non-firefighters. The data confirmed that firefighter status, self-enhancing humor, aggressive humor, self-defeating humor, and the interaction between affiliative humor and firefighter status reached statistical

significance. It was also hypothesized that the different types of humor would be stronger predictors of burnout for firefighters than for non-firefighters. The data did not support this. Firefighter status was not a significant predictor and only affiliative, self-enhancing, and self-defeating humor were significant predictors of burnout.

The results from this study may have implications beyond the individual and clinical levels of analysis. Knowledge based on this study has the potential to effect social change by promoting better mental health treatment modalities for the firefighter population. The results can also help increase awareness within the firefighter population on how to effectively navigate their career that exposes them to high rates of traumatic stressors. Future researchers can contribute to better understanding of other predictors and variables addressing the unique needs of this population.

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## Appendix A: Permission to Use Scales

### The Satisfaction with Life Scale (SWLS)

#### Test Format:

The test has 5 statements. The scale instructs respondents to indicate on the 7-point rating scale (1=Strongly disagree, to 7= Strongly agree) indicating your satisfaction with life.

#### Source and Permission

This assessment is copyrighted and if the authors and scale are given credit and cited by the professionals (researchers and practitioners) using it, it is free to use without permission or charge: Ed Diener, Robert A. Emmons, Randy J. Larsen and Sharon Griffin as noted in the 1985 article in the *Journal of Personality Assessment*.

### The Copenhagen Burnout Inventory (CBI)

#### Test Format:

The test has 19 items. The scale instructs respondents to indicate on a 5-point scale (Always: 100, Often: 75, Sometimes: 50, Seldom: 25, Never/almost never: 0) indicating levels of burnout in general/personal, work-related, and client-related aspects.

#### Source and Permission

“The Copenhagen Burnout Inventory (CBI) is a non-commercial, free, and easy-to-administer tool” (Johnson, 2024, p. 102922). The inventory will be cited to give credit to the authors.

Johnson, M. W. (2024). Use of the Copenhagen Burnout Inventory among US academic librarians: Examining construct validity through factor structure and model fit. *The Journal of Academic Librarianship*, 50(5), 102922–102922.  
<https://doi.org/10.1016/j.acalib.2024.102922>

### The Humor Styles Questionnaire (HSQ)

#### The Test Format:

The test has 32 items. The scale instructs respondents to indicate on a 7-point scale (1=Totally Disagree to 7=Totally Agree) indicating the degree to which an individual experiences different types of humor as it relates to psychological well-being.

#### Source and Permission

**From:** Rod Martin <ramartin@uwo.ca>

**Sent:** Sunday, December 8, 2024 2:49 PM

**To:** Kayla Kovach <kayla.kovach@waldenu.edu>

**Subject:** Re: Permission to use the HSQ

I'm attaching a copy of the Humor Styles Questionnaire (HSQ) along with scoring instructions. You are welcome to make copies of this measure for use in your research. I'll also include a copy of the original article on the HSQ and a list of published studies that have used it.

Best wishes on your research!

Dr. Rod Martin  
Professor Emeritus  
University of Western Ontario  
London, Ontario, Canada

## Appendix B: Sociodemographic Survey

•What is your age?

•What was your assigned gender at birth?

1. Male
2. Female

•What group best describes your ethnic heritage?

1. European American
2. Black/African American
3. American Indian or Alaska Native
4. Asian or Asian American
5. Native Hawaiian or Other Pacific Islander
6. Hispanic or Latino
7. Multi-ethnic

Are you a firefighter?

1. Yes
2. No

What is your occupation?

1. First Responder (e.g. paramedic, firefighters, police officer, EMS technician, 911 dispatcher)
2. Management/Business/Sales
3. Computer/IT
4. Architecture/Engineering
5. Social Services/Mental Health
6. Legal Services
7. Education
8. Arts/Entertainment/Sports
9. Healthcare Services
10. Food/Restaurant
11. Building or grounds cleaning/maintenance
12. Administrative and office support
13. Farming, fishing, forestry occupations
14. Construction/Extraction
15. Mechanical or repair
16. Transportation Services
17. Unemployed

•How many years have you worked in this occupation? (write in/select the number of years)

•Marital status

1. Married
2. Divorced

3. Dating
  4. Single
  5. Widowed
  6. Separated
- On average, how many hours of sleep do you get per night?
1. 4 hours or less
  2. 5-6 hours
  3. 7-8 hours
  4. 9 hours or more
- Have you ever sought professional help or received treatment for your mental health?
1. Yes
  2. No
- How comfortable would you feel about seeking mental health services, if you needed to?
- 1- Very comfortable
  - 2- Comfortable
  - 3- Neutral
  - 4- Uncomfortable
  - 5- Very uncomfortable