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## Posttraumatic Growth Following Critical Incident Exposure for Urban Firefighters

Deirdre Smith  
*Walden University*

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# Walden University

College of Allied Health

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Deirdre A. Smith

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## Review Committee

Dr. Stephen Hampe, Committee Chairperson, Psychology Faculty  
Dr. Patricia Loun, Committee Member, Psychology Faculty  
Dr. Tracy Marsh, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost  
Sue Subocz, Ph.D.

Walden University  
2022

Abstract

Posttraumatic Growth Following Critical Incident Exposure for Urban Firefighters

by

Deirdre A Smith

MS, Long Island University Brooklyn, 2011

MA, Long Island University Brooklyn, 2010

BS, Felician University, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

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## Abstract

Firefighters are often exposed to critical/traumatic incidents. Regular exposure to critical/traumatic incidents has the potential to cause negative psychological problems among this population, though there is also a likelihood that firefighters can experience a positive effect such as posttraumatic growth (PTG) as a result of critical incident exposure. The purpose of this qualitative phenomenological study was to explore the lived experiences of PTG for urban firefighters following exposure to work-related traumatic events. The phenomenon of PTG provided the conceptual framework for the study. Data were collected from semistructured telephone interviews with eight urban firefighters. Findings from coding and thematic analysis revealed there were experiential differences between those who reported PTG and those who did not. Themes included maladaptive coping, adaptive coping, no PTG reported, PTG reported, and positive traits. Results showed that exercising positive coping mechanisms contributed to experiencing PTG. Results may be used to create positive social change through new programs or by improving existing programs to promote PTG among firefighters.

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## Table of Contents

|   |    |
|---|----|
| List of Tables .....                      | v  |
| List of Figures .....                     | vi |
| Chapter 1: Introduction to the Study..... | 1  |
| Background.....                           | 2  |
| Problem Statement.....                    | 4  |
| Purpose of the Study.....                 | 4  |
| Research Questions.....                   | 5  |
| Conceptual Framework.....                 | 5  |
| Nature of the Study.....                  | 7  |
| Definitions.....                          | 8  |
| Assumptions.....                          | 9  |
| Scope and Delimitations .....             | 9  |
| Limitations .....                         | 10 |
| Significance.....                         | 12 |
| Summary .....                             | 12 |
| Chapter 2: Literature Review.....         | 13 |
| Literature Search Strategy.....           | 14 |
| Theoretical Foundation .....              | 15 |
| Literature Review.....                    | 17 |
| Firefighter Training.....                 | 17 |
| Critical Incidents.....                   | 18 |

|   |    |
|---|----|
| Critical Incident Stress .....                                      | 20 |
| Urban Firefighters.....   | 21 |
| Firefighter Culture .....   | 22 |
| Post-incident Defusing.....   | 24 |
| Firefighter Counseling .....  | 26 |
| Maladaptive Coping.....   | 27 |
| Positive Coping.....  | 28 |
| Social Support.....   | 29 |
| Catalysts of PTG.....   | 31 |
| Prevalence of PTG .....   | 33 |
| Conclusion .....  | 34 |
| Chapter 3: Research Method.....                                     | 37 |
| Research Design and Rationale .....                                 | 37 |
| Role of the Researcher .....  | 39 |
| Methodology.....  | 40 |
| Participant Selection Logic .....                                   | 40 |
| Instrumentation .....   | 42 |
| Procedures for Recruitment, Participation, and Data Collection..... | 43 |
| Recruitment Procedure.....  | 43 |
| Data Collection Procedure .....                                     | 44 |
| Data Analysis Plan.....   | 45 |
| Issues of Trustworthiness.....                                      | 46 |



|                                   |    |
|-----------------------------------|----|
| Ethical Procedures .....          | 50 |
| Summary .....                     | 50 |
| Chapter 4: Results .....          | 51 |
| Setting .....                     | 52 |
| Demographics .....                | 53 |
| Participant 1 .....               | 54 |
| Participant 2 .....               | 55 |
| Participant 3 .....               | 55 |
| Participant 4 .....               | 56 |
| Participant 5 .....               | 56 |
| Participant 6 .....               | 57 |
| Participant 7 .....               | 58 |
| Participant 8 .....               | 59 |
| Data Collection .....             | 60 |
| Data Analysis .....               | 61 |
| Discrepant Cases .....            | 63 |
| Evidence of Trustworthiness ..... | 63 |
| Credibility .....                 | 64 |
| Transferability .....             | 64 |
| Dependability .....               | 65 |
| Confirmability .....              | 65 |
| Results .....                     | 66 |

|   |    |
|---|----|
| Themes Worth Mentioning .....                                 | 66 |
| RQ1 .....   | 70 |
| Counseling .....  | 71 |
| RQ2 .....   | 73 |
| RQ3 .....   | 75 |
| Summary .....   | 76 |
| Chapter 5: Discussion, Conclusions, and Recommendations ..... | 77 |
| Interpretation of Findings .....                              | 78 |
| Traumatic Events .....  | 78 |
| Coping Mechanisms.....  | 79 |
| PTG .....   | 80 |
| Limitations of the Study.....                                 | 81 |
| Recommendations.....  | 82 |
| Implications.....   | 83 |
| Conclusion .....  | 84 |
| References.....   | 86 |

List of Tables

|  |    |
|--|----|
| Table 1. Participant Demographics..... | 54 |
| Table 2. Coding Frequencies .....      | 62 |

## List of Figures

Figure 1. Theme and Code Occurrences for Each Participant..... 63

Figure 2. Reported Use of Adaptive Coping Mechanisms for Each Participant ..... 73

## Chapter 1: Introduction to the Study

The role of a firefighter is commonly linked with heroism, bravery, strength, and courage (Brazil, 2017). Firefighters risk their lives fighting fires and saving lives, yet firefighters are at an elevated risk for suffering from critical incident stress (Brazil, 2017). Some of the critical incidents that firefighters may be exposed to while on duty are motor vehicle accidents, burned bodies, and failed rescue attempts. Researchers have noted that between 56% and 88% of firefighters have been exposed to at least one critical incident while on the job (Brazil, 2017).

There are several mental health conditions that may arise in the aftermath of critical incident/traumatic exposure (Harvey et al., 2016). These include depression, anxiety, post-traumatic stress disorder (PTSD), adjustment disorder, increased physical complaints, and substance use (Harvey et al., 2016). According to Gruebner et al. (2017), firefighters in urban areas are subject to higher rates of pollution, noise pollution, specific urban designs (e.g., tall buildings that may be perceived as oppressive), or more physical threats, thereby possibly increasing stress levels with negative effects on mental health. Most of the studies examining the mental health of firefighters have focused on PTSD. An exclusive focus on PTSD risks undervaluing the full impact of trauma exposure among this population (Harvey et al., 2016). There is a need for research that focuses on the positive outcomes of trauma exposure (Sun et al., 2020).

Sanderson (2017) noted that there is a shared experience in posttraumatic growth (PTG); however, without further qualitative research, an individual's subjective experience of growth following trauma cannot be evaluated (Sanderson, 2017). Civilian

populations have made up the bulk of the research focus concerning PTG while research involving duty-related populations with exposure to traumatic events is scarce (Armstrong et al., 2016; Sun et al., 2020; Yang & Ha, 2019). There is a need for research that investigates the subjective experiences that may have influenced PTG for firefighters (Ogińska-Bulik & Kobylarczyk, 2016). There is a great deal more research that explores the negative psychological problems for disaster rescuers than there is research on the positive psychological changes (Sun et al., 2020). In the current study, the subjective experiences of growth following trauma were explored. The responses of professional firefighters, both active and retired from different firehouses in the New York City area, were analyzed.

### **Background**

The role of a firefighter entails being responsible for rescue operations, hazardous material management, responding to natural and domestic attacks, and providing emergency medical services (Jahnke et al., 2016). Medical calls can range from simple sports injuries to a variety of potentially traumatic events such as a parent experiencing a heart attack, a child who has drowned in a swimming pool, a car accident that has mutilated an adolescent, a fire with possible trapped victims, or a terrorist attack (Jahnke et al., 2016). Firefighters experience potentially traumatizing events regularly as part of their job duties; regular exposure to such events puts them at risk of developing different psychopathologies such as depression and PTSD (Armstrong et al., 2016; Jahnke et al., 2016). Although many firefighters are resilient, many have been found to suffer negative psychological consequences as a result of their experiences (Jahnke et al., 2016).

However, evidence suggested that the same experiences that could result in a diagnosis of PTSD may also act as a facilitator for PTG (Armstrong et al., 2016).

According to Paulus et al. (2017), approximately 50% of the firefighters they studied reported excessive drinking. Paulus et al. also reported occurrence rates of 47% for lifetime alcohol use disorders within this population. Researchers have also found a link between PTSD symptom severity and alcohol use behaviors (Paulus et al., 2017). Firefighters have been found to utilize drinking as a coping mechanism for dealing with work-related stress (Paulus et al., 2017). Sun et al. (2020) noted that firefighters have reported high occurrences of PTSD linked to direct or indirect exposure to fire, the age of firefighters, and the time they work. Despite the negative psychological problems, this type of work may have a positive effect on their lives, such as PTG (Sun et al., 2020).

Sanderson (2017) found that within the culture of the fire and rescue service it is abnormal to focus on the positives after a traumatic incident. Sanderson noted that a positive culture needs to be developed within this population to facilitate and promote PTG and encourages the positives of dealing with traumatic incidents on an emotional level. According to Sun et al., (2020), there is far more research on the negative psychological problems for disaster rescuers than positive psychological changes. Therefore, it is essential to investigate the positive psychological changes of firefighters (Sun et al., 2020). Several studies have attempted to quantify these positive change experiences by examining civilian populations (Yang & Ha, 2019). There is a need for research involving firefighters that explores the personal experiences of PTG (Yang & Ha, 2019). Firefighters are routinely exposed to traumatic events as part of their daily

working lives, yet it is unclear why some individuals grow in the aftermath of trauma while others do not (Sanderson, 2017). At the time of the current study, there were no studies that focused on the individualized experience of PTG among urban firefighters.

### **Problem Statement**

Firefighters are exposed to traumatic and stressful events or critical incidents regularly as part of their responsibilities to save lives and property (Sattler et al., 2014). Studies have shown that urban firefighters are susceptible to drinking problems as a means of coping with occupational stress (Paulus et al., 2017). This group has also been found to suffer from depression and PTSD, which have also been linked to alcohol misuse and alcohol use disorder (Paulus et al., 2017). Armstrong et al. (2016) reported that the same traumatic experiences that could lead to a diagnosis of PTSD in emergency service workers may also act as a catalyst for significant positive changes.

Several empirical studies have attempted to quantify the PTG experience. Most of these studies have focused on civilians, while research involving firefighters has concentrated on PTSD with limited exploration of PTG (Yang & Ha, 2019). Little is known regarding why some firefighters experience growth as a result of trauma exposure while others do not (Sanderson, 2017). At the time of the current study, there were no studies that focused on the individualized experience of PTG among urban firefighters.

### **Purpose of the Study**

Researchers suggested that there is a need for more qualitative research that explores the subjective experiences of growth following trauma (Sanderson, 2017). Given the facts that firefighters are often exposed to traumatic events while performing their



daily working activities and that research focusing on PTG within this population is scarce, this makes firefighters the ideal population for exploring the subjective experiences of PTG (Armstrong et al., 2016; Sanderson, 2017; Sun et al., 2020; Yang & Ha, 2019). The current study was designed to fill the gap in the literature regarding PTG among firefighters along with the need for investigation of the personalized experiences of growth following trauma. This phenomenological study addressed how urban firefighters explain their personal experiences of PTG following exposure to work-related traumatic events.

### **Research Questions**

Exploration of the perceptions and lived experiences of PTG among urban firefighters who have endured work-related trauma was the goal of this study. The research questions that guided this investigation were the following:

RQ1: What are the coping mechanisms that urban firefighters have identified as effective in dealing with work-related traumatic incidents exposure?

RQ2: What are the experiential differences for urban firefighters who report experiencing PTG compared to those who do not report experiencing PTG following exposure to work-related traumatic incidents?

RQ3: What are the personal experiences of PTG achievement for urban firefighters following exposure to work-related traumatic incidents?

### **Conceptual Framework**

Calhoun and Tedeschi (2004) noted that the phenomenon of PTG emerges in a wide variety of people experiencing a wide range of traumatic conditions. Calhoun and

Tedeschi coined the term while investigating the development of an inventory intended to measure such growth. Historically, terms such as perceived benefits, positive aspects, positive psychological change, stress-related growth, positive emotions, and transformation of trauma were used to describe PTG.

Some researchers referred to similar outcomes as positive illusions (Calhoun & Tedeschi, 2004). Calhoun and Tedeschi (2004) sought to describe the positive psychological changes they observed as clinical psychologists among their patients who were coming to terms with highly stressful and challenging life events. Calhoun and Tedeschi discovered that people frequently reported experiencing positive changes since the traumatic events occurred.

Although some theorists have disagreed on how PTG manifests in an individual's life, it is believed that positive transformations in beliefs and behavior may be manifested in at least five forms (Jayawickreme & Blackie, 2014). These forms include improved relationships with others, identification of new possibilities in life, increases in perception of personal strength, spiritual growth, and enhanced appreciation of life (Jayawickreme & Blackie, 2014). According to studies, nearly 70% of survivors of numerous forms of trauma have reported experiencing some positive change in at least one area of life (Jayawickreme & Black, 2014). The creators of this concept noted that the individual not only survives but also experience significant changes that extend beyond the status quo (Jayawickreme & Blackie, 2014). PTG is referred to as an experience of enhancement that for some individuals is profound (Jayawickreme & Blackie, 2014). The phenomenon of PTG was used as the conceptual framework for this study.

### **Nature of the Study**

A qualitative phenomenological approach was used to explore PTG amongst urban firefighters. During semistructured interviews, participants were asked to provide a detailed account of their experiences beginning with what they identified as the work-related traumatic events through to the PTG experience. Through the study of PTG among this population, a more comprehensive understanding regarding their experiences, from exposure to overcoming trauma, was gained.

The first task of performing a phenomenological study is to recruit participants who have the lived experience that the researcher is interested in analyzing (Broomé & Russell, 2019). The target population of this study comprised firefighters in the New York City area. Semistructured interviews were conducted with the participants to obtain detailed accounts of their experiences and perceptions regarding the work-related traumatic experiences they endured, along with how they were coping. Interviews were the primary method of data collection. Participants were recruited in person by going to the firehouses around the New York City area and posting detailed flyers about the research on their bulletin boards with permission from the senior person on duty. Social media outlets such as Facebook were also used for recruiting through posting the flyer in groups focused on New York City firefighters and firefighter spouses.

Conducting interviews provides an opportunity to probe with open-ended questions (Jacobsson et al., 2015). This gives the participants the chance to reflect on and provide in-depth descriptions of their perceptions and experiences (Jacobsson et al.,

2015; Klosk-Gazzale, 2016). Interviews offered the chance to attain a deeper understanding of the emotions linked to the traumatic experiences of urban firefighters (see Klosk-Gazzale, 2016). Data obtained from interviews assisted in establishing the shared and individual lived experiences associated with the PTG phenomenon (see Klosk-Gazzale, 2016).

The data collected were evaluated to determine the connections and themes. Interviews were audio-recorded and conducted in a confidential area to protect the confidentiality and safety of the participants. Written consents were obtained before the start of the study to ensure the participants knew what the study entailed as well as the boundaries and details of confidentiality. Participants were made aware of the intent of the study, and that the information that was obtained would be kept confidential unless there was an indication of harm to themselves or others, which I was mandated to report to the proper authorities. The participants were also informed of the anticipated time frame for the interviews.

### **Definitions**

*Critical incidents/events*: Events that are traumatic and intense and could have adverse mental health consequences (Macdermid et al., 2019).

*Ek-sisting*: The conserving of ontological likelihoods of humans and differences with actuality (Ho et al., 2017).

*Hermeneutic phenomenology*: A theory developed by Heidegger that focuses on lived human experiences, emphasizing clarity of details and minor aspects within the

experience that may be taken for granted in people's lives, to create meaning and achieve a sense of understanding (Laverty, 2003).

*PTG*: The experience of positive change resulting from the struggle with major life crises (Calhoun et al., 2010).

### **Assumptions**

There were a few key assumptions about the research participants. The first was that the participants had experienced positive changes as a result of their exposure to the traumatic incidents. The second was that the participants had an understanding of what contributed to the development of positive changes following trauma exposure. Lastly, I assumed that the participants would be open and willing to honestly discuss and acknowledge their personal experiences of trauma and growth.

### **Scope and Delimitations**

The scope of this qualitative, interpretive phenomenological study was to understand how urban firefighters experience PTG following exposure to work-related traumatic incidents. Purposeful sampling was used to select firefighters in the New York City area who had identified as experiencing a traumatic incident while working. The phenomenological design was selected for this study because it provided participants the opportunity to detail their lived experiences (see Connelly, 2010). Firefighters were able to discuss their lived experiences via one-on-one interviews to assist with ascertaining patterns and meanings.

This study was limited to firefighters in the New York City area. Firefighters had to identify as experiencing at least one on-duty traumatic experience. This study was

limited to obtaining information regarding PTG experienced by the firefighters who had been exposed to an on-duty traumatic incident. The sole focus of this study was the experience of PTG following on-duty traumatic incident exposure.

### **Limitations**

Through qualitative research, in which topics that have not been operationalized can be expounded on, there is potential for new insight into familiar issues (Lemon & Hayes, 2020). With qualitative research, truths are revealed at local levels with an emphasis on rich description (Daniel, 2019; Lemon & Hayes, 2020). Despite the value of qualitative research, there is a lack of trust in qualitative methods (Lemon & Hayes, 2020). Scholars have established criteria to evaluate qualitative research, and researchers have continued to enhance the criteria to verify the quality of the data and findings (Daniel, 2019; Lemon & Hayes, 2020).

Four criteria are used to determine trustworthiness (Lemon & Hayes, 2020). These include credibility, transferability, dependability, and confirmability. The criteria are interwoven and codependent and function as substitutions to the typical quantitative measures for quality such as internal validity, external validity, reliability, and objectivity (Lemon & Hayes, 2020). Credibility serves as the replacement for internal validity and is embedded in the truth value, which questions whether the researcher has established and conveyed a certain level of confidence in the findings based on the phenomenon under investigation (Lemon & Hayes, 2020). The truth value is obtained from a thorough examination of the human experience as it is performed by the participants. More specifically, the truth value is derived from a comprehensive understanding of the

person's unique reality. Transferability replaces the notion of external validity and generalizability and deals with the degree to which the findings from the study may relate to other contexts and settings (Lemon & Hayes, 2020). Dependability replaces reliability and affirms that results are restricted to a specific time and place, and the consistency of explanations is present across the data. Credibility cannot occur without dependability, and credibility is the basis of quality (Lemon & Hayes, 2020). Confirmability deals with the impartiality of the phenomenon being examined and addresses whether the interpretations and findings are from the participant's lived experiences and absent of the researcher's biases (Lemon & Hayes, 2020). A strategy that has been offered as a way to increase the probability of attaining credibility is triangulation (Lemon & Hayes, 2020).

Triangulation bolsters the validity of qualitative research through merging information from different sources (Daniel, 2019; Lemon & Hayes, 2020). The aim is to study a single point from at least three different and independent sources to support the phenomenon being explored (Lemon & Hayes, 2020). Triangulation helps researchers identify inconsistencies in developing patterns in the findings, which can assist with gaining a deeper understanding of the phenomenon because inconsistencies are a strength, not a weakness (Lemon & Hayes, 2020). Triangulation helps researchers reduce systematic bias and reinforce the credibility and dependability of the study. Triangulation of data sources requires the inclusion of individuals with differing backgrounds, diverse groups of participants, or documents in the study (Lemon & Hayes, 2020).

In the current study, some of the firefighters may have declined an individual interview, which may have limited the diversity of the sample (see Jacobsson et al.,

2015). According to Anderson (2010), research quality depends on the researcher's skills and is easily impacted by the researcher's personal biases and habits. The participant's responses can be impacted by the researcher's presence, which is typically necessary for qualitative research (Anderson, 2010). Problems of anonymity and confidentiality can be problematic when presenting findings (Anderson, 2010). It may also be challenging and time-consuming to characterize findings in a visual way (Anderson, 2010).

### **Significance**

The present study promoted positive social change through the exploration of the subjective experiences of firefighters to ascertain the differences in reactions to trauma among this population. Studying urban firefighters provided an opportunity to provide information regarding participants' ability to overcome occupational traumatic experiences. The results of this study may be used to create new programs or improve existing programs to promote PTG among firefighters.

### **Summary**

This phenomenological study was designed to develop a comprehensive understanding of the experience of PTG among firefighters who are regularly exposed to traumatic events as a part of their job duties. This study contributed to filling the need for research that examines the positive changes elicited by exposure to trauma for firefighters, guided by the PTG theory that asserts that people experience positive growth after facing adversity.



## Chapter 2: Literature Review

Firefighters are often exposed to traumatic events while on the job. Some of these events include assaults, threats of violence, finding dead bodies or badly injured victims, and observing significant human suffering (Jacobsson et al., 2015; Kaurin et al., 2018). Jacobsson et al. (2015) categorized such events as critical incidents and noted motor vehicle accidents, burned bodies, chemical hazards, life-threatening situations, suicides, failed rescue efforts, dangerous fire suppression scenarios, knowing the victim, and witnessing the death of a coworker as critical incidents firefighters may face. Increased exposure to such incidents has been linked to increased risks for mental health issues (Kaurin et al., 2018). Larsson et al. (2016) suggested that some of the mental health problems related to regular occupational exposure to acute stress are a high number of suicides, violence within the family, other criminality, and substance abuse.

Firefighters are also at an elevated risk of employing negative coping strategies (Kaurin et al., 2018). Despite the risks, more than half of those affected by exposure to critical events have been found to maintain their mental health (Kaurin et al., 2018; Ogińska-Bulik & Kobylarczyk, 2016). This makes this group a valuable resource for exploring current theories of growth (Sanderson, 2017). According to Sanderson (2017), there is a shared experience in PTG that can be compiled into five categories, though some believe that individuals experience growth in ways that do not fit these categorizations. Without more qualitative research, scholars cannot fully assess an individual's subjective experience of growth following trauma (Sanderson, 2017). Most of the research surrounding PTG has focused on civilian populations such as cancer

patients, war veterans, and victims of sexual abuse rather than on duty-related populations with exposure to traumatic events (Armstrong et al., 2016; Sun et al., 2020; Yang & Ha, 2019). There is a need for research that explores the personal experiences that may have influenced PTG for firefighters (Ogińska-Bulik & Kobylarczyk, 2016).

Additional qualitative research that explores the individual experiences of growth following trauma is needed (Sanderson, 2017). Firefighters are often exposed to traumatic events while performing their daily working activities, and research focusing on PTG within this population is scarce; this makes firefighters the ideal population for exploring the individualized experiences of PTG (Armstrong et al., 2016; Sanderson, 2017; Sun et al., 2020; Yang & Ha, 2019). The current study was designed to fill the gaps in the literature on PTG among firefighters along with the need for investigation of the personalized experiences of growth following trauma. This phenomenological study addressed how urban firefighters explain their personal experiences of PTG following exposure to work-related traumatic events.

### **Literature Search Strategy**

The following databases were searched to locate peer-reviewed works to address the literary gap: Sage Publications, Taylor and Francis, ScienceDirect, American Psychological Association, Wiley, American Association of Colleges of Pharmacy, ProQuest, Brill, IOS Press, MDPI, Routledge, and Springer Publishing. The key search terms and term combinations included *posttraumatic growth*, *critical incidents*, *urban firefighters*, *firefighter trauma*, *social support*, *positive coping*, *firefighter critical incident stress*, *urban firefighters*, *FDNY*, *firefighter training*, *PTG model*, *urban fire*

*departments, deliberate rumination, traumatic incidents, and urban firefighters.* Many studies have been conducted to investigate firefighters and PTSD; however, literature that explored PTG among firefighters from the subjective perspective was lacking. The articles selected for this literature review focused on firefighter trauma and/or the impact of exposure to critical incidents for the population. Studies that were not written in English were rejected. The articles used were saved and organized via Zotero, a reference organization software.

### **Theoretical Foundation**

The notion that struggling with major life crises could lead to experiencing significant positive change is primordial (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007). However, the possibility of something good developing from the struggle with something very challenging has been the focus of systematic theorizing and empirical investigation only in the last 35 years or so (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007). PTG entails internal transformations that may set the stage for changed behavior (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007). There are different types of personal changes that can be seen by others when it comes to actions taken (Tedeschi et al., 2007). At times the transformations in a person's view of self and life may be private, while at other times such transformations may be public particularly in those people who have transformed their traumas into efforts to lead social change movements (Tedeschi et al., 2007). Tedeschi et al. (2007) noted that people account for both growth and negative parts of the experience, yet appear to find the growth elements more essential for

themselves. PTG validates the reality that people who experience PTG also identify the many negative aspects of what has happened (Tedeschi et al., 2007).

Calhoun and Tedeschi (2004) and Jayawickreme and Blackie (2014) pointed out that PTG can be divided into three general domains: changes in the perception of self, changes in the experience of relationships with others, and changes in a person's general philosophy of life. A five-factor approach to PTG has also been noted, which was the theoretical foundation of the current study (Calhoun & Tedeschi, 2004). The five domains include personal strength, new possibilities, relating to others, appreciation of life, and spiritual change (Calhoun & Tedeschi, 2004; Jayawickreme & Blackie, 2014). Changes in perception of self have been summarized as vulnerable yet stronger (Calhoun & Tedeschi, 2004). Changes in perception of self consist of a greater sense of personal strength, resiliency, or self-reliance, as well as acquiring a new path or opportunities (Calhoun & Tedeschi, 2004; Taku et al., 2008). Although these domains seem to provide a valuable synopsis of growth, certain individuals may experience significant changes in their lives that occur outside of these broad categories (Calhoun & Tedeschi, 2004).

Threats to the assumptive world brought on by the major crisis could create cognitive responses (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007). Researchers have discussed some of the common changes that occur following disruptions to the assumptive world, including seeing the world as more dangerous, less predictable, and a place where an individual's vulnerabilities become clear and salient (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007). Changes in interpersonal relationships entail increased compassion or altruism, or an enhanced sense of closeness in relationships

(Calhoun & Tedeschi, 2004; Taku et al. 2008). A transformed perception of what is most important is one of the hints of a changed philosophy of life that can be experienced as PTG. A change in priority is often experienced when situations that were previously viewed as small become more significant (Calhoun & Tedeschi, 2004). Changes in religious or spiritual/existential beliefs are also possible (Calhoun & Tedeschi, 2004; Taku et al., 2008).

Calhoun and Tedeschi (2004) advised that researchers can inquire about anything positive that has occurred as a means of discovering any other elements. However, not all related incidences that may be interpreted as positive signify growth. The evaluations of PTG must emphasize what appear to be the core characteristics of the phenomenon (Calhoun & Tedeschi, 2004). For some, the experience of positive change comprises radical personal transformations that stem from the individual's struggle with very difficult life demands (Calhoun & Tedeschi, 2004).

## **Literature Review**

### **Firefighter Training**

The Fire Department of New York (FDNY) firefighters are trained at the FDNY Fire Academy, which is an 18-week training that consists of classroom study, reading assignments, weekly tests, and real-world physical training (FDNY, 2020). Trainees (or “probies”) learn about firefighting equipment, personal protective clothing, building construction, and fire science, along with essential on-the-job skills (FDNY, 2020). More specifically, probies learn about the chemical process of fire, the methods of heat transfer a fire can use, the makeup and nature of the fuels, and the environment fire needs. This

background knowledge equips the firefighter to battle fire and win (Sudnik et al., 2019). Probies also gain knowledge of the different types of apparatus used for carrying out fire protection missions along with a variety of other types of emergencies (Sudnik et al., 2019).

Research has shown that in-house training on critical incident stress or PTSD is not a part of the training curricula (Brazil, 2017; Sudnik et al., 2019). In a recent study, firefighters indicated that they had not received training in this area though they would like for it to be available (Bouchillon, 2018). However, Bouchillon (2018) and Barnes (1999) hinted that no amount of training could adequately prepare emergency workers for the trauma they experience on the job. Barnes (1999) noted that firefighters' training does not protect them from the stresses of their work or prepare them for the reality of emergency response. This notion is backed by the lack of trauma training and/or critical incident training during the academy (Sudnik et al., 2019).

### **Critical Incidents**

Findings from studies performed in major cities in Canada and the United States showed that during a year 90% of U.S. and 85% of Canadian firefighters had been involved in a traumatic event (Ogińska-Bulik & Kobylarczyk, 2016). Many of these firefighters had experienced traumatic events more than once (Ogińska-Bulik & Kobylarczyk, 2016). The terms critical incidents or critical events are used to refer to events that are traumatic and intense and could have adverse mental health consequences (Macdermid et al., 2019). Jacobsson et al. (2015) and Macdermid et al. (2019) agreed that critical incidents are unexpected, overwhelming experiences that exceed an individual's

normal coping skills. For emergency workers, critical incidents have been described as personal loss or injury, mission failure, human error, contact with dead or severely injured children, accidents, burned bodies, life-threatening situations, death of coworkers, and fire suppression (Jacobsson et al., 2015; Macdermid et al., 2019). Repeated exposure to traumatic incidents has been identified as an issue that impacts mental health (Macdermid et al., 2019). Studies have shown that firefighters can experience anywhere from 1 to 42 critical incidents over the span of their careers (Macdermid et al., 2019). Critical incident exposure has been linked to general psychopathology and symptoms of PTSD and aggression (MacDermid, et al., 2019).

In recent studies, firefighters reported the following as frequent events they had responded to: incidents involving one or two deaths, direct exposure to blood or bodily fluids, and incidents involving multiple serious injuries (Brazil, 2017; Macdermid et al., 2019). Rare events included suicide or attempted suicide by fellow emergency workers, use of deadly force by police at an incident, and serious line-of-duty injury to self (Brazil, 2017; Macdermid et al., 2019). Approximately 24% of firefighters studied reported exposure to a serious line-of-duty injury/threat of death to a fellow emergency worker or event requiring police protection while on duty (Macdermid et al., 2019). The stress that ensues from critical incident exposure may contribute to the need for support to reduce the risk of burnout (Jacobsson et al., 2015). Even the most experienced rescue personnel can be negatively impacted by critical incident exposure. Rescue personnel have frequently reported posttraumatic stress and psychological dissociation as a result (Jacobsson et al., 2015).

### **Critical Incident Stress**

Jahnke et al. (2016) noted that fire and emergency medical services personnel have higher rates of depression and depressive symptomology than the general population. Firefighters have also been found to have higher rates of alcohol use and binge drinking, which has been theorized to be linked to repeated exposure to trauma (Jahnke et al., 2016). Firefighters experiencing emotional distress and PTSD have reported developing or worsening risky drinking behaviors, though many firefighters have reported trouble sleeping, recurrent distressing dreams, avoidance behaviors, and feelings of helplessness, which are all symptoms of PTSD (Jahnke et al., 2016). Many firefighters blame cumulative stress from a range of negative occupational experiences for the distress they experienced. Repeated exposure to trauma has been reported to be responsible for the following negative symptoms for firefighters: desensitization, irritability and cynicism, and intrusive flashbacks.

According to Jahnke et al. (2016), firefighters have expressed feeling desensitized as a result of exposure to extreme trauma. Some firefighters have expressed developing emotionlessness in responding to calls (Jahnke et al., 2016). Some firefighters revealed feeling more cynical and on edge than they did before joining the fire service due to their on-the-job experiences (Jahnke et al., 2016). Many firefighters have reported that no single event caused them distress or symptoms but rather pieces of different events (Jahnke et al., 2016). Negative outcomes in firefighters more commonly result from a series of negative events rather than one single event as is characteristically presumed for PTSD (Jahnke et al., 2016). Firefighters who spend an extended period in a state of high



stress are susceptible to more serious negative psychological problems such as posttraumatic stress symptoms (Sun et al., 2020). Experiences such as these tend to be so severe that the ability to cope with them is overwhelmed (Barnes, 1999).

### **Urban Firefighters**

Urban firefighters are typically trained emergency medical technicians as well as fire-department-based paramedics who are responsible for responding to several different emergencies such as residential and commercial fires, medical crises, hazardous materials spills, explosions, and large-scale community disasters (Corneil et al., 1999). Large urban fire departments face challenges with limited resources, working in high-crime areas, leveraging relationships with city-wide institutions, reaching multicultural communities, and getting residents to focus on fire safety (Adams et al., 2007). Large cities have the highest rates of arson and intentional fires (Adams et al., 2007). Adams et al. 2007 reported that areas with more African Americans and low/median family income typically have high fire death rates. In 2007, New York City firefighters responded to a tragic fire that killed nine children and one woman, all new immigrants from West Africa (Adams et al., 2007). Events such as these align with the earlier noted traumatic event categories.

Urban firefighters represent an at-risk group for alcohol misuse (Paulus et al., 2017). In a study examining 144 NYC fire companies, firefighters were found to drink more than usual following a critical incident, likely as a means of coping with the event (Smith, 2016). Smith (2016) noted that the higher the intensity of the event the higher the levels of distress and drinking as a means of coping. According to Paulus et al. (2017)

approximately 50% of firefighters have reported excessive drinking, with one study reporting prevalence rates of 47% for lifetime alcohol use disorders among firefighters. Approximately one-third of urban firefighters engage in heavy periodic drinking and/or hazardous/problematic drinking (Paulus et al., 2017). Paulus et al. (2017), also noted that depression has been linked to alcohol use among urban firefighters. Trauma exposure and subclinical PTSD symptoms have also been linked with alcohol misuse and alcohol use disorder (Paulus et al., 2017).

### **Firefighter Culture**

In firefighter culture, members typically hide their emotions to be strong for humanity in the face of dangerous situations (Smith, 2016). Smith (2016) reported that hypermasculinity is a valued attribute within the occupation and that displaying strong emotions was considered off-limits for firefighters. Smith (2016) noted that these traits could potentially hinder firefighters from seeking help when they are experiencing distress, resulting in more chronic mental health concerns.

Firefighters have listed trust among one another as vital to the culture in the firehouse (Smith, 2016). The need for trust among firefighters was due to their dependence on one another during potentially deadly conditions (Smith, 2016). The presences of a ranked organizational structure had also been mentioned as a depiction of firefighting culture (Smith, 2016). Firefighters have stated that the ranking structure within the firehouse typically results in firefighters being deterred from expressing disagreement with those with higher rankings (Smith, 2016).

Lucas and Kline (2008) have referred to the firefighter culture as paramilitaristic, concerning the clear lines of authority. Lucas and Kline (2008) reported similar findings as Smith (2016) in that this structure embraced a strong organizational philosophy that suppressed the questioning of traditional arrangements. Researchers have reported that firefighters also exhibit traits of a hero culture (Lucas & Kline, 2008). Hero culture refers to the individuals that take on situations that the average person would try to escape (Lucas & Kline, 2008). Another cultural characteristic is a sense of urgency, which is the need to fix something here and now (Lucas & Kline, 2008).

Lucas and Kline (2008) mentioned tradition as a feature of firefighter culture, though it has been viewed as ambiguous. Tradition may have contradicting outcomes, the first is it adds to role clarity permitting firefighters to come together as a team at a fire scene and perform their duties effectively. The other is that it contributes to rigidity and resistance to change (Lucas & Kline, 2008). Firefighters have used tradition as a justification against change (Lucas & Kline, 2008). The firefighting tradition has been recognized as an external entity that firefighters had no control over (Lucas & Kline, 2008).

Richardson and James (2017) report that when coping with trauma, firefighters are often challenged by the notions of what it means to be a real firefighter. Within the firefighter culture humor is used to shift between identities to effectively perform while navigating emotion-inducing calls (Richardson & James, 2017). Firefighters are trained to problem solve and help people, these attributes are essential to their identity. Some firefighters can cope with traumatic events despite the cultural parameters (Richardson &

James, 2017). Some have even shown a desire to talk about traumatic experiences (Richardson & James, 2017).

Patton (2005) noted that organizational characteristics impact the interpretation of traumatic events. Being a member of a cohesive team may support PTG (Patton, 2005). The term communal coping has been used to explain how team activities can promote growth through shared acceptance of psychologically difficult events and cooperative action to resolve issues (Patton, 2005). Recognizing and building on effective collaboration during a crisis and working together after it to build an understanding and better preparedness for future crises contributes to personal and team growth (Patton, 2005). The role of organizational culture as a basis for how people make sense of experience is a substantial issue for emergency professions (Patton, 2005)

### **Post-incident Defusing**

Due to the high-stress of the job and the commonness of mental health issues in fire service, behavioral health programs are offered “in house” for professional firefighters (Gulliver et al., 2019). Behavioral health programs like employee assistance programs (EAPs) and member assistance programs (MAPs), offer firefighters referrals to treatment (Gulliver et al., 2019). Some large urban departments have devoted counseling units with a sound peer support program along with licensed mental health professionals (Gulliver et al., 2019).

Debriefing entails sharing observations and facts about the incident and discussing emotional reactions and thoughts on the incident with facilitators and peers immediately after the event (Sattler, Boyd, Kirsch, 2014). According to Sattler et al.

(2014) firefighters preferred more formal interventions as the severity increased, though firefighters valued informal peer support as well following exposure to a critical incident.

Critical incident stress debriefing (CISD) was founded on two principles, the first is that exposure to traumatic stressors leads to considerable psychological problems in a large number of individuals (Jeannette & Scoboria, 2008). The second is that receiving psychological help soon after exposure will assist in preventing the onset of PTSD symptoms, and if symptoms do arise, CISD will accelerate the recovery of the traumatized person (Jeannette & Scoboria, 2008). CISD may be used by fire departments to avoid or reduce the development of stress reactions among firefighters (Sattler et al., 2014). De Lima (2020) noted that data on the efficacy of CISD in decreasing negative outcomes of exposure to trauma have been inconclusive.

According to De Lima (2020), critical incident stress management (CISM) evolved from CISD and was created on the need for support for first responders due to their regular exposure to trauma. CISM was once one of the most popular models used among fire departments (Kimley et al., 2018). CISM employs a seven-step model consisting of pre-crisis preparation, disaster or large-scale incident debriefing, defusing via a structured small group, group debriefings, individual crisis intervention/counseling/support, family crisis intervention/organization consultation, and follow-up/referrals if needed (Kimley et al., 2018). Klimley et al. (2018) reported that the lack of reliable empirical support for the efficacy of CISD/CISM type interventions led fire departments to consider more evidence-based practices.

## **Firefighter Counseling**

Even with the accessibility of behavioral health programs, firefighters are reported to be resistant to seeking treatment (Gulliver et al., 2019). Firefighters have been reported to have limited use of EAPs (Gulliver et al., 2019). There are barriers to treatment use among firefighters which may include worries about stigma, confidentiality, lack of clinician familiarity with the culture, failure to recognize a critical incident, and negative expectations of treatment (Gulliver et al., 2019). The chances of firefighters using behavioral health programs diminish as the number of barriers to treatment-seeking rises (Gulliver et al., 2019).

Stigma is a consistent issue for fire-service professionals, seeking mental health help can be considered a sign of weakness (Carpenter et al., 2020). Carpenter et al. (2020) reported that more than 65% of a sample of firefighters with a history of suicidal ideation or behaviors revealed stigma-related barriers to seeking mental health treatment. Stigma is the third greatest barrier to accessing behavioral health programs in fire services (Carpenter et al., 2020). There is an increased need to access these services due to the increased risk for the development of PTSD, depression, and suicidality (Carpenter et al., 2020). Conversely, Johnson et al. (2020) reported that nearly 81% of firefighters used behavioral health services through their department. There was a propensity for firefighters with fewer years of service to pursue informal services, while more senior firefighters obtained professional services (Johnson et al., 2020).

Johnson et al. (2020) reported that several generalized interventions may apply to firefighters for effectively reducing stigma. These interventions include psychoeducation,

mental health literacy, and personal contact with consumers of mental health treatment (Johnson et al., 2020). Digital storytelling has been listed as a resource to assist with psychiatric symptom recognition and treatment-seeking in firefighters (Johnson et al., 2020). An instance of this is Firefighters Helping Firefighters, this is a web-based approach that details peers' experience with mental health, normalizes treatment-seeking concerns, and offers education about treatment courses (Johnson et al., 2020). Telehealth has also been noted as a resource that can decrease the number of barriers to treatment as it permits for more flexible scheduling, reduces the amount of time off work provided that time for transportation is not necessary, and offers initial treatment seekers an introduction to services in a relaxed environment (Johnson et al., 2020).

### **Maladaptive Coping**

Coping strategies are deemed negative when the strategies cause the situation to be more difficult or present new problems for the individual to deal with (Nydegger et al., 2011). Some strategies that would be considered negative include denial, self-blame, and substance abuse. These strategies are adaptive in the sense that they might temporarily relieve some symptoms, but they may worsen the situation for the victim and cause more serious issues in the future (Nydegger et al., 2011).

According to Paulus et al. (2017), one of the most commonly reported coping strategies for firefighters for managing work-related stress was alcohol use. At both the dimensional and disorder level, depression has been linked to alcohol consumption among firefighters (Paulus et al., 2017). The rates of major depressive disorder have ranged from 3.8% to 5.5% among non-U.S. firefighters and approximately 22% among

firefighters in the U.S. (Paulus et al., 2017). Becker and Quartilho (2020) reported similar claims and added that alcohol consumption among firefighters served as both a means of relieving symptoms and to effectively function during the next shift.

Another poor coping strategy that has been noted is distraction (Becker & Quartilho, 2020). Self-distraction has been listed as a negative coping strategy because it involves changing one's attention from what is bothering them to something else (Nydegger et al., 2011). This term can be positive, but if the person is not doing anything to deal with the source of the problem it is possible for the problem to worsen and continue on longer (Nydegger et al., 2011). Nydegger et al. (2011) reported that it is more likely for firefighters with less experience to rely on emotional support to help with coping than firefighters with more years of experience.

Nydegger et al. (2011) noted that the longer a firefighter is on the job the more likely he is to employ self-blame and behavioral disengagement as coping mechanisms. Firefighters with the least experience are more likely to use positive coping strategies while more experienced firefighters are more likely to use negative coping mechanisms to deal with stress and trauma (Nydegger et al., 2011).

### **Positive Coping**

Coping with trauma is difficult for anyone, and how effectively an individual copes with trauma is essential in establishing the quality of their adjustment following a traumatic incident (Nydegger et al., 2011). Every person copes with trauma uniquely and at times the coping mechanisms can create additional problems. Positive coping techniques help individuals recover from trauma and improve their level of functioning



(Nydegger et al., 2011). Techniques such as relying on spiritual supports, pursuing social support, acceptance of the events and the trauma, and humor (Nydegger et al., 2011).

Casella, et al. (2014) report that there are three categories of coping; problem-focused, emotion-focused, and avoidant-oriented coping. Problem-focused coping takes place when an individual believes they are in control of the situation and can subsequently manage the source of the problem (Casella, et al., 2014). For this to happen, the individual must define the problem, find alternate solutions, acquire new coping skills, and reassess and find new criteria for behavior (Ângelo & Chambel, 2014; Casella, 2019). Emotion-focused coping is used when the stressor is understood as unchangeable, and includes an individual's attempt to achieve emotional control, normalize emotional difficulty, and understand the traumatic incident (Ângelo & Chambel, 2014; Casella, 2019). Avoidance-oriented coping involves conditions in which the individual believes they have no control over the situation and likely cannot manage the source of the problem. Therefore, the individual works to regulate the stress brought on by the problem (Ângelo & Chambel, 2014; Casella, 2019).

### **Social Support**

Seeking social support has been noted as a positive coping strategy (Jeanette & Scoboria, 2008; Kang et al., 2018). Support-seeking behavior refers to an individual actively seeks support (Kang et al., 2018). Social support offers an essential resource for victims to cope with trauma and their negative psychological reactions. Kang et al. (2018) noted that first responders with high levels of social support would have closer

interpersonal relationships to meet their emotional demands which would protect them from negative outcomes and promote growth.

Firefighters demanding schedules makes it challenging for them to have regular engagements with their families, which may hinder their ability to receive social support to help cope with the potentially traumatic parts of their jobs (Smith, 2016). Smith (2016) reported that firefighters often report experiencing difficulty with creating a work-life balance, resulting in experiencing a disconnect from their families and feelings of frustration surrounding scheduling conflicts. Firefighters have also reported having difficulty adapting their behaviors from the firehouse to more suitable ones within the home, leading to additional stress at home (Smith, 2016). Firefighter wives have reported frequently having to respond to the stress and trauma experienced by their spouse by helping to cope with fear and the transference of stress into the family, which places a significant amount of stress onto the wives (Smith, 2016).

The concept of brotherhood as social bonding and connection is deep-seated among firefighters (Carey et al., 2011). Firefighters have defined brotherhood as a historical, traditional, and universal model categorized by intrinsic dedication, love, respect, and support for one another, living by a code of unspoken duty, trust, honor, and loyalty, and the formation of membership and close relationships, connections, and bonds (Carey et al., 2011). Through living and working closely together in the firehouse for lengthy periods when scheduled for duty, firefighters form close social bonds and connections with one another (Carey et al., 2011). The bond established between firefighters and within the firehouse is a significant factor in improving distress (Carey et

al., 2011). However, experienced firefighters may have lower levels of social support making them more susceptible to depression and stress (Carey et al., 2011).

Bernabé and Botia (2016) reported that social support plays a significant role in regulating emotional demands and increasing engagement. Sattler et al. (2014) and Bernabé and Botia (2016) noted that social support involves the interactions between two or more individuals and embraces the perspectives of providing and receiving. This has been described as a collaborative process wherein the individual receives and provides emotional, financial, and instrumental assistance from his/her social network (Bernabé & Botia, 2016). Emotional support behaviors extend care and empathy, providing information about self-esteem and social companionship (Bernabé & Botia, 2016). Social support has been identified as a significant factor in helping to mitigate work stress for firefighters (Arble & Arnetz, 2017; Bernabé & Botia, 2016; Shakespeare-Finch et al., 2019). Shakespeare-Finch et al. (2019) reported that social support can accelerate PTG which may be because social support can encourage deliberate rumination following the event, permitting the individual to engage in sense and meaning-making.

### **Catalysts of PTG**

Patton (2005) reports that within emergency populations, critical incidents can create psychological disequilibrium. Disequilibrium occurs when existing schemes can no longer organize experiences in meaningful ways (Patton, 2005). The event that causes the disequilibrium acts as a catalyst for change. Depending on how dangerous experiences connect with the resources and processes activated to confront such

experiences is the determinant of whether the new equilibrium state that arises is signified by growth or loss (Patton, 2005).

Traumatic events can facilitate automatic and intrusive rumination (Calhoun & Tedeschi, 2004; Morris & Shakespeare-Finch, 2011). Rumination has been described as repetitively and passively concentrating on symptoms of distress and potential causes and effects of such symptoms as a means of responding to distress (García, et al., 2017).

Intrusive rumination is considered to be negative and repetitive, while deliberate rumination is fixated on parts of the traumatic event in an attempt to gain a better understanding (García, et al., 2017; Wozniak et al., 2019). Rumination following an extremely stressful event has been linked to attentional bias to emotional information.

Rumination concerning negative aspects (i.e., intrusive rumination) about the event has been associated with selective attention to negative information. Rumination around the positive features (i.e., deliberate rumination) of the event has been linked to attentional bias to positive information (García, et al., 2017; Wozniak et al., 2019).

Stockton et al. (2011) suggested that intrusions are indicative of cognitive processing, and are a typical and essential piece of the adaptation process which proves that individuals are working through their experience. García et al. (2017) established that intrusive rumination was linked to PTSD, while deliberate rumination was linked to PTG. Deliberate rumination has also been found to mediate the relationship between individual severity and PTG symptoms following a natural disaster (Garcia et al., 2017; Wozniak et al., 2019). Morris and Shakespeare-Finch (2011) noted that intrusive rumination about the traumatic incident changes and becomes more deliberate adding to the development

of new schemas and acting as a potential catalyst for PTG. For firefighters PTG may be attained from deliberate rumination which enhances awareness of life priorities and increased social support (Garcia et al., 2017; Morris & Shakespeare-Finch, 2011; Sun et al., 2020; Wozniak et al., 2019).

### **Prevalence of PTG**

Maitlis (2020) reported that PTG has been recognized as both a process and an outcome. As an outcome, PTG is seen as an attained state resulting from a set of psychological and behavioral changes. PTG has also been regarded as a process of change (Maitlis, 2020). As an outcome, PTG is present in the aftermath of experiencing trauma, and/or positive changes take place through the struggle with significant adversity (Maitlis, 2020). PTG is typically measured by the benefits found, meanings made, or perceived growth (Maitlis, 2020). Maitlis (2020) suggested that because growth is typically self-reported, it can be argued that the literature explores an individuals' view of having grown, rather than growth itself. PTG as a process has been said to represent the development of new growth narratives. PTG has also been described as the process of creating a narrative understanding of the way the self has been positively transformed by the traumatic event (Maitlis, 2020). PTG research highlights the process through which individuals report themselves in new ways, including recognizing the trauma's emotional impact, evaluating its effect on and meaning for self, and making a positive ending that describes the self-transformation (Maitlis, 2020).

Wu et al., (2019) suggested that younger people are more prone to changing their perceptions of themselves and the work as well as making mental adjustments that enable

the promotion of PTG. People under 60 years old are more likely to accept life changes, and such changes could enhance wellbeing (Wu et al., 2019). Wu et al., (2019) reported that for those over 60 years old, the primary role of PTG is to buffer direct injury from trauma. An older adult may experience less PTG after a particular trauma because they have already attained wisdom and helpful ways of viewing the world due to coping with previous adversity (Wu et al., 2019).

Time since exposure to a traumatic event has been recognized as a discriminating factor of PTG levels (Wu et al., 2019). Six months after trauma has been considered a boundary for growth, less than 6 months after trauma short-term effects were seen, after more than six months long-term effects of trauma were seen (Wu et al., 2019). Higher levels of PTG were noted in those in the less than six months since trauma exposure group (Wu et al., 2019). Contradicting reports found higher rates of PTG in the more than six months since the exposure group seemingly due to deliberate rumination (Wu et al., 2019). Deliberate rumination and PTG have been positively linked, and the longer the time since exposure, the more time to produce deliberate rumination, thus higher PTG (Wu et al., 2019).

### **Conclusion**

Firefighters are expected to exhibit strength in the face of danger and be problem solvers while hiding their emotions (Lucas & Kline, 2008; Smith, 2016). The toughness associated with firefighter culture may contribute to the avoidance of help-seeking behaviors when experiencing distress while the cohesiveness connected with this culture may help with coping and promote growth (Richardson & James, 2017; Smith, 2016).

Carpenter et al., 2020 noted that despite the availability of and access to different behavioral health interventions and support groups firefighter are reluctant to access these resources. Similar to the cultural barriers, stigma is another factor that hinders firefighters from pursuing counseling or other resources or treatment options. Little is known about the efficacy of CISD/CISM type interventions for firefighters, calling for further exploration of more evidence-based practices (Klimley et al., 2018).

Alcohol use, self-blame, distraction, and behavioral disengagement have been listed as poor coping strategies firefighters may employ to manage work-related stress and trauma (Becker and Quartilho, 2020; Nydegger et al., 2011; Paulus et al., 2017). Positive coping strategies have also been seen among firefighters. Social support has been recognized as the positive coping strategy that plays a considerable role in helping to alleviate work stress for firefighters regulating emotions (Arble & Arnetz, 2017; Bernabé, & Botia, 2016; Shakespeare-Finch et al., 2019). Brotherhood is an aspect of social support developed between firefighters within the firehouse and is a significant factor in bettering distress (Carey et al., 2011). Social support is believed to accelerate PTG (Shakespeare-Finch et al., 2019).

The link between being a professional firefighter and experiencing fairly high levels of traumatic stress has been well established in the literature (Kaurin et al., 2018; Larsson et al., 2016; Regehr et al., 2003). Consistent exposure to such high levels of stress puts firefighters at risk for adopting negative coping mechanisms (Kaurin et al., 2018). The concept of experiencing notable positive changes as a result of grappling with

major life crises is also a well-known phenomenon (Calhoun & Tedeschi, 2004; Tedeschi et al., 2007).

The manifestation of PTG is a reality for emergency professionals, it reflects choices made concerning the nature, cognitive appraisal, and organizational resources activated to respond to traumatic events (Patton, 2005). Occupational support can play a vital role in helping workers cope with work-related crises (Maitlis, 2020). Studies exist to support a positive relationship between support and PTG in firefighters (Maitlis, 2020).

Research that examines the personal experiences of growth after trauma is crucial, yet qualitative studies that concentrate on investigating PTG among firefighters are rare (Armstrong et al., 2016; Sanderson, 2017; Sun et al., 2020; Yang & Ha, 2019).

Firefighters are the ideal population for exploring this phenomenon as they are regularly exposed to traumatic events while on the job. This phenomenological study identified how urban firefighters explain their personal experiences of PTG following exposure to work-related traumatic events.



### Chapter 3: Research Method

Numerous empirical studies have attempted to quantify the PTG experience. Most of these studies have focused on civilians, while research involving firefighters has concentrated on PTSD with limited exploration of PTG (Yang & Ha, 2019). There is a need for more qualitative research that explores the personal experiences of growth following trauma (Sanderson, 2017). Given the facts that firefighters are often exposed to traumatic events while performing their daily working activities and research focusing on PTG within this population is scarce, this makes firefighters the ideal population for exploring the subjective experiences of PTG (Armstrong et al., 2016; Sanderson, 2017; Sun et al., 2020; Yang & Ha, 2019). The current study was designed to fill the gaps in the literature on PTG among firefighters along with the need for an investigation of the personalized experiences of growth following trauma. This phenomenological study addressed the subjective experiences of PTG after work-related traumatic event exposure among urban firefighters.

#### **Research Design and Rationale**

This qualitative study addressed the self-reported experiences of PTG among urban firefighters who had endured work-related trauma. The research questions that guided this study were the following: What are the coping mechanisms that urban firefighters have identified as effective in dealing with work-related traumatic incidents exposure? What are the experiential differences for urban firefighters who report experiencing PTG compared to those who do not report experiencing PTG following exposure to work-related traumatic incidents? What are the personal experiences of PTG

achievement for urban firefighters following exposure to work-related traumatic incidents?

A phenomenologist researcher investigates the qualities or core of experiences via interviews, stories, or observations with people who have had the experience the researcher is interested in (Connelly, 2010). Phenomenologists seek to understand what the experience was like to live it, beyond the person's reaction to the experience (Connelly, 2010). There are two main phenomenological approaches: descriptive and interpretive (Connelly, 2010; Groenewald, 2004). Descriptive phenomenology was established by Husserl, and interpretive phenomenology (also referred to as hermeneutic) was developed by Heidegger (Connelly, 2010; Groenewald, 2004). The handling of bracketing is one of the main differences between the two types. Qualitative researchers attempt to be conscious of any assumptions they might have about the phenomenon prior to beginning the study. Descriptive phenomenologists attempt to put these biases aside so they do not impact the study (Connelly, 2010; Groenewald, 2004). Interpretive phenomenologists argue these assumptions are a part of the person and the researcher can only be mindful of them and any influence they have on the study (Connelly, 2010). In the current study, I chose an interpretive approach.

Sample sizes are typically fairly small and purposeful (Connelly, 2010). The phenomenon is studied in fewer people, but more in-depth than would be possible in a survey or other research type (Connelly, 2010). In this type of research, the investigator aims to become involved in the data and thereby the phenomenon. Data are mainly composed of interviews with the people experiencing the phenomenon; however,

observation and examinations of artifacts and other materials may also be included when applicable (Connelly, 2010). Participants may be interviewed more than once depending on the nature of the study. Rigor should focus on neutrality; this includes reflecting on and identifying any potential researcher biases in addition to discussing the progress of the study periodically with colleagues. This process ensures that the researcher is aware of any biases and prevents premature termination of the analysis (Connelly, 2010). The findings should reflect the philosophy of phenomenology (Connelly, 2010).

In the current study, I employed interpretive phenomenology. The emphasis was on comprehending the meaning of experience through searching for themes and connecting with the data interpretively (see Sloan & Bowe, 2014). I explored the firefighter's experiences with PTG, the phenomenon addressed in the study. This approach assisted me in gaining a deeper understanding of the participant's experiences in relationship to the phenomenon.

### **Role of the Researcher**

My role as the researcher was to conduct the interviews with the participants and ask questions in an attempt to better comprehend the phenomenon. It was my responsibility to conduct interviews, record and take notes during the interviews, and observe behavior and body language. Participants were recruited through social media outlets such as Facebook, along with contacts within the FDNY. Conducting the interviews allowed me to gain a deeper understanding of the phenomenon.

My husband is a recently retired firefighter from the FDNY. He worked out of a firehouse in Queens, New York. To avoid possible biases and/or conflicts of interest, I

avoided recruiting any of the firefighters that we had personal relationships with. His work within the company exposed me to some background knowledge of some of the on-the-job experiences for these firefighters. The participants I recruited for this study had minimal professional connection with my husband due to station assignment and time on the job; however, I avoided those firefighters with whom I had personal connections.

Participants were informed of my background as well as the relationship with my husband. It was imperative that I remained objective throughout the interviews and not disclose my experiences to the participants. Questions were asked in a way that did not reveal my prior knowledge of what the participants had experienced. The knowledge I gained through experience and research guided my interview questions and assisted me in gaining a deeper understanding of the phenomenon.

## **Methodology**

### **Participant Selection Logic**

The target population of this study was firefighters in the New York City area. The firefighter needed to have active or retired firefighter status with the FDNY at the time of this study, and also to have experienced a work-related traumatic events. The FDNY is currently made up of 99% men and 1% women, 77% White, 12% Hispanic, 8% Black, 2% Asian, and 1% Other (Johnson et al., 2020). At the time of the study, there was only 1 Asian female firefighter in the FDNY (New York Daily News, 2019). Because most of the firefighters employed within the FDNY are White males, I attempted to mimic this representation within the sample for this study. I aimed to attain saturation as well as a culturally representative sample of the population. Invitations were extended to

all FDNY firefighters, active or retired, to ensure that an adequate sample size was procured. The participants were recruited in person through going into firehouses around the New York City area, hanging flyers pertaining to the study with permission from the senior person on duty, asking firefighters in passing about their interest while providing information about the study, contacting the firehouses to inquire about willing participants, and using social media outlets such as Facebook that have groups tailored to firefighters and firefighters' spouses.

The specificity of the sample is dependent on the study (J. A. Smith & Shinebourne, 2012). The current study was tailored toward urban firefighters. There is no rule concerning how many participants should be included (Pietkiewicz & Smith, 2014; J. A. Smith & Shinebourne, 2012). Sample size generally depends on the following factors: the depth of investigation of a single case study, the richness of the individual cases, how the researcher desires to contrast single cases, and the realistic restrictions the researcher is working under (Pietkiewicz & Smith, 2014; J. A. Smith & Shinebourne, 2012). Restrictions refer to time restraints or access to the participants. Interpretive phenomenological studies have included anywhere from one to 15 participants. Sample sizes of six to eight participants have been recommended for an appropriate interpretive study because this sample size provides more of an opportunity to assess similarities and differences among individuals. Also, the amount of qualitative data gathered is not overwhelming (Pietkiewicz & Smith, 2014; J. A. Smith & Shinebourne, 2012).

## **Instrumentation**

I was the instrument in the current study. Interview questions were open-ended and developed by me. The participants were asked to provide a detailed account of their experiences beginning with what they identified as the work-related traumatic events. The participants were also be asked if they believed they had experienced positive growth as a result of this experience, and were asked to provide a detailed account of what contributed to their growth. Additional questions such “can you explain this more?” and “what do you mean?” were asked to obtain additional information. NVivo software was used for data management.

Some of the questions that the firefighters were asked included

1. What is it like being a firefighter?
2. What made you want to become a firefighter?
3. Is the job all that you thought it would be?
4. What is the best part of being a firefighter?
5. What is the worst part about being a firefighter?
6. What was your biggest job?
7. Have you ever been injured on a run?
8. Do you think that your training adequately prepared you for the situations you faced on the job? If yes, how so? If not, why?
9. Can you recall and describe for me some of your most stressful on-the-job encounters?

10. Can you tell me about the run(s) that you responded to that you found to be traumatic?
11. What was it like for you following that experience?
12. Did you talk to anyone about the experience?
13. Do you feel that you have changed in any way due to the experience? If yes, in what ways? If no, do you experience work in the same ways?
14. What methods and/or resources did you find to help cope with exposure to the traumatic event?
15. Do you believe you have experienced positive changes as a result of exposure to the event?
16. How would you describe the positive changes that you have experienced?

These interview questions were developed to answer the research questions through eliciting information from the participants regarding their trauma and posttrauma experiences.

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

#### **Recruitment Procedure**

Flyers containing details about the study with contact information were hung on the bulletin boards of different firehouses around the New York City area with the permission of the senior person on duty. There were no exclusion criteria listed on the flyers. All active or retired firefighters were welcomed to inquire about the study and participation. When I visited the firehouses, firefighters were provided information about the study in passing and were asked about their willingness to participate or if they knew

of a colleague who may be interested. Follow-up calls were made to the firehouses to inquire about willing participants, and Facebook was used through joining and posting the flyer in groups tailored to firefighters and firefighters' spouses. The aim was to attain saturation and replicate the demographic characteristics of the population.

### **Data Collection Procedure**

According to Sloan and Bowe (2014), the most common method for qualitative data collection is semistructured, in-depth, one-on-one interviews. Semistructured interviews permit the participant and researcher to participate in a dialogue in real time. Semistructured interviews allow enough space and flexibility for original and unexpected issues to arise, which can be further investigated in more detail. The semistructured form of interviews lets the interviewer ask questions in a suitable order, which can change from one interview to another (Sloan & Bowe, 2014). There is also an opportunity for unanticipated topics or perspectives to be developed. It is recommended to audio record the interview and produce a verbatim transcription of it (Sloan & Bowe, 2014).

Creating an interview schedule in advance is essential (J. A. Smith & Shinebourne, 2012). The aim is to get as close as possible to what the participant thinks about the topic without being leading with the questions (J. A. Smith & Shinebourne, 2012). At times, the initial question is inadequate for eliciting an acceptable response. Prompts that are framed more explicitly can be prepared to assist. The assumption is that the researcher is interested in learning something about the participant's psychological world (J. A. Smith & Shinebourne, 2012). Meaning is crucial, and the intent is to comprehend the content and intricacy of the meaning rather than measure its frequency.



This includes the researcher engaging in an interpretative connection with the transcript. Although the researcher is striving to capture the meanings and learn about the participant's mental and social world, meanings that are not clearly presented must be clarified through a continual engagement with the text and a process of interpretation (J. A. Smith & Shinebourne, 2012).

In the current study, data collection consisted of semistructured interviews conducted by me over the phone. Conducting telephone interviews allowed the participants the opportunity to participate in the comfort of their homes or another secure location of their choosing. Phone interviews were conducted to ensure the health and safety of the participants and me during the COVID-19 pandemic. Interviews ranged from 20 minutes to 1.5 hours. Participants were informed of the potential for a follow-up telephone call if any clarifying information was needed. With permission from the participants, the interviews were recorded. Participants were debriefed via telephone call once their data were transcribed to confirm accuracy. The interviews were scheduled according to the availability of the participants.

### **Data Analysis Plan**

The data collected during the interviews were transcribed by me. Following transcription of the data, interpretative phenomenological analysis techniques were used. NVivo software was used to assist in data collection and analysis. According to Ho et al. (2017), the way to reveal the various meanings in language and to preserve ontological possibilities of humans is to dwell in language. Dwelling refers to experiencing what language says. Attending to and reflecting on the saying of language permits the language

to reveal the spoken and unspoken meanings (Ho et al., 2017). In hermeneutic phenomenology, meaning is primarily drawn from transcribed interviews as data. The understanding of language as a world with multiple interpretations permits researchers to consider a way to approach the meaning of lived experience (Ho et al., 2017). Participants relate their world to researchers in a unique logic of language. It is vital for researchers to “ek-sist” in the data through dwelling in the language of the participants (Ho et al., 2017).

Thematic analysis is a common interpretive method for identifying themes in transcribed interviews (Ho et al., 2017). This approach assists with displaying common meanings embedded in transcribed interviews. Thematic analysis provides a rich, detailed, and complex interpretation of the data (Ho et al., 2017). Identifying themes is about discovering the structure of meanings represented in human experiences in text (Ho et al., 2017). As researchers, we link our assumptions to the data and manifest our interpretations through themes. To uncover genuine beings, the researcher needs to continuously and thoroughly reflect on their own thinking through ek-sisting in the world of both the participants and the researcher’s language (Ho et al., 2017).

### **Issues of Trustworthiness**

Research results need to be as trustworthy as possible and the measures used to produce the findings must be assessed (Graneheim & Lundman, 2004). In qualitative research the terms credibility, dependability, confirmability, and transferability have been used to define different aspects of trustworthiness (Graneheim & Lundman, 2004). Credibility refers to the focus of the research and assurance in how soundly the data and

methods of analysis address the proposed focus (Graneheim & Lundman, 2004).

Selecting participants with differing experiences increases the likelihood of shedding light on the research question from a variety of vantage points. Varied genders and ages of participants and observers with diverse perspectives contribute to a richer adaptation of the phenomena under study (Graneheim & Lundman, 2004). Choosing the most appropriate technique for data collection and the amount of data are essential in establishing credibility (Graneheim & Lundman, 2004). It is also important to select the most appropriate meaning unit. The credibility of research findings also signifies how soundly categories and themes cover data (Graneheim & Lundman, 2004). Credibility also includes how to critique the similarities and differences between categories (Graneheim & Lundman, 2004). One approach is to display illustrative quotations from the transcribed text. Another approach is to come to a consensus among experts, participants, and co-researchers (Graneheim & Lundman, 2004). Some question the validity of seeking agreement as multiple realities exist which are dependent on subjective interpretations (Graneheim & Lundman, 2004). Participants' acknowledgment of the results may also be a characteristic of credibility (Graneheim & Lundman, 2004).

Dependability refers to the extent of data changes over time and the modifications made in the researcher's conclusions during the analysis process (Graneheim & Lundman, 2004). When there is a vast amount of data and the collection spreads over time, there is a chance of inconsistency during data collection. Interviewing and observing is an evolving process during which interviewers and observers obtain new

perspectives into the phenomenon of study which may consequently affect follow-up questions or limit the focus for observation.

Transferability is the degree to which the results may be transferred to other settings or groups (Graneheim & Lundman, 2004). It is up to the reader to decide whether results are transferable to another setting (Graneheim & Lundman, 2004). To enable transferability, it is beneficial to provide a clear and distinct portrayal of culture and context, selection and attributes of participants, data collection, and process of analysis (Graneheim & Lundman, 2004). A rich and vigorous report of the findings along with relevant quotations will also increase transferability. Trustworthiness will increase if the findings are represented in a manner that permits the reader to look for alternative interpretations (Graneheim & Lundman, 2004).

Confirmability speaks to the neutrality and accuracy of the data and is closely related to dependability as there are similar processes for establishing both (Houghton et al., 2013). Rigor may be attained through consistently reviewing and providing rationale for the methodological and interpretative judgments made by the researcher throughout the research process (Houghton et al., 2013). Even though readers may not agree with the researcher's interpretation, they should still be able to distinguish how it has been reached (Houghton et al., 2013). An audit trail is a way of differentiating the ways an interpretation has been reached (Houghton et al., 2013). The audit trail is sustained through thorough notes on the contextual background of the data and the motivation and rationale for all methodological decisions (Houghton et al., 2013). Using NVivo may enhance the rigor by providing a comprehensive trail of decisions made throughout data

collection and analysis (Houghton et al., 2013). The query tools in NVivo permit the researcher to audit findings and protect against an unnecessary emphasis on rare findings that occur to fit the researcher's chosen argument (Houghton et al., 2013). The researcher is viewed as part of the research instrument in most qualitative research (Houghton et al., 2013). The credibility of a study relies on the techniques executed and the self-awareness of the researcher during the research process (Houghton et al., 2013). Keeping a reflective diary may be an essential expression of reflexivity (Houghton et al., 2013). A reflective diary must offer the rationale for decisions made, predispositions, and personal challenges experienced by the researcher during the research process (Houghton et al., 2013).

According to Cohen and Crabtree (2008), member checking includes data, analytic categories, interpretation, and conclusions being tested by the members of the groups where the data were originally obtained. This can be achieved both informally and formally as opportunities for member checks may occur during the normal course of observation and conversation (Cohen & Crabtree, 2008). Member checks were employed as a means of strengthening this study. Member checks were achieved through debriefings and regular conversations with other firefighters. Audio recordings of the interviews, note-taking, and cross-checking of responses with participants was used to authenticate the accuracy of information. As earlier noted, NVivo was used to develop an audit trail to ensure the dependability and confirmability of the current study. Reflexive journaling was also used as a means of strengthening this study.

### **Ethical Procedures**

Institutional Review Board approval was obtained before the start of the current study. The Institutional Review Board Approval number is 09-08-21-0440961. Participants for this study volunteered and were informed of their ability to exit the study at any time. The participants were reassured that their data would be erased if they chose to exit the study. Participants were required to provide informed consent before participating in this study. Participants were briefed on the nature of the study before starting and debriefed after the study. Telephone participation provided participants with anonymity and physical distances allowing participants to remain safe and comfortable.

### **Summary**

An interpretive phenomenological approach was used for the current study. The target group was firefighters within the FDNY with a status of active or retired in the New York City area. The methodology was selected to assist with gaining a better understanding of this population's experience with posttraumatic growth following work-related traumatic experiences. Purposeful sampling was employed to assist with obtaining an appropriate sample. Participant's identities were kept confidential and protected via the use of pseudonyms. The data collected was evaluated to detect any discrepancies or unusual circumstances that may be encountered during the process. Data analysis was completed by analyzing codes or themes that derived from the interviews.

## Chapter 4: Results

The purpose of this interpretive phenomenological study was to explore the lived experiences of PTG for urban firefighters following exposure to work-related traumatic events. The participants consisted of three retired and four active male firefighters as well as one active female firefighter who reported being exposed to traumatic incidents/events while on the job. The data were collected from one-to-one interviews that were conducted by phone. Prior to the interviews, each participant supplied informed consent, per protocol specified by the Walden University Institutional Review Board. Participants answered a series of open-ended interview questions to explain their lived experiences of PTG following exposure to work-related traumatic events. The following three research questions directed this study:

RQ1: What are the coping mechanisms that urban firefighters have identified as effective in dealing with work-related traumatic incidents exposure?

RQ2: What are the experiential differences for urban firefighters who report experiencing PTG compared to those who do not report experiencing PTG following exposure to work-related traumatic incidents?

RQ3: What are the personal experiences of PTG achievement for urban firefighters following exposure to work-related traumatic incidents?

There was a total of 13 firefighters who volunteered to participate: four Black males, two Black females, one Hispanic male, and six White males. Recruitment and interviews were ongoing throughout the course of data collection, which spanned over 7 months. Two volunteers did not follow up, both White males. Another White male

refused when asked about interest, noting he did not like to talk about himself. Had the first two been a part of this study, there would have been a more closely representative cultural sample for this study. There was one Black female and one Black male who were turned down because they volunteered after the sample size had been met. Prior to reaching the predetermined sample size, I accepted all volunteers because I discovered early on that exposure to critical incidents was a normal on-the-job experience. I discovered that there was more willingness to participate from firefighters of color than from White firefighters. This raised questions concerning whether cultural familiarity between me and participants played a role in participation. The breakdown of participants' demographics by race, gender, work status, and years on the job is presented in the demographics section of this study.

### **Setting**

I conducted the semistructured interviews over the phone at a time that was convenient for each of the participants. Active participants were off the clock at the time of the interviews. I desired to conduct video interviews; however, all participants desired their interviews to be conducted over the phone. This option appeared to allow the participants the ability to carry out their regular responsibilities simultaneously. Participants 3 and 7 noted caring for their children at the time of their interviews, Participant 6 noted caring for her niece, Participant 1 was setting something up in his home, Participants 2 and 8 mentioned running errands, and Participant 5 noted his availability was during his drive to work. Participation was voluntary, and each participant was reminded of their confidentiality at the start of each interview. All



participants provided informed consent before participation and were advised of the risks and benefits of participating in the study.

### **Demographics**

The demographics for this study included the participant's gender, race, years on the job, and work status (see Table 1). I aimed to recruit a culturally representative sample of the FDNY for this study, though more firefighters of color were willing to volunteer for this study than White firefighters. Five racial minority firefighters participated in the study. There were two more Black firefighters who volunteered to take part after the sample size was reached. There were three White male firefighters who participated in the study. There were two no-shows from White males who were replaced by one White male firefighter and one Black male firefighter. There were no White female volunteers. I recruited through Facebook groups aimed at firefighters, firefighter friends, and firefighter spouses and hung flyers in firehouses in the New York City area. I also inquired about interest in the study while in the firehouses. I obtained most of the participants through recruitment within the firehouses and two through referrals from other participants. All participants described traumatic incidents that they had responded to while on the job, how they coped following the incidents, and whether they had experienced PTG as a result of their experiences.

**Table 1***Participant Demographics*

| Participant   | Status  | Race     | Gender | Years on the job |
|---------------|---------|----------|--------|------------------|
| Participant 1 | Retired | Black    | Male   | 19               |
| Participant 2 | Active  | White    | Male   | 40               |
| Participant 3 | Retired | White    | Male   | 22               |
| Participant 4 | Active  | Black    | Male   | 16               |
| Participant 5 | Active  | Hispanic | Male   | 16               |
| Participant 6 | Active  | Black    | Female | 16               |
| Participant 7 | Retired | White    | Male   | 20               |
| Participant 8 | Active  | Black    | Male   | 17               |

**Participant 1**

Participant 1 experienced traumatic incidents involving decapitation and death/dead bodies. Participant 1 stated “can’t be more traumatic than performing CPR on a person that you have to keep continuing even though that person is dead.... because, the family’s still there and stuff.” He also reported

dead bodies, you know what I’m saying, car accidents, mangled bodies. I went to one where there was a truck landed, I don’t know how the dude did it, but a truck landed on a dude’s legs and he basically was had to be amputated.

Participant 1 noted that playing Call of Duty on his Xbox with his friends has been an effective coping mechanism for him in dealing regular work-related trauma exposure.

Participant 1 mentioned that these experiences have “made a better person, you know, more confident... wanting to like, go out and test new waters because nobody’s guaranteed tomorrow.... it basically has made me appreciate life a lot more.”

### **Participant 2**

Participant 2 recalled working 9/11 as the most traumatic, stating “9/11 was probably the most traumatic. There’s nothing that can compare to that.” Coping with the trauma of 9/11 was established through “mostly talking it out with the other guys hanging out with the firemen, you know, having a few beers after work and enjoying life. That’s, you know, that was my course of action.” When it came to PTG Participant 2 noted gaining a positive mindset and positive attitude as well as positive familial relationships.

### **Participant 3**

Participant 3 described a traumatic incident that involved responding to a bus accident. According to Participant 3,

all I remember was the carnage, all the blood, and the skin... all their arms were off, decapitations. I mean I was covered knee-deep in blood... I remember I was holding this lady literally by her friggin, by her shoulders because her arms were off...she died.

Participant 3 noted that he used exercise and engaging in social life as an effective coping mechanism. Participant 3 described feeling that he is the same person he was before joining the fire department; however, he noted feeling more empathetic and more confident as a result of his on-the-job experiences.

**Participant 4**

Participant 4 reported responding to a car accident on the Van Wyck as the most traumatic incident he encountered. He also noted seeing death regularly as a traumatic part of the job. He explained the car accident as

a family from Nigeria...a lot of kids and they got into a car accident and everyone died except the driver...a lot of kids, a lot of babies, a lot of infants and, you know, up the spectrum that was dead. So that was like one of the toughest.

In terms of the regular exposure to death while working, he stated

we see death, you see death every day, you always see death, you know, you always see dead people especially when you're working in engine company. So, you're doing a lot of CPR, you're coming onto the scene, the first ones on the scene and you see dead people, people are dead or dying...the traumatic part portion of it is definitely seeing kids anyone dead but mostly kids.

Exercise is how Participant 4 copes with what he experiences on the job. Participant 4 stated he has matured and gained a more positive outlook due to what he has experienced on the job. He stated "I don't stress over because of my job, what I see on my job, I don't stress over, I don't stress over almost anything."

**Participant 5**

Participant 5 recalled responding to a car accident as a traumatic incident he encountered on the job. Participant 5 described the incident as follows:

When the car hit her, it sideswiped her, she reacted late and it took her leg clean off from the kneecap down she had lost her leg... somebody needed to secure her

leg and put it in a red bag. I was the youngest guy working that night, and it was my call to go with the red bag. I just remember grabbing her leg. I put it in the red bag. I secured it. And I remember it clear as day to this day still like I can hear it.

Seeking counseling, talking about incidents with his support network, exercising, cooking, and traveling were mentioned by this participant as effective coping mechanisms. Participant 5 explained that his work experiences have contributed to increased wisdom and knowledge and the ability to thrive under pressure.

### **Participant 6**

Participant 6 provided detailed accounts of responding to incidents involving child deaths. She recalled

a whole family died, in a fire. And I was like, the girls were like, in their teens.

They were not even 18 like 14 and 16...if they had stayed in their room, they'd be alive. They all died by the door.

She also described the following traumatic incident:

so come to find out the kid was playing the matches. And he set the curtain in the living room on fire. We found him in the back bedroom, you can tell he tried to get out but he couldn't. So, the side of his face was burnt. Only one side. And so his airway closed up, and that's how he died he asphyxiated. So, I had to carry this little kid outside. So, what I did was I put his burnt side on my coat. So, his non-burnt face, yeah, I knew, I know how not to scar myself mentally.

Participant 6 proclaimed that her Christianity, prayer life, exercise, reasoning, and talking with her support system have been effective coping mechanisms. Participant 6 stated

I have Jesus...I'm a Christian, I pray and I scoff at temperance. And afterward, I say just as long as I know I did everything I'm supposed to do. There's nothing I can do about that. I can't do, I can't control fires. You know, I'm not in the business of controlling fires when I get there. I'm just, you know, hoping that I can be impactful and save somebody's life. I usually go for a long walk or run if I'm in the mood to run, sometimes I'm not in the mood to go running, and then I pray about it and I talk about it with family and friends. Things to debrief.

Participant 6 does not believe she has experienced PTG as a result of her work-related experiences. She noted that her work-related experiences have made her more cynical.

#### **Participant 7**

Participant 7 discussed his experiences with working 9/11 and providing aid for natural disasters both in the states and abroad. Based on the accounts of Participant 7, the role of a firefighter produces a level of trauma. He noted "the worst part is that you, you die. And every chance at every emergency you go on, there's a chance that you could die." Participant 7 also described the emotional impact of feeling like he has not done enough or could have done more, that can come with the job. He mentioned that

we did make a difference. But overall, we didn't feel we did. We felt, yeah, we saved people but when we left it, we didn't improve the condition of people there at all. You know, so from our point of view, we wish we could have did more.

Participant 7 discussed utilizing counseling, family support, and creating a balance as ways to help him cope with the work-related traumatic experiences. He stated

my biggest coping skill is distance, whether I need to be around people or whether I need to be isolated, and find a balance in that. You know, I know when things get overwhelming, and I need to go on vacation for a week, you know, or go to my friend's house for a couple of days.

Participant 7's academic background and life experiences facilitated his ability to cope with the on-the-job traumatic exposure, stating "I learned how to deal with things on a larger scale emotionally, psychologically, physically, but nothing I hadn't learned before."

### **Participant 8**

Participant 8 spoke about his experiences with seeing children/babies being injured and a fellow firefighter dying in the line of duty and noted these events as work-related traumatic events. He explained

what's traumatic for me, my thing is babies. I don't like runs with babies, like being injured. I've been to one where they tried to save a baby, and the baby was in one of them car seats.... this guy was on the second floor and he said here catch my baby. He tossed the baby down and I think the baby was maybe like eight months, nine months. And to the dude that was supposed to catch him, he didn't, he missed him. The thing flipped over and crack the baby's skull on the sidewalk...just seeing an infant, because they are innocent, you know, so, just seeing that, I don't like that."

He also recalled reporting to the scene to relieve a company after a fellow firefighter died, reporting

he pretty much fell off the roof and died and we went to that fire and we relieved his company on the fire floor and when we pulled up there, they had already took the body but you see all his gear and tools and splattered all over the sidewalk because he fell.

Participant 8 uses prayer as a coping mechanism for dealing with exposure to work-related traumatic incidents. Participant 8 does not feel he has experienced PTG as a result of his work-related trauma exposure. He mentioned feeling less sentimental as an effect of work-related traumatic incident exposure.

### **Data Collection**

Semistructured interviews were performed for the current study with eight participants. Data collection spanned over a 7 month period. Data collection consisted of recruitment, phone interviews, transcription of the interviews, and follow-up calls with the participants for clarity and trustworthiness. Interviews were conducted over the phone with the interviewer being in her private office during the times of interviews to ensure privacy and confidentiality. Interviews ranged in duration from 20 minutes to 1.5 hours. The range in duration of the interviews was due to storytelling. The interviews for participants 1-5 and 8 were approximately 20 minutes each. Their respective responses were very straight to the point with short stories of their experiences. The interview for participant 6 was approximately 30 minutes and consisted of more detailed examples of her experiences. Participant 7's interview was approximately 1.5 hours. Participant 7 provided very in-depth detailed stories of his experiences both locally and abroad as a



firefighter. Participant 7 was the only participant that noted international experience. The Interviews were audio-recorded with a digital voice recorder.

### **Data Analysis**

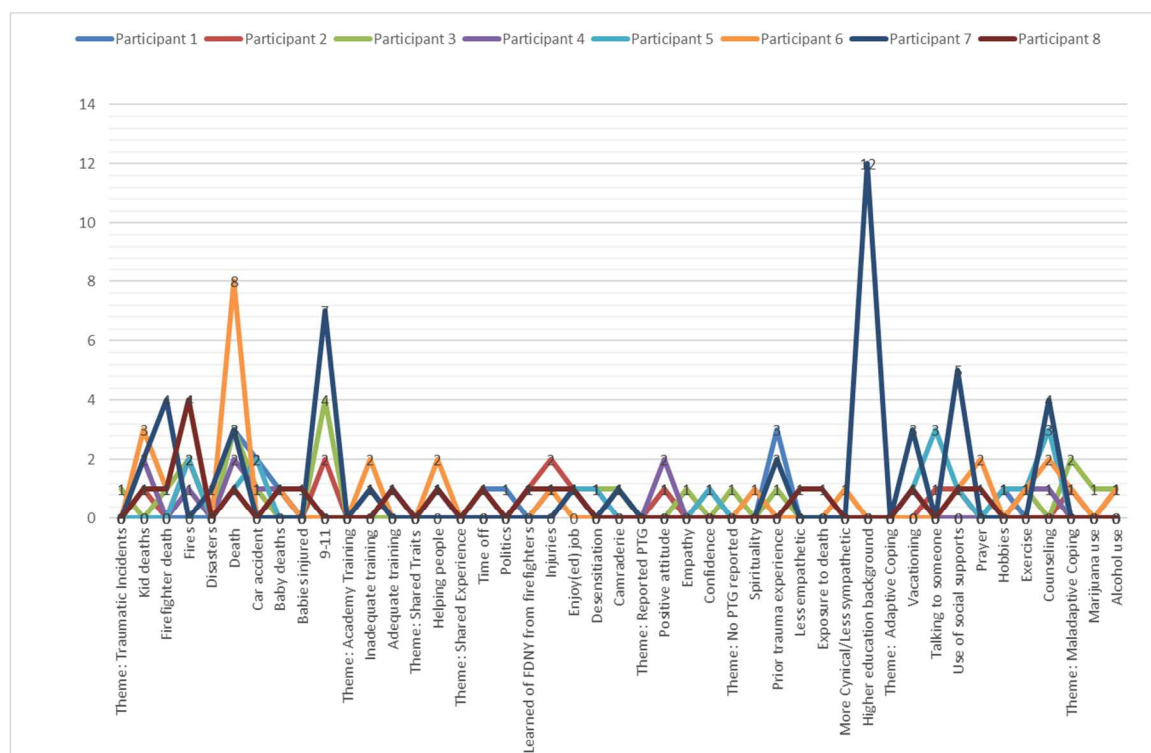
The semistructured interviews were recorded and transcribed verbatim, generating roughly 65 pages of transcripts. NVivo software was used to analyze the uploaded transcripts. Transcripts were reviewed multiple times to assist with gaining a better understanding of the participant's experiences and the information shared in the interviews. Themes were developed based on similarities found in the data collected during the interviews. Using NVivo for data analysis entailed uploading the transcripts onto the software, generating codes or descriptive word labels or phrases for the information obtained from the similarities within the data. These codes were then grouped into themes. This data analysis process produced 45 coded data sets, grouped into five themes and a collection of participant narratives which were included in the demographics section of this chapter. Table 2 illustrates the codes that developed from the data analysis, the themes these codes were clustered into, and the number of occurrences for each code. Figure 1 shows the number of occurrences of each theme and code for each participant that developed from the interview questions.

**Table 2***Coding Frequencies*

| Research question and theme     | Code                          | Frequency of occurrence of code |
|---------------------------------|-------------------------------|---------------------------------|
| RQ1/Theme 1: maladaptive coping | Alcohol use                   | 3                               |
|                                 | Marijuana use                 | 1                               |
| RQ1/Theme 2: adaptive coping    | Counseling                    | 10                              |
|                                 | Exercise                      | 4                               |
|                                 | Hobbies                       | 3                               |
|                                 | Prayer                        | 3                               |
|                                 | Use of social supports        | 9                               |
|                                 | Vacationing                   | 6                               |
|                                 | Talking to someone            | 4                               |
|                                 | Higher education background   | 12                              |
| RQ 2/Theme 3: no PTG reported   | Spirituality                  | 1                               |
|                                 | Prior trauma experience       | 6                               |
|                                 | Prior exposure to death       | 1                               |
|                                 | More cynical/less sympathetic | 2                               |
|                                 | Shift in positive traits      | 7                               |
| RQ2/Theme 4: PTG reported       |                               |                                 |
| RQ3/Theme 5: positive traits    | More empathetic               | 1                               |
|                                 | More confident                | 2                               |
|                                 | Positive attitude             | 4                               |
| Total                           |                               | 79                              |

**Figure 1**

*Theme and Code Occurrences for Each Participant*



### Discrepant Cases

Both the recorded audio and the transcriptions of the participants' interviews were reviewed on multiple occasions. There were no indications of discrepant cases found in the research data.

### Evidence of Trustworthiness

Establishing trustworthiness in a qualitative study involves a technique subdivided into credibility, transferability, dependability, and confirmability (Amin et al., 2020). The measures taken to ensure each of these components is described in this section.

**Credibility**

Credibility speaks to the internal validity of qualitative research (Amin et al., 2020). To endorse the credibility of the results of the current study, I recruited a diverse sample, varying in age, gender, race, and duty status. As earlier noted, having diverse perspectives assists in providing a robust variation of the phenomena under study (Graneheim & Lundman, 2004). Member-checks were conducted by emailing interview transcripts to the participants and conducting follow-up calls with participants to discuss preliminary interpretations and to request feedback. All of the participants agreed with the interpretations and noted their respective transcripts were accurate. I reminded the participants of their confidentiality to foster participant honesty. Graneheim and Lundman (2004) noted that the credibility of research findings signifies how thoroughly categories and themes cover data. Keeping in line with this methodology, I hand-coded the data and used NVivo software to compare the developed codes and themes derived from the data.

**Transferability**

Transferability refers to the degree to which findings may be transmitted to another group or situation (Graneheim & Lundman, 2004). Transferability is achieved through providing a rich and distinct portrayal of the culture and context, selection and characteristics of participants, data collection, and process of analysis (Graneheim & Lundman, 2004). Trustworthiness increases when the findings are depicted in a way that permits the reader to seek alternate interpretations (Graneheim & Lundman, 2004). In order to provide future researchers with the opportunity to evaluate transferability, I

offered detailed explanations of the inclusion criteria for the population, and a description of the data collection techniques used during the current study. I also provided a comprehensive presentation of the findings along with applicable quotes to improve transferability.

### **Dependability**

Dependability is assessed by evaluating the consistency of research from beginning to end (Kyngäs et al., 2020). A study is considered dependable when another researcher is able to follow the decision path the initial researcher has set for the study (Kyngäs et al., 2020). I provided detailed explanations of the data collection and data analysis process in order to enhance the dependability of the current study. Dependability was attained through maintaining detailed interview records through audio-recordings and note-taking for each participant, transcribing the individual interviews, cross-examining the notes and recordings, using NVivo software to assist with data analysis, and hand-coding the data as an added check. The current study contains tables and figures that help illustrate the data collection and data analysis process.

### **Confirmability**

Confirmability is determined by how adequately the data collected support the findings (Kyngäs et al., 2020). In determining confirmability, researchers need to examine whether their findings are exclusively influenced by the data collected from respondents, or are the results reflective of some of the researcher's bias, motivation, or other interests (Kyngäs et al., 2020). Written notes, referred to as audit trails, were used

during the data collection and data analysis phases of the current study to coincide with the audio recordings and transcripts to enhance confirmability.

## **Results**

The purpose of this phenomenological study was to explore the lived experiences of PTG for urban firefighters following exposure to work-related traumatic events. The data collected from the participants was used to answer the following research questions: What are the coping mechanisms that urban firefighters have identified as effective in dealing with work-related traumatic incidents exposure? What are the experiential differences for urban firefighters who report experiencing PTG compared to those who do not report experiencing PTG following exposure to work-related traumatic incidents? Lastly, what are the personal experiences of PTG achievement for urban firefighters following exposure to work-related traumatic incidents?

### **Themes Worth Mentioning**

#### ***Training Academy***

Figure 1 consists of a depiction of themes and codes that developed from the interviews. There were themes and codes that developed during the interviews that did not pertain to the research questions but were worth mentioning. One of those themes was in relation to the training academy. Participants were divided on the efficacy of the Academy in preparing them for the on-the-job experiences. Half of the participants believed the Academy adequately prepared them, while the other half believed the real training took place in the firehouse. Participant 1 stated “the Academy gave you like the basics and stuff but once you get in the firehouse that’s where your real training begins.”

Participants 2, 6, and 7 shared similar sentiments. Participant 2 stated “they just said ‘hey, you’re not gonna learn much here, you’re going to learn it all in the field.’” Participant 6 reported;

“they make you do a whole bunch of stupid unrealistic bullshit that really has nothing to do with it... What I think prepared me was the firehouse I was in was a very aggressive house, that drilled on time and built on the stuff I learned in the Fire Academy.”

Participant 7 said “it trains you to have a basic understanding. And that’s the reason why when you come out of the academy, you have an orange probationary firefighter front piece.” Participants 3, 5, and 8 had opposing views about their academy experience.

Participant 3 noted that he felt the academy prepared him for the on-the-job experiences “1,000%.” Participant 5 stated “felt that it was very much prepared you for, especially the physical, the physical part I think it very much prepared you for anything that you can you can come across.” Participant 8 referenced his rescue efforts during a fire and credited the academy for his actions stating “I wasn’t thinking it was more like just off of muscle memory, and what we were training on for last three months. So, yeah, the training definitely helps.” While participant 4 had mixed reviews of his experiences. He noted that it;

“gives you the building blocks without that, you can’t, because everything at a fire is always adaptation... you always have to have a baseline of what you’re supposed to do...So, you always start off with your SOPs or standard operating procedures...So, definitely prepared me for what I was going to do, but most of

the job, most everything is you learn on the job. You learn from actually doing it...”

Based on the participants responses the academy provided the foundational training for becoming a firefighter but the firehouse and on-the-job training supplied the actual teaching. Participant 6 suggested that counseling be part of the training experience, stating, “I sent them the information of going to the counseling unit, so that they can debrief about seeing death... especially for the new people, the probies seeing death at an alarming rate.”

### ***Helping Others***

A firefighter’s inclination towards helping people was another theme that developed. Six of the eight participants alluded to this as a reason for choosing their career path, a motivator, and/or a personality trait. The following statements were made in reference to helping people; participant 2 said, “most firefighters want to help people out, you know, including, you know, fellow firefighters and their families when they need stuff.” Participant 3 noted, “...the feeling of just giving back and doing the right thing to help people out. It’s just makes you feel good. It made me feel good.” Participant 4 stated, “someone like me, who’s always led a life where I like, helping people and, anything I can do to help somebody out, I would do.” Participant 5 expressed,

“...the whole idea I guess of being a civil servant it’s a feeling that your contributions and what you do for work benefits others. I think it’s not every job that it can be said that they can do that. So, I enjoy being a help to my community.”



Participant 6 noted, “I knew I was gonna help people in the community. That portion of the job is great... that’s the best part of being a firefighter is helping people.” Participant 8 stated, “...as firemen we always want to help people...”

### ***Camaderie***

Brotherhood or camaraderie has been listed as a social support and/or bonding mechanism that exists among firefighters (Carey et al., 2011). One of the participants noted that the camaraderie within the fire department is what drew him to shift career paths. For other participants camaraderie served as a support, yet not all of the participants noted camaraderie as part of their experience. Participant 3 commented, “...I just saw the difference in the comradery how guys really seem more relaxed and appreciative.” Participant 7 stated,

“...the camaraderie, most of my friends who I stay in touch with now are not neighborhood kids or high school kids, their kids, they’re people that I was a firefighter with, that I talked to a couple times a week.”

Participant 1 said, “I love the guys, love the comradery.” Participant 2 shared similar feelings, “It’s just the camaraderie is great.” Participant 5 discussed being supported by the senior guy that was on tour with him following a traumatic incident. Even though camaraderie was a great support for these participants, there was no mention of the brotherhood or camaraderie from participants 4,6, or 8. This raised the question of what contributing factors lead to the experience of brotherhood or camaraderie. Do station assignment, race, or gender play a role? All of the white participants mentioned camaraderie, while only one of the black firefighters cited it as a support.

**RQ1**

What are the coping mechanisms that urban firefighters have identified as effective in dealing with work-related traumatic incidents exposure? Based on the analyzed data, there are several different coping mechanisms that have been found to be effective in helping firefighters deal with work-related traumatic exposure. All of the participants have noted employing one or more of the following coping mechanisms, going on vacations, talking to someone/use of social support, prayer, engaging in a hobby, exercising, and/or receiving counseling. This is supported by the data illustrated in Figure 2 which shows the occurrences of adaptive coping mechanisms reported for each of the participants. Only three of the participants noted the use of maladaptive coping skills. Some of the responses from these firefighters when asked about the coping strategies they implement to help them with dealing with work-related traumatic incidents exposure included statements like; participant 4 who stated, “we do go out of service and we do receive counseling.” Participant 5 said, “I have no doubts in taking the approach of verbalizing things rather than holding on to them, it’s been the best approach for me, and I’m sure other firemen feel the same way.” Participant 7 stated,

“my biggest coping skill is distance, whether I need to be around people or whether I need to be isolated, and find a balance in that. You know, I know when things get overwhelming, and I need to go on vacation for a week, you know, or go to my friend’s house for a couple of days.”

Participant 6 revealed, “I’m a Christian, I pray and I scoff at temperance.”

Participant 5 said “I try to do two things that are like hobbies, but they actually make me

feel good, which is cooking and traveling, I find myself, I try to leave New York as much as I can.” Participant 4 disclosed, “Working out, that’s how I deal with most of my things, I work out. And that’s my time to diffuse, is exercising,” Participant 2 noted, “mostly talking it out with the other guys hanging out with the firemen, you know, having a few beers after work and enjoy life.”

### **Counseling**

Seven of the eight participants reported counseling as a resource offered by the department though not all utilized this resource for themselves. As earlier noted, participant 6 recommended counseling to her colleagues though preferred spiritual guidance over the counseling unit for herself. Participant 2 also mentioned counseling as a readily available resource provided by the department, though did not feel he needed to utilize them stating, “I haven’t had that much of a stressful life.” Participant 3 recalled different times where the department sent mental health professionals to his firehouse following traumatic events. He stated,

“I remember they brought the counselors to the firehouse to talk to us, but I really just wasn’t interested in it. I just thought it was part of my job. But they did offer counseling, I will say that. And also, you want to hear something, they also gave us a counselor after 9/11. They assigned a psychiatrist to the firehouse and my firehouse they lost 12 guys on 9/11. So, all the firehouses that lost guys, they assigned like a psychiatrist.... I didn’t really think that I would get any value from it. But she did talk to everybody in the firehouse to see what they were feeling ...”

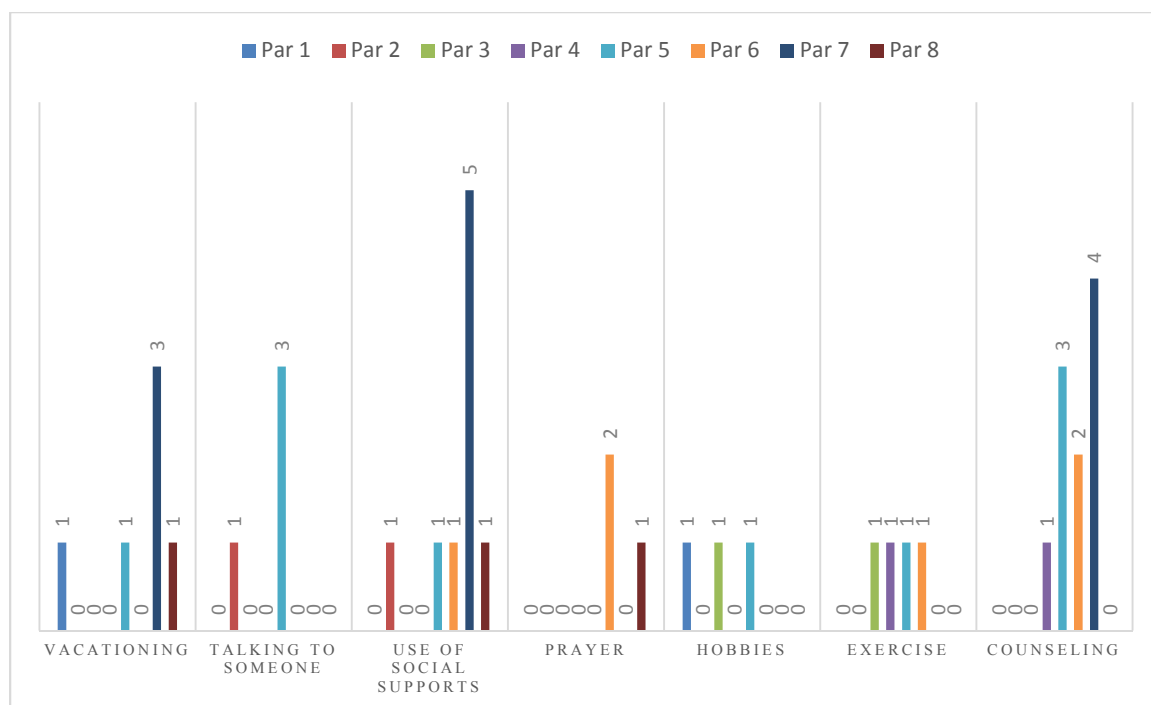
Participant 4 neglected to discuss whether he had received counseling though described the deployment of the counseling unit following fatal fires, fires with kids, or any incident deemed traumatic. Participant 5 expressed utilizing the counseling unit and felt that a cultural shift was happening within the fire department. He noted,

“...you can go to the counseling unit. I’ve actually seen a welcoming change with that in terms of that being driven home, that like ‘hey you don’t have to keep harboring or if there is something on your mind you can speak up.’ I don’t think they really talk about that initially when you become a fireman. But you know, when you get to the house, I see that better driven home to the guys and I think everybody is better for it.”

Participant 7 discussed the versatility of the counseling unit, the annual mental health evaluation, and his own background in counseling. Though, he elected to work things out on his own rather than employ the counseling unit. Participant 8 also neglected to mention whether or not he received any formal counseling though noted having knowledge of others receiving counseling and a preference for spiritual guidance.

**Figure 2**

*Reported Use of Adaptive Coping Mechanisms for Each Participant*



Three of the participants mentioned becoming desensitized to the traumatic incidents/experiences over time. While all participants alluded to the fact that experiencing such incidents is part of the job. There was a level of recognition among the participants that despite the tragic nature of the run they respond to, there is an understanding of the need and/or desire to keep going, keep doing the job, keep saving lives, and keep helping people.

## RQ2

What are the experiential differences for urban firefighters who report experiencing PTG compared to those who do not report experiencing PTG following exposure to work-related traumatic incidents? In addressing the second research question

on the experiential differences between firefighters that reported experiencing PTG from those that did not, the data suggests that those that have reported experiencing PTG described shifts in positive traits. The participants that have reported experiencing PTG have noted adopting a more positive attitude, becoming more empathetic, and/or gaining more confidence. Half of the participants described experiencing PTG. The following statements were made in regards to their personal growth from their experiences;

Participant 3 stated, "I'm more empathetic now, more sympathetic towards victims of the fires... I definitely think I'm more empathetic." Participant 1 noted, "I would have to say that it has made me a better person, you know, more confident, and more wanting to like, go out and test new waters because nobody's guaranteed tomorrow." Participant 5 said,

"I embrace the fact that I think most firemen versus all civilians, they know, who and what they're like, under pressure situations. Because of the nature of the job where I don't know if a lot of people know who they are when it comes to fight or flight. And that I embrace, you know, I think that I'm somebody that can be relied on by the guys at work when the shits on."

Participant 2 noted, "coming out with a good attitude... just gotta go with the flow. Everybody's trying to do the best thing for everybody. So, it flows, you keep positive in that way."

The participants that did not report experiencing PTG, had one or a combination of the following; prior trauma/death experience, faith-based lifestyle, higher education background, and/or reported becoming more cynical/less sympathetic as a result of their experiences. Based on the data analysis, these attributes impacted how the participants

perceived their experiences. Participant 6 made the following statements about her faith concerning her on-the-job experiences with trauma “I have a God, that sits high and looks low. I talk, I pray about it.” When asked about PTG, participant 6 stated, “I think maybe I’m a little bit more cynical. I think that you know like I don’t tolerate foolishness. That’s the best way of putting it.” Participant 3 made the following statements about his experiences prior to becoming a firefighter,

“I was a police officer for 10 years before becoming a firefighter. I was actually a correctional officer prior to being a police officer...I worked as a CO on Rikers Island at 20 years old a kid right out of high school...I hated being a correctional officer basically locked up with these freaking crazy inmates.”

Participant 7 made the following comments about his prior experiences,

“They were the chauffeurs that didn’t go in and see the patients or, or see the gunshot wounds or stabbings or the suicide who jumped in splattered like they didn’t have that experience... I’ve seen a lot more trauma than some of the guys in the firehouse because it wasn’t until 96, 1996, when fire trucks started going on EMS runs.”

Participant 8 expressed, “I became less sentimental, like towards people like even my siblings or family or friends that’s not on it.”

### **RQ3**

What are the personal experiences of PTG achievement for urban firefighters following exposure to work-related traumatic incidents? In analyzing the data relevant to research question 3, I discovered that research question 3 yielded similar results to that of

research question 2. The participants that reported experiencing PTG reported becoming more confident, more empathetic, increased positive attitude, and/or feeling more appreciated by their family. Participants 1, 2, 4, and 5 reported experiencing PTG. PTG was associated with improved and/or increased positive attributes.

### **Summary**

The results of the current study showed that exposure to traumatic events/incidents is a regular occurrence for firefighters. The participants of the current study have acknowledged death, dismemberment, and disaster as traumatic incidents they have faced. The results pertaining to RQ1 revealed that there were both maladaptive and adaptive coping strategies that have been found to be effective in dealing with the traumatic events firefighters face on a regular basis. With adaptive coping skills such as; vacationing, talking to someone, use of social support, prayer, exercise, and participating in different hobbies being the most prominent. With regards to the experiential differences explored in RQ2, whether it is the neighborhood they grew up in, educational contributions to their perspective, or the impact of prior trauma/death experience, these factors played a role in whether or not the participants experienced PTG. As earlier noted, RQ3 produced similar results to RQ2 with the highlight that those that reported growth shared the common theme of developing more positive attributes.



## Chapter 5: Discussion, Conclusions, and Recommendations

This qualitative, hermeneutic phenomenological study was designed to explore the perceptions and lived experiences of PTG for urban firefighters who had experienced work-related trauma. This phenomenon was examined using interpretive data analysis. Themes and codes were developed based on the participants' shared experiences of the phenomenon. Open-ended interview questions were employed to help gain an understanding of the participants' views and lived experiences on this topic. The participants of this study were either active or retired firefighters with the FDNY.

The data for this study were collected via semistructured phone interviews. The participants were selected through purposeful sampling. This strategy helped me gain a comprehensive understanding of the phenomenon via interview questions concerning the research topic and questions. An interpretive phenomenological analysis was used to assist in the exploration of the perceptions and common themes that arose from the data collected. A total of five themes emerged from 45 coded data sets. All themes were developed from the participants' answers to the open-ended interview questions addressing the perceptions and lived experiences of PTG for urban firefighters who had endured work-related trauma.

The results revealed the participants' perceptions and experiences with work-related trauma, coping mechanisms, and growth, if any. The findings showed that there were experiential differences between those who reported PTG from those who did not. These experiential differences included but were not limited to spiritual backgrounds, educational background, prior death/trauma experience, and/or attitude changes.

Vacationing, talking to someone/social support, prayer, engaging in a hobby, exercising, and/or receiving counseling were some of the coping mechanisms identified as effective in assisting these firefighters with dealing with work-related trauma.

### **Interpretation of Findings**

#### **Traumatic Events**

Ogińska-Bulik and Kobylarczyk (2016) noted that many firefighters experience traumatic events on more than one occasion. Based on the participants' accounts of their exposure to trauma, regular exposure to trauma is part of the job. Researchers identified personal loss or injury, mission failure, human error, contact with dead or severely injured children, accidents, burned bodies, life-threatening situations, death of coworkers, and fire suppression as traumatic incidents that emergency workers may face (Jacobsson et al., 2015; Macdermid et al., 2019). Current participants' responses confirmed this notion. Participants cited death, child death or injury, accidents, fatal fires, life-threatening situations, burned bodies, natural disasters, and 9/11 as traumatic incidents they faced. All participants noted death as a critical incident in their interviews.

Jacobsson et al. (2015) noted that the most experienced rescue personnel can be impacted by critical incident exposure, with the most common experiences being posttraumatic stress and psychological dissociation. Three of the eight participants in the current study reported feeling desensitized or numb to the on-the-job incidents they faced regularly. This finding also aligned with reports from Jahnke et al. (2016) that repeated exposure to trauma can cause the following negative symptoms for firefighters: desensitization, irritability and cynicism, and intrusive flashbacks. Jahnke et al. also

reported that some firefighters become emotionless in responding to calls. This was confirmed by participants in the current study who reported compartmentalizing the experiences as part of the job. Jahnke et al. also noted that firefighters reported feeling more cynical and on edge than they did before joining the fire service due to their on-the-job experiences. In line with this notion, participants in the current study mentioned feeling more cynical and less sentimental, as well as feeling stressed about potentially forgetting their gear or being unprepared for a run.

According to MacDermid et al. (2019), there is a link between critical incident exposure and general psychopathology and symptoms of PTSD and aggression. Despite the regularity of critical incident exposure current participants faced, none of them reported symptoms of PTSD or aggression, while desensitization was commonly used as a coping mechanism. Barnes (1999) noted that critical incident experiences tend to be so severe that they impact a person's ability to cope. This notion was not consistent with the results of the current study because all participants reported having effective coping mechanisms that they employed to deal with the constant exposure to critical incidents.

### **Coping Mechanisms**

The participants in the current study identified different coping mechanisms they deemed to be effective in helping them deal with work-related trauma exposure. Positive coping techniques were identified as a means of helping individuals recuperate from trauma and improve their level of functioning (Nydegger et al., 2011). These included relying on spiritual support, pursuing social support, acceptance of the events and the trauma, and humor (Nydegger et al., 2011). Participants in the current study mentioned

seeking social support and/or talking to someone, receiving counseling, prayer, and spiritual beliefs as effective coping mechanisms they use to assist with dealing with regular critical incident exposure. Traveling, engaging in different hobbies, and exercising were also mentioned as effective coping mechanisms.

Less than half of the participants in this study reported use of maladaptive coping mechanisms. According to Nydegger et al. (2011), denial, self-blame, and substance abuse are coping strategies that are considered to be negative. Although these strategies are adaptive because they may briefly relieve some symptoms, they may worsen the situation and cause more serious issues in the future (Nydegger et al., 2011). Paulus et al. (2017) reported that firefighters commonly use alcohol to manage work-related stress. Nydegger et al. also reported that firefighters with the most experience are more likely to use negative coping mechanisms to deal with stress and trauma. There was some alignment with current findings in that the participants who mentioned alcohol use had more than 20 years of experience on the job, though there were no reports of depression or worsening symptoms or situations. This could be because maladaptive coping mechanisms were also paired with adaptive coping mechanisms in what seemed to be a more weighted reliance on positive coping strategies.

## **PTG**

Maitlis (2020) noted that PTG is the result of experiencing trauma and positive changes that occur due to struggling with substantial adversity. PTG is assessed by the benefits found, meanings made, or perceived growth (Maitlis, 2020). Because growth is usually self-reported, an individual's perception of having grown or experienced growth

itself is debatable (Maitlis, 2020). The current study focused on the participants' self-reported perception of growth following trauma exposure. Even though all participants had experienced multiple traumatic events on the job, only half of the participants reported PTG. Those who reported growth reported feeling more confident, more empathetic, and/or more positive. Those who did not feel they had grown from their critical incident exposure reported feeling that they were the same and had become more cynical and/or less sympathetic. Findings suggested that those who did not report PTG had either a prior traumatic experience or a spiritual foundation/belief system. There did not appear to be any demographic links between those who did not report PTG and those who reported PTG. There was a combination of all reported demographic features in both the reported PTG and not reported PTG groups.

### **Limitations of the Study**

The participants were limited to active or retired FDNY firefighters. The results of this study are limited due to the number of participants in this study. There were no limitations on age, race, or gender. The demographic limitation was the New York City area. The participants represented a fraction of the firefighters in the FDNY. The ongoing pandemic impacted the recruitment and interview process for this study. Due to the ongoing pandemic, there were closed firehouses, and firefighters were out due to vaccination policies and/or sick leave, which limited access to firehouses and firefighters for recruiting. The pandemic also limited my ability to have face-to-face interviews or contact with the participants. The plan for data collection was to conduct interviews via recorded video; however, all participants preferred phone interviews because this

approach provided them the convenience of participating wherever they felt most comfortable. This limited my ability to observe the participants during the interview process.

I am married to a retired FDNY firefighter, which may have contributed some bias in terms of my knowledge of the job. Some participants acknowledged taking part in the study only because I was married to a firefighter. My knowledge of the fire department contributed to some preconceived notions and an insider advantage. Despite this bias, I was diligent in remaining objective and not permitting this bias to impact the participants or the outcomes of this study.

### **Recommendations**

Future research could be conducted on this topic in other demographic regions because participants noted experiencing different levels of trauma as a first responder based on geographic location. Future studies conducted in different regions including rural and urban areas would aid in obtaining a broader understanding of this phenomenon across geographic locations. This study could be replicated with female firefighters to examine the differences in experiences because firefighting is a male-dominated profession. Further research is needed to explore the role trauma history plays in the perception of growth for this population. The results of this study revealed that there may be a link between prior trauma history and not reporting PTG. This link could be further explored quantitatively. Future research is needed to examine the notion of brotherhood among firefighters. Based on the data collected in the interviews, questions arose regarding the inclusivity of the brotherhood, including whether it is different for women

or firefighters of color, or whether there is a stepbrotherhood that exists within the population. Further research is also needed to assess the vicarious traumatization of the researcher conducting trauma-related research with first responders. I believe my prior knowledge of the job may have shielded me from this, though questions arose about the impact this type of study may have on other researchers.

### **Implications**

This study highlighted how common critical incident exposure is for firefighters. Conway and Waring (2020) pointed out the significance and value of specialized trauma training for improving the welfare and adaptability of emergency responders. Conway and Waring also noted the benefit of educational programs and seminars that focus on critical incident stress management techniques as preventive measures for maladaptive reactions. Conway and Waring also highlighted the importance of developing close relationships with colleagues to facilitate positive coping following traumatic experiences. The current study supported these notions by providing evidence of the significance of training, comradery, and positive coping mechanisms as a means of promoting PTG.

The study has positive implications for the firefighting population because its results revealed that urban firefighters have the ability to overcome occupational traumatic experiences with the appropriate support. This study may promote the need for trauma-informed training programs for firefighters. This study also highlighted the significance and positive impact of counseling on this population. Providing trauma

training and emotional support and teaching positive coping strategies during the academy may promote PTG among firefighters.

This qualitative study has the potential to bring about positive social change by contributing to the knowledge base in the discipline of emergency response. This study provided a deeper understanding of the factors necessary for coping with regular trauma exposure for this population. This study provided knowledge received from active and retired firefighters who had experienced this phenomenon. The participants of this study provided valuable insight concerning their experiences that can be used to inform training and assist in promoting growth.

### **Conclusion**

This qualitative phenomenological study was conducted to address the gap in research pertaining to the personalized experiences of growth following trauma for firefighters. I analyzed the interview data from five active and three retired firefighters from the FDNY. These experienced participants were interviewed using open-ended interview questions. The data collected contributed to the development of five themes with subthemes for each. These themes include maladaptive coping, adaptive coping, no PTG reported, PTG reported, and positive traits.

The results of this study were consistent with the literature. Exposure to death as a critical incident is widespread among this population. There is potential of becoming desensitized and/or more cynical as a result of consistent exposure to trauma for this population. Employing engaging, effective coping mechanisms can assist with mitigating negative symptoms that could arise from firefighters' regular exposure to traumatic



incidents. Implementing effective coping mechanisms is also a contributing factor in achieving PTG. However, a firefighter's background may also play a role in whether they experience PTG.

Previous research on this topic focused on non-duty-related populations. Gaining a better understanding of the perceptions and experiences of a population that is consistently exposed to critical incidents while on duty was essential. The findings of this study highlighted that there is a limited understanding of the achievement of PTG among this population. Findings also emphasized a need for further research on this topic because individual experiences and perceptions vary based on work and life experiences.

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