EMPLOYEE PERCEPTIONS OF HOURS WORKED IN THE CORONA FIRE DEPARTMENT

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by

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Abstract

This research paper delves into the challenges faced by the Corona Fire Department (CFD) in managing injury rates and mandatory overtime among its firefighters over the past decade. Despite a significant increase in demand for emergency services, the CFD has witnessed a rise in injury-related time off and forced overtime, raising concerns about the well-being of its workforce and organizational sustainability. The study investigates the underlying causes of these staffing issues and aims to provide recommendations for mitigating injuries, reducing mandatory overtime, and improving employee wellness and happiness. The research aligns with critical initiatives outlined in the 21st Century Fire and Emergency Services White Paper and addresses the need to understand generational differences in approaching workplace issues and the health impacts specific to the fire service. By exploring firefighters' perceptions of their work hours, factors influencing decisions to work overtime, and the influence of generational backgrounds, this qualitative inquiry seeks to inform strategies for enhancing the safety and well-being of CFD personnel. The paper concludes with an outline of the research questions to be explored and previews subsequent chapters that will delve into existing literature on fatigue, burnout, and generational perspectives on work environment preferences, followed by an explanation of the research methodology employed.

Acknowledgments

I dedicate this Capstone Research Paper to my beloved wife, Jennifer, and our wonderful children, Bailey and Grady. Your unwavering support, love, and encouragement continuously inspire me to reach greater heights in my endeavors. I also extend my heartfelt dedication to the brave men and women of the Corona Fire Department. Your lifelong commitment to selflessly serving others is truly commendable and serves as a source of inspiration for this research endeavor. My aspiration with this research is to contribute towards reducing unwanted workload and minimizing injuries for those who dedicate themselves wholeheartedly to the service of others.

My affiliation with the Corona Fire Department is provided as biographical information. No official sponsorship or endorsement of this Capstone Research Paper by the Corona Fire Department was provided or should be inferred.

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CHAPTER 1. INTRODUCTION

Corona is a vibrant, culturally diverse community located in the heart of Southern California at the junction of the 91 and 15 freeways, with over 160,000 residents and city limits encompassing 39.2 square miles (*About Us | City of Corona*, n.d.). The Corona Fire Department (CFD) staffs seven strategically located career fire stations throughout the city that serve a diverse population of residents and businesses. Corona Fire Department firefighters are assigned to a 56-hour work week in a three-platoon system, providing a wide range of emergency services, including paramedic services, hazardous materials response, technical rescue, and fire suppression. The CFD has experienced significant staffing issues over the past ten years, as evidenced by a 93% increase in injury-related time off and a 119% increase in forced hire or mandatory overtime. Comparatively, there has been a 12% increase in total overtime and a 20% surge in emergency responses over the past ten years (see Figure 1). These staffing trends have raised serious concerns about the department's well-being of its members and its ability to retain employees. This research explores the underlying causes of staffing issues and presents recommendations for decreasing injuries and forced work while improving employee wellness and happiness. Research on this topic is in direct alignment with the 21st Century Fire and Emergency Services White Paper Critical Issue B Initiative 1, Strategy 4: Embrace the differences in generational understanding and approach to issues to be successful in addressing the opportunities and challenges that will face organizations in the future and Critical Issue D Initiative 1: Champion research on the health impacts specific to the fire and emergency services to evaluate the health risk of consecutive hours worked, sleep disruption, and the impacts on employee health *(Center for Public Safety Excellence & International City/County Management Association, 2020)*.

Background

Firefighting is a demanding occupation with extreme hazards (Campbell, 2018). Although firefighting certainly involves physical risks, it also involves significant psychosocial risks. Firefighters are continually asked to respond to dangerous and unpredictable situations that usually involve some form of human loss and suffering (Smith et al., 2019). In 1938, President Roosevelt signed the fair labor standards act (FLSA) into law (Samuel, 2000). The FLSA provides for a federal minimum wage, overtime pay, and child labor protections (Donovan, 2023). However, public employees were exempt from this legislation. In 1974, an amendment to the FLSA defining work hours for firefighters was signed. The minimum work hours until overtime is reached has been established for firefighters at 53 hours per week (Donovan, 2023). However, the FLSA legislation of 1938 and its amendment in 1974 designate the maximum hours worked before an employee reaches overtime; it does not define how many hours an employee can work as a maximum. This legislation allowed municipalities to staff fire departments with a three-platoon system. Since 1974, the CFD and the American fire service have added considerably to their roles and responsibilities beyond the suppression of fires. These responsibilities include but are not limited to paramedicine, technical rescue, hazardous materials response, active shooter response, and fire suppression. With this rising responsibility, there has been an increase in calls for service and a need for technical training. The CFD's call volume has grown steadily over the past ten years, with a twenty percent increase in 2018-2022, comparatively to 2013-2017 (see Figure 1). This rise in responsibility and calls for service create stress and the potential for burnout and compassion fatigue (Kim et al., 2020). When firefighters face increased stress and burnout, they are less likely to make appropriate decisions, which can

lead to injuries (Smith et al., 2019). The CFD has significantly increased injury and forced overtime in the past five years (see Figure 1). At the same time, the total hours worked by employees have grown at a much slower rate. New workers have entered the fire service in the past ten years. Gen Y or Millennials born between 1981 and 1996 are quickly becoming the majority of the workforce, and now Gen Z born between 1997 and 2015 are just starting to trickle in. Millennials desire a better work-life balance, unlike previous generations that were coined as "workaholics" (Jones et al., 2019). These new generations of workers and their desires will likely cause a shift in hours worked moving into the future.

Figure 1

Corona Fire Department Statistics

	Total Injury Hours Off	Overtime Hours Worked	Force Hire Hours Worked	Call Volume
2013	5169	85708.25	3355.75	10758
2014	2687	100130.75	7717.25	11358
2015	7370.75	108130.75	15086.50	1044
2016	6161.25	107463	13748.75	12658
2017	7419	103985	11950	12980
5 Year Totals:	28807	505418	51858	59798
2018	7373	116552.25	15605.25	13048
2019	11754.75	106213	12985.75	14098
2020	7646	108483.50	19219.75	13964
2021	13634.75	119034.50	29585.75	14927
2022	15147.25	116982.25	36259.50	15927
5 Year Totals:	55555.75	567265.50	113656.00	71964
Percentage Change In 5 Year Spans	93% Increase	12% Increase	119% Increase	20% Increase

Note: Two aggregate five-year groupings were examined to visualize long-term trends and reduce single-year abnormalities.

Significance of the Study

This study aims to evaluate how many hours can safely be worked per week based on the rising demand for service and a desire by the workforce. Identifying how firefighters feel about their working hours and how these hours affect injury rates will help CFD leadership make policy decisions to improve these issues. Many studies have been completed on worker fatigue, with the number one casual factor of fatigue being extended work hours (Hallowell, 2010). Many cities, including the city of Corona, have adopted a standard 56-hour work week for firefighters based on FLSA law. Long work hours in the fire service coincide with repeated exposure to trauma (RET) due to firefighters responding to an ever-increasing number of incidents. RET has been linked to a higher instance of firefighters compared to the general public being diagnosed with Post Traumatic Stress Disorder (PTSD) (Jahnke et al., 2016). Increasing rates of injury, whether from mental health stress such as PTSD or muscular skeletal injuries due to fatigue, have a compounding effect on CFD firefighters. When a firefighter is injured and can no longer report to work, an additional firefighter has to work in their place. This replacement of the injured employee causes a monetary strain on the city due to overtime paid out. The firefighter working overtime is increasing their weekly hours, exposing them to additional RET and the potential for burnout and fatigue. The consequences of long work hours pose a threat to both the community and the firefighters who serve that community.

The CFD has also seen an influx of Gen Y and Gen Z employees over the past ten years, which may be a variable for the decreasing desire of employees to work long hours. Many other countries are looking at a better work-life balance by decreasing work hours to 35 hours per week to increase employee happiness (Ruppanner & Maume, 2016). In contrast, the CFD and many other municipalities have their firefighters working at least 56 hours per week, with many

firefighters working many more hours than the minimum. This topic is an adaptive challenge that the CFD faces looking into the future, as stated by the National Fire Academy's handbook for the Executive Fire Officer program, and this study aims to investigate the causes of the issue (*National Fire Academy Executive Fire Officer Program*, n.d.).

Problem Statement

The objective of this study is to assess the relationship between mandatory overtime and injury rates among firefighters in the Corona Fire Department (CFD) over the past decade. This investigation aims to determine whether an increase in mandatory overtime is potentially linked to the rising rates of injuries, specifically non-fireground injuries due to over-exertion. The problem is that the CFD has seen a rise in injury rates among firefighters over the past ten years but has yet to evaluate whether increased mandatory overtime potentially influences this phenomenon. Although much has been done to decrease firefighter fatalities in the line of duty, non-fireground injuries due to over-exertion will likely rise as demand for service increases (B Le et al., 2020). The CFD has also seen an increase in mandatory overtime in this same period. Mandatory overtime has been shown to increase stress on public safety employees, which can cause mental health-related injuries (Park et al., 2023). The base number of work hours per week has remained the same and not re-examined since the 1970s, even as a new generation of firefighters with different values enters the workforce. A recent study by (María Fuchs et al., 2021) highlights that millennials' desire for a supportive work-life balance influences their job satisfaction and retention. Corona Fire Department firefighters are scheduled at least 56 hours per week, with many exceeding 80 hours.

Over the past three decades, the American Fire Service and the CFD have taken on many additional roles and responsibilities, exposing its firefighters to a higher risk of injury and illness.

Expanding roles and responsibilities has created increased stress in the workforce, which can be a causative factor for mental health injuries. The rise in injury claims related to PTSD among first responders can be attributed to recent changes in worker compensation laws, which now include PTSD as a presumption (Torrey & DeCarlo, 2021). This increased exposure has caused an increase in injury time off and increased hours worked by non-injured firefighters, thus compounding the issue. As the demand for services continues to rise, firefighters' exposure will continue to rise. These exposures will increase injury rates, increasing the strain on the city of Corona's budget and the health and well-being of the firefighters serving the community.

Purpose Statement

The purpose of this generic qualitative inquiry study is to explore the perception of CFD firefighters on their safety and well-being despite the increased amount of injury time off and the increase in mandatory overtime over the past decade. This exploration will help guide solutions for mitigating injury-related time off and reducing the necessity for mandatory overtime among CFD firefighters.

Research Questions

The qualitative research questions to be explored include the following:

1. How do Corona Fire Department firefighters perceive their work hours as causing injury and illness, if at all?
2. In what ways, if any, do Corona Fire Department firefighters influence their decision to work additional overtime shifts beyond voluntary ones?
3. To what extent, if at all, does an individual's generational background within the Corona Fire Department influence their desire to work additional overtime shifts beyond the mandatory ones?

Summary

Chapter 1 provided an introduction and background to the CFD's current issues involving injury time off and forced overtime. It described the history of the firefighter's work schedule and the risks of fatigue and burnout. Chapter 2 will provide an overview of the existing literature on fatigue, burnout, and generational views on work environment desires. Chapter 3 will explain the methodology used to conduct and structure the research of this study.

CHAPTER 2: LITERATURE REVIEW

Introduction

The following study will examine causative factors for increased injury time off at the Corona Fire Department. This study will also discuss the aspects of increased mandatory overtime over the past five years. Through the perspective of generic qualitative inquiry of fire department employees, this study will attempt to present causative factors of these rising issues and provide recommendations and considerations should these issues persist. It is imperative to examine the causative factors regarding the rise in injury time off and mandatory overtime to provide fire department leadership with solutions moving into the future.

This analysis will explore existing literature to provide insight into the potential reasons behind the increase in injury time and increased mandatory overtime. As Creswell and Creswell (2018) state, "The literature review helps to determine whether the topic is worth studying, and it provides insight into ways in which the researcher can limit the scope to a needed area of inquiry" (p. 23). The following literature review came from a search of scholarly peer-reviewed articles from the National Emergency Training Center Library and the Columbia Southern University Library. The following key search phrases were used to explore existing literature: Firefighter Injury, Fatigue, Burnout, Shift Work, Mandatory Overtime, Millennial Generation, Gen Z, Gen Y, Baby Boomer, Millennial, Fair Labor Standards Act, Workman's Comp, Post Traumatic Stress, and Work-Life Balance. These key phrases and the information provided the context for this study.

Existing Literature

Workplace Injury

Injuries and fatalities have been a significant concern in the fire service. As stated by Campbell (2018), “Firefighting is a hazardous occupation, and the fireground is the location for many firefighter injuries, making information about firefighter injury events critical for injury prevention efforts” (p. 461). Dating back to the America Burning report to the president in 1973 to the most recent Wingspread report in 2021, firefighter injuries and safety continue to be major initiatives stated by these documents ("*Wingspread VII,"* 2021). Significant improvements in decreasing firefighter deaths and injuries while firefighters are operating on the scene of a fire have been made since the 1970s. Recently, researchers have focused on injuries not occurring on the fire ground but rather due to psychosocial issues such as burnout and overexertion (B Le et al., 2020).

Injuries are no longer just limited to those musculoskeletal in nature. Torrey and DeCarlo (2021) related that mental stress causes mental disability under workers' compensation laws goes on to state that PTSD claims are a “top trending issue” nationally (p. 134). Presumption laws for PTSD vary from state to state. In California, where the City of Corona is located, the California State legislature has passed legislation stating that PTSD claims for firefighters have been deemed presumptive (Torrey & DeCarlo, 2021). Thus, the employee does not bear the burden of workplace causation for their diagnosed injury. In contrast, in some states such as Florida, the employee must prove that the causation of the PTSD was from their public safety career. These injuries are still emerging as an issue and will require additional research in the future. A 2015 study in risk management in the fire service through qualitative analysis showed that firefighters valued standardized call reviewing as a way to decrease their risk of injury, in this case, mental

injury, over other efforts to reduce injury, such as mandatory exercise and training on specific fire ground tasks (Poplin et al., 2015). Even though firefighters listed standardized call review as one of their top priorities in Poplin's study, the researcher focused mainly on musculoskeletal injuries and failed to tie them to fatigue or stress.

Worker Fatigue

Firefighters respond to multiple types of emergencies throughout their careers and have repeated exposure to trauma (RET). This RET has a cumulative psychological effect that can cause mental health injury or can manifest into other diseases, such as cardiac issues or even alcohol dependence, as a mechanism to cope (Jahnke et al., 2016). All of this adds to the fatigue factor that fire departments will continue to deal with as call volumes increase. Burnout and compassion fatigue are also concerns with firefighters who face fatigue from RET. One study of Korean firefighters showed that the work environment directly correlated with increased instances of burnout (Kim et al., 2020). However, the fire service is reacting to these issues by establishing mental health programs for firefighters and peer support programs to assist firefighters once they become symptomatic (“Behavioral Health Program,” n.d.). In contrast, there does not seem to be a movement to remove the exposure by ensuring firefighters do not become fatigued by sending them to fewer calls for service.

In other industries, such as construction, workers are also subject to shift work and long work hours. The Hallowell (2010) construction industry study shows that worker fatigue caused by long work hours leads to immediate effects such as decreased productivity, increased mistakes, physical weakness, lack of motivation, and sleepiness. These issues can lead to increased workplace injury and are shown to have long-term health effects, further compounding the problem. In 2019, the National Institute for Occupational Safety and Health (NIOSH) held a

forum called “Working Hours, sleep and Fatigue: Meeting the Needs of American Workers and Employers,” focusing on the following six industries: agriculture, forestry and fishing, healthcare and social assistance, mining, oil and gas extraction, public safety, transportation, warehousing and utilities (Wong & Swanson, 2022, p. 829). Other industries are taking note of fatigue risk and are working toward solutions to combat the danger. Many industries face the issue of fatigue in the workplace, most of which center around the workforce being assigned to some form of shift work.

Shift Work

Shift work can be defined as a work schedule that involves the rotation of workers that will work outside the typical work day of nine to five (Sallinen & Kecklund, 2010). These repetitive work patterns are often a contributing factor to workplace injuries. Workers providing an around-the-clock service such as fire protection will face consequences such as burnout and injury due to the physiological and psychological effects of shift work. Shift work can lead to disruptions in circadian rhythms, sleep disorders, and increased stress levels (Gerstner et al., 2022). When workers are tired, they tend to make poor decisions and often use poor body mechanics to do their assigned duties (Wong & Swanson, 2022).

A study of Korean firefighters determined that to prevent sleep disturbances, firefighters would need a reduction in emergency and off-duty work (Jang et al., 2020). In this case, shift work was not found to be a factor in injury causation but rather the number of emergencies the firefighters were required to respond to. While one study acknowledges the positive impact of reducing RET will improve sleep quality, it also addresses off-duty work, a cultural norm in Korea. The necessity for recuperation after shift work is emphasized, as the body requires time to recover for the promotion of health, well-being, and overall effectiveness (Kalkanis et al., 2023).

Mandatory Overtime

The only peer-reviewed information on mandatory overtime close to firefighting came from a source studying 911 telecommunicators or dispatchers. Dispatchers are part of the public safety sector and have similar job stresses to firefighters and police officers in the form of shift work and trauma associated with emergencies. Park et al.(2023) conducted a study on the effects of forced mandatory overtime of dispatchers, concluding that the forced work hours directly correlate to increased stress in the workforce. Furthermore, it was suggested that legislation be passed limiting overtime hours of 911 telecommunicators. The study is limited to this specific industry, and further research will need to be conducted to see the effects on firefighters.

The nursing industry also studies the effect of mandatory overtime, and nursing advocates have successfully passed legislation outlawing mandatory or forced overtime for nurses due to the occupational risks it poses and the threat to patient care. A study by Babapour et al. (2022) showed that employed nurses had higher levels of perceived job stress that can adversely affect their quality of life and caring behavior, leading to workplace injuries and decreased patient care.

In conclusion, 911 telecommunicators and nurses face occupational challenges similar to firefighters regarding mandatory overtime. Increased stress from unwanted work has proven detrimental to the workers and those they serve. All three industries conduct their perspective services by assigning employees to shift work, further adding to fatigue and burnout. Burnout and fatigue have both been linked to increases in employee injury and job dissatisfaction (Smith et al., 2019).

An alternative look from the airline industry, which has a highly regulated maximum work-hour schedule, showed that unexpected or unplanned work hours during the COVID-19

pandemic led to increased fatigue and tiredness (Hilditch & Flynn-Evans, 2022). Firefighters face similar unanticipated work events during emergencies and mandatory overtime due to employees being suddenly injured or called off with illness. This unplanned forced work can lead to further burnout, injury, and psychological stressors (Allison et al., 2022).

Generational Desires

The workplace is often filled with multiple generations, and the fire service is no different. The desires of these different generations can vary due to generational norms. To understand the different generations, one must first categorize them and become familiar with their wants and thoughts. This diversity poses leadership challenges in the workplace, and these generations represent most of the current workforce (Jones et al., 2019). Each of the following generation subsets has its own set of strengths and challenges when it comes to workplace desires. It is imperative that fire service leadership is educated in their differences and are prepared to react to generational desires. Each generation has differences and is often motivated differently; for example, Gen X employees are much more money-motivated, and Millennials are motivated by experiences and work-life balance (Leslie et al., 2021). These generational desires can be a clue into the mandatory overtime issue of the Corona Fire Department, as one generation could reach burnout or fatigue before another. Overtime will always be part of fire department staffing; determining the threshold of the volume employees are willing to work remains challenging.

Baby Boomers 1946-1964

Baby Boomers comprise a small portion of the fire service, as most have reached retirement or are approaching it. Hollier and Yaross (2022) state that these employees are generally optimistic, driven, and team oriented. However, they can be self-righteous and

self-centered and tend to be more optimistic about authority, hierarchical structures, and tradition. Baby boomers are also known to be workaholics and if not already retired, are working in senior management or leadership positions (Jones et al., 2019). The Baby Boomer's desires and morals can be essential to current fire service work practices and standard hours worked. This group is also rooted in an unwillingness to change (Leslie et al., 2021). As these people phase out of the fire service, so will their ideals, ushering in new ideas and views toward job satisfaction and desires.

Generation X 1965-1980

Significant world events like the Cold War, the AIDS epidemic, and rising divorce rates have influenced Generation X. Generation X are also the first of the "latchkey kids" and, therefore, are often described as independent, questioning authority, and more casual in their approach to work and life (Guptill et al., 2023). Generation X employees are now moving into leadership positions in the fire service, and with this movement, policy change and ideals will likely occur.

Generation Y (Millennials) 1981-1996

Millennials are fast becoming a majority in the workforce, as well as the fire service. Millennials are considered the first generation to grow up with the Internet, are disillusioned with many organizational institutions, and reject tradition (Leslie et al., 2021). Millennials desire a better work-life balance and often choose free time over monetary compensation (Jones et al., 2019). As the Millennial Generation moves into most of the fire service workforce, organizations will likely see a push for fewer work hours due to the generational desire for a better work-life balance.

Generation Z 1997-2015

Jones et al. (2019) writes that Gen Z is more money-conscious, entrepreneurial, and individualistic and can be less focused; they like to be individual contributors, can multitask, use social media constantly, opt for Do-it-Yourself (DIY) education (signing up for free courses), use crowdsourcing, and are about to compete against Gen Y (Millennials) at the workplace. Generation Z employees are just entering the fire service, and the outcomes of their generational desires are yet to be seen. Awareness of Generation Z workplace tendencies by fire service leadership will help to plan for the future. Further research must be conducted as the next generations enter the workforce.

Synthesis of the Existing Literature

Existing literature has proven valuable in assessing why the Corona Fire Department faces challenges. Many aspects are likely to affect the increase in injury time off and mandatory overtime in the Corona Fire Department. This literature review includes workplace injury, worker fatigue, shift work, mandatory overtime, and generational desires. This assessment of the existing literature is meant to be a holistic approach to solving these complex problems.

Studies from different industries were examined to see if other industries have worked toward solutions to decrease workplace injuries. Gaps in the research exist tying burnout and generational desires to work overtime. Much work has been done to reduce fireground injuries due to lack of training, poor equipment, and improper use of tactics and strategies. This study aims to focus on injury reduction caused by burnout and fatigue. The traditional methods of using metrics of numbers do not tell the entire story of what the right-sized amount of work will be tolerated by the workforce. This tolerance for extra work can be varied depending on call volume or workload and the desire of the individual employee.

Summary

This literature review aimed to gather current known information on injuries, fatigue, shift work, mandatory overtime, and generational desires. This information was gathered from the fire service and other industries that face similar challenges. This literature will be evaluated to determine how this information can assist the Corona Fire Department's issues of increased injury time off and increased mandatory overtime.

This research study hopes to examine the gaps in the literature and provide suggestions for current best practices. The study will look to provide solutions from other industries and the fire service to decrease the current injury rate and unwanted overtime in the Corona Fire Department.

CHAPTER 3: METHODOLOGY

This chapter will outline the methodology used to examine the rising issues of injury time off and mandatory overtime in the Corona Fire Department. A qualitative method was used to understand cultural perceptions surrounding these issues. First, data was retrieved through the Corona Fire Department staffing software to establish that there was indeed a rising trend (see Figure 1). A literature review was then conducted to determine what is already known about the issues of workplace injury, worker fatigue, shift work, mandatory overtime, and generational desires. A search for similar applied research projects from the National Emergency Training Center Library was also conducted, then an internet search for scholarly peer-reviewed articles and studies from the Columbia Southern University library. Key search phrases used to find information on these subjects included the following: Firefighter Injury, Fatigue, Burnout, Shift Work, Mandatory Overtime, Millennial Generation, Gen Z, Gen Y, Baby Boomer, Millennial, Fair Labor Standards Act, Workman's Comp, Post Traumatic Stress, and Work-Life Balance.

Existing literature demonstrates the complexities of both injury and mandatory or forced overtime. Although conclusions can be reached about increased injury rates and mandatory overtime based on rising call volume, more needs to be researched from the view of the actual employee experience. The next portion of this research will study the employees' opinions to determine if fatigue drives these increased injuries and unwanted overtime. The study will also examine if this view changes based on generational ideas of these issues. This inquiry aims to assist Corona Fire Department leadership in reducing injury time off and mandatory overtime.

Research Design

To comprehensively investigate the underlying factors contributing to the rise in injury rates and the subsequent surge in mandatory overtime within the Corona Fire Department, as

illustrated in Figure 1, a systematic qualitative inquiry employing structured open-ended questions was executed. A researcher must seek the appropriate research method to study attitudes, opinions, and beliefs (Percy et al., 2015). Qualitative research is often preferred over quantitative and mixed methods in specific scenarios because it emphasizes exploring the depth and richness of human experiences. According to Creswell and Creswell (2018), qualitative research is particularly valuable when researchers seek to understand the complexity of social phenomena, cultural contexts, and individual perspectives. This approach allows for in-depth exploration, generating detailed insights and providing an understanding of a phenomenon, which may be challenging to achieve through quantitative methods alone. Additionally, qualitative research is well-suited for studying subjective phenomena, capturing nuances, and generating hypotheses for further investigation. Creswell and Creswell (2018) suggest that the choice between qualitative, quantitative, or mixed methods depends on the research questions and the depth of understanding required for a comprehensive analysis of the studied phenomenon. A qualitative research approach was selected to gain profound insights into the intricate dynamics of the organizational culture and the mindset of the personnel directly impacted by these challenges. This choice aimed to unravel the nuanced aspects of the situation, recognizing that qualitative studies are particularly adept at delving into the subjective perspectives of participants, encompassing their beliefs, attitudes, and conceptual framework (Hammarberg et al., 2016).

The rationale behind opting for a qualitative study lies in its inherent capacity to encapsulate the cultural nuances and individual viewpoints instrumental in deciphering the multifaceted nature of the prevailing issues. As Phoenix et al. (2010) articulated, a qualitative inquiry serves as a conduit for extracting valuable insights into the intricacies of participants'

experiences, allowing for flexibility in exploring diverse perspectives. The open-ended nature of qualitative research facilitates discovering unanticipated factors and examining a spectrum of viewpoints that might elude a more rigid research design.

By using a qualitative research methodology, this investigation seeks not only to identify the root causes but also to immerse itself in the broader context, exposing the intricacies of the organizational culture and the individual experiences of those affected. This methodological approach empowers the researcher to comprehensively understand the participants' views and cultural influences on the issues. Ultimately, the recommendations derived from this qualitative exploration will be anchored in the practical implications discerned from the participants' perspectives, thereby contributing to a more holistic and effective resolution of the challenges faced by the Corona Fire Department.

Population and Sample Size

The Corona Fire Department consists of 110 sworn members of various ranks, including Fire Chief, Deputy Chief, Battalion Chief, Fire Captain, Fire Apparatus Engineer, Firefighter Paramedic, and Firefighter. The research involved soliciting participation from employees assigned to the operational division of the fire department. These employees, stationed at one of the seven fire stations in the city of Corona, work a rotating schedule of 56 hours per week. In total, 98 persons were categorized by birth year and placed into one of three generational groups. These groups comprised Generation X 1965-1980, Generation Y (Millennials) 1981-1996, and Generation Z 1997-2015. The birth years of the solicited members ranged from 1969 (Generation X) to 2003 (Generation Y). The most significant subset was Generation Y, which comprises 47% of the organization (see Figure 2).

Figure 2

Corona Fire Department Age Demographics

	Number of Employees Per Generation	Percentage of Department Make-Up
Generation X	39	40%
Generation Y (Millennials)	46	47%
Generation Z	13	13%

Note: Only employees assigned to the Operational division of the Fire Department were included.

Those interviewed for this study were chosen from multiple work sites and represented each rank. Members from each generation were selected to allow for a look into generation desires regardless of rank within the fire department. Pew Research defines generations based on birth cohorts and shared life experiences, categorizing individuals into distinct groups such as Millennials (born 1981-1996) and Generation Z (born 1997-2015) (Center, 2015). These classifications help analyze societal trends and attitudes across different age demographics.

Instruments

Interview questions were formulated to be non-biased and elicit thoughts and lived experiences from the participants. Three independent doctoral researchers field-tested the interview questions to ensure no biases existed. Interviews were conducted in person and recorded using the researcher's recording device on his phone. The recordings for each interview were then uploaded into Notta.AI for transcription. The researcher reviewed each transcription for accuracy. Once the transcriptions were deemed accurate, they were converted

to a PDF and studied for themes, similarities, and discrepancies to conclude. The PDF transcriptions were then hand-coded to organize participant trends and thoughts.

Before the in-person interview, the participants were emailed the National Fire Academy consent form (Appendix A) and the interview guide (Appendix B), including department injury statistics and mandatory overtime statistics. The researcher used the interview guide (Appendix B) to ask the following questions. In total, 15 interviews were conducted.

1. What is your current assignment and rank within the Corona Fire Department?
2. How many years have you been employed with the Corona Fire Department?
3. Which of the following groups represents your birth year?
    a. 1965-1980
    b. 1981-1996
    c. 1997-2015
4. What do you believe is causing the increased injury rate?
5. In your opinion what do you believe is causing the increase in mandatory overtime?
6. Do you experience work-related fatigue?
7. Should the CFD institute a policy for maximum consecutive hours worked?
8. Have you ever experienced a workplace injury? If so, do you believe fatigue was a factor in your injury?
9. Do you believe there is a generational preference for working more or fewer hours?
10. What is the optimal number of work hours per week, in your view?

Research Process

The research process started by the researcher breaking fire department members into age groups based on generations. The three separate lists are Generation X, Generation Y, and

Generation Z, as there were no Baby Boomers to interview as part of the research study. Although no current Baby Boomers are employed in the CFD, the lasting effects of current policies and the creation of department culture have had a lasting impact on the organization. The names on each list were then placed in an online randomizer to eliminate any potential researcher bias. The researcher then emailed the top five names off each randomized list to solicit participation in the study. If a person was unwilling to participate, the researcher continued down the list until five participants from each generational subgroup were willing. An interview was scheduled for the participants who agreed to be part of the research process, and the researcher met the interviewee in person to conduct the interview.

Before the interview, the researcher ensured that the provided consent form (Appendix A) was understood and signed. The researcher also reiterated that the discussion was confidential, that the interview was entirely voluntary, and that the interviewee could stop the interview at any time or elect not to answer any question. Interviews were conducted privately, so only the researcher heard the interviewees' answers. All interviews were voice recorded. The recording was then placed into a dictation application (Notta.AI) for dictation, and a PDF transcript was produced for each interview. A Google Drive was created by the researcher for the storage of all recordings and transactions. To ensure privacy, the researcher is the only person with access, and all documents will be destroyed four years after the completion of the study.

The researcher reviewed the interview transcriptions for accuracy and adjusted where errors were noted. The researcher then reviewed the transcriptions for commonalities and reoccurring themes. Interview answers and trends were coded into data tables (Appendix C) to allow the researcher to identify various themes and provide suggested solutions.

Ethical Considerations

The researcher took several steps to ensure ethical and unbiased research was conducted. To conduct ethical research with persons, it is essential first to gain consent. In this study, the researcher received authorization for site access from the Fire Chief of the Corona Fire Department (Appendix D) to conduct the research interviews. Before obtaining consent, the chief was briefed on the research's purpose and scope. The researcher then created randomized lists of persons to solicit voluntary participation. This randomization ensured that no researcher bias would interfere with the study while ensuring only voluntary participation. Before starting the interview, participants had to provide written consent (Appendix A). The consent form informed the research participants that they could withdraw from the interview at any time or not answer any questions they did not feel comfortable answering. The participants were also informed via the interview guide (Appendix B) that their answers or participation would not have any bearing on their employment status with the Corona Fire Department. Participants were also given the researchers' contact information should any questions or objections to their participation arise.

Participant anonymity was achieved by omitting any names in the research paper. Each participant was given an assigned number to ensure privacy when mentioned in the research paper. The researcher explained to the volunteers that the researcher himself would be the only person who would know the participants' identity before the start of the interview.

Ethical concerns arose from the researcher's dual role as an employee and supervisor within the Corona Fire Department, introducing the potential for inherent bias. To address this issue, the researcher sought to establish a comfortable interview setting, emphasizing trust-building while refraining from expressing personal opinions or disagreements during the interviews, as Creswell and Creswell (2018) recommended. Additionally, measures were

implemented to ensure participants did not feel obligated to participate, with assurances of strict confidentiality and the separation of interview feedback from any impact on their organizational standing.

Summary

This chapter outlined the methodology used to examine the rising issues of injury time off and mandatory overtime in the Corona Fire Department. The researcher chose a generic qualitative inquiry to understand better the thoughts and feelings of the members of the Corona Fire Department. The researcher conducted unbiased interviews by using a random selection of voluntary individuals. The researcher also ensured ethical standards were met by obtaining consent from the Corona Fire Department and the interview participants. Interview data was then studied for similarities and patterns to help provide solutions.

Chapter 4 will detail the findings of the interviews that the researcher conducted. Chapter 5 will then provide recommendations and suggestions for decreasing injury time off and mandatory overtime moving into the future.

CHAPTER 4: STUDY RESULTS

Introduction – Demographics of the Participants

This study was conducted by interviewing 15 members of the Corona Fire Department. The interviewees were broken into three generational groups: Generation X, Generation Y (Millennials), and Generation Z. Five persons from each generation were chosen through randomization and then were enlisted to volunteer for the research. The interviewees included firefighters, firefighter paramedics, engineers, and fire captains. Interviews were conducted using a semi-structured interview guide to elicit perceptions and feelings of the perceived issues. The interviews were audio recorded and then transcribed using Notta.Ai. The researcher ensured the accuracy of the transcriptions and coded responses to identify themes. The data analysis of the interviews can be seen in Appendix C.

Research Results

The demographics of the interviewees were addressed in the first three questions of the interview.

Interview Question 1

What is your current assignment and rank within the Corona Fire Department?

Summary of Results

The participants consisted of five Captains (Participant No: 1, 8, 10, 12, 13), one Engineer (Participant No: 6), six Firefighter Paramedics (Participant No: 3, 4, 5, 7, 11, 15), and three Firefighters (Participant No: 2, 9, 14). The station assignment will not be displayed next to the participant number to ensure anonymity. However, the researcher confirmed that the interviewees represented all seven fire stations.

Interview Question 2

How many years have you been employed with the Corona Fire Department?

Summary of Results

The interviewees fell within the following ranges based on years of service: nine participants with 0-10 years, three with 11-20 years, and three with 21 or more years of service.

Interview Question 3

Which of the following groups represents your birth year?

a. 1965-1980

b. 1981-1996

c. 1997-2015

Summary of Results

All three birth year ranges, or generations were equally represented, with five participants each.

Interview Question 4

What do you believe is causing the increased injury rate?

Summary of Results

The answers of the participants to this question fell into the following themes. All but one participant felt as though there were multiple factors leading to the increased injury rate. A single theme does not stand out as a clear issue with the participants. These results demonstrate the issue's complexity and why injury rates have been challenging to curb within the organization.

Figure 3

Injury Rate Themes

Theme Number	Theme	Percentage believed to have contributed to the injury rate
1	Age of workforce	40%
2	Mental health issues	40%
3	Call volume increase	33%
4	Lack of physical fitness / self-care	40%
5	Hours worked causing fatigue	60%
6	End of career injury claims	13%

It was found that 40% of the participants believed that the age of the employees was a significant factor contributing to the increased injury rate. Participant 4 emphasized that they mainly observed injuries occurring among older individuals, while Participant 7 concurred, highlighting the perceived frequency of older firefighters with injury occurrences within the department.

Moreover, participants identified mental health issues and a lack of physical fitness and self-care as equally significant factors alongside age. Participant 9 noted the delay in seeking mental health care as a concerning issue. Participants also discussed the emerging prevalence of mental health-related injuries, emphasizing the urgent need for enhanced treatment and training in this area, along with an emphasis on physical fitness and better nutrition.

The consensus among participants was that excessive working hours leading to fatigue was the primary contributing factor to the increase in injuries, with 60% of participants expressing agreement. Participant 13 specifically highlighted the detrimental effects of insufficient sleep and physical activity on injury occurrences.

Interview Question 5

In your opinion what do you believe is causing the increase in mandatory overtime?

Summary of Results

The results of question 5 also fell into six distinct themes, as mentioned by the participants. The participants again expressed that this is a complex issue with many factors to its cause. Many of the responses for both increased injury time off and the increase in mandatory or forced overtime fell into similar themes.

Figure 4

Causes of Mandatory Overtime

Theme Number	Theme	Percent believed to have contributed to mandatory overtime increase
1	Call volume increase	27%
2	Increased injuries	40%
3	Generational desires	60%
4	Burnout	56%
5	Manipulation	33%
6	Employee retention	1%

Similar responses were noted regarding the causes of the 119% increase in mandatory or forced overtime, mirroring the trends observed in responses to the injury leave question. The primary reason behind the mandatory overtime surge is believed to stem from generational differences in attitudes toward overtime work. Specifically, 60% of participants perceived that Generation Y and Z employees are less inclined towards working extra shifts than their Generation X counterparts. Participant 15 articulated this sentiment by contrasting the older generation's "living to work" ethos with the newer generation's preference for "working to live."

Additionally, burnout emerged as the second significant factor contributing to the increase in mandatory overtime. Participant 7 likened the situation to biting off more than one can chew, expressing how the excessive workload became unsustainable despite the initial willingness to take on overtime shifts. Participant 2 succinctly summed it up by stating that people simply do not want to work extra hours.

Furthermore, 33% of participants identified employees manipulating the system to obtain forced overtime due to staffing distribution rules as another contributing factor. Participant 10 highlighted instances where individuals deliberately opted for mandatory overtime over voluntary shifts to exploit loopholes in the system.

The research highlights how generational attitudes, burnout, and systemic factors collectively contribute to the department's substantial uptick in mandatory overtime. The intertwining of forced or mandatory overtime with injury-related time off exacerbates each other, compounding workforce challenges.

Interview Question 6

Do you experience work-related fatigue?

Summary of Results

It was found that all 15 participants reported experiencing workplace fatigue. Various common themes emerged regarding the reasons behind this fatigue. Sleep deprivation was highlighted as a significant factor, with Participant 5 attributing it to the lack of downtime during work hours. Additionally, eight participants specifically mentioned "lack of sleep" as contributing to their fatigue. Furthermore, stress related to handling personnel and personnel issues was cited by Participant 1 as a significant cause of fatigue. Participant 7 elaborated on the impact of the demanding nature of their work environment on their personal life, expressing concerns about being unable to fulfill responsibilities to family due to fatigue.

Multiple participants identified increased call volume and consecutive long hours at work as contributing factors to fatigue. Participant 15 noted that being forced to work added to their fatigue and demotivation, potentially leading to complacency and increased risk of injuries while on duty.

These findings highlight the multifaceted nature of workplace fatigue, encompassing various factors such as sleep deprivation, stress, demanding work schedules, and external pressures. Recognizing these factors is essential for implementing effective strategies to address and mitigate employee fatigue within the department.

Interview Question 7

Should the CFD institute a policy for maximum consecutive hours worked?

Summary of Results

The current policy of the CFD does not impose any restrictions on the maximum allowable work hours for its employees. Sixty percent of the participants expressed the opinion that the department should implement a "maximum hours worked" policy. However, when asked about the specifics of such a policy, responses varied widely, with some suggesting limits

ranging from 72 hours to 14 days. Most of these participants recommended a range of 72-120 hours as an appropriate limit. Participant 3 emphasized the importance of providing individuals with a break to decompress and rejuvenate before returning to work. At the same time, Participant 12 stated a preference for a limit of no more than 72 hours, beyond which fatigue becomes overwhelming.

Conversely, six participants believed there should be no restriction on the number of consecutive hours a firefighter could work. Participant 7 argued that it is an individual's constitutional right to decide how many hours they work. At the same time, those in favor of no limit highlighted the importance of individual responsibility for managing one's own wellness and performance. Participant 11 noted that firefighters are adept at assessing their own capabilities and regulating their workload accordingly. Participant 8, who feels there should be a limit, mentioned, “Our culture is just saying, sure, guys want to work 18 days in a row, let's do it.” This statement demonstrates the rooted culture in this thought process, even when 100% of the participants admitted to workplace fatigue in the previous question.

The issue of limiting work hours within the fire department evokes strong opinions and is perceived as a divisive topic. Participant 6 felt that NFPA should provide recommendations for maximum hours worked to lessen the local opinion. This way, fire departments could lean on a national standard to help drive their decisions regarding work hours. Participants acknowledged the potential for their responses to be unpopular but remained transparent and forthcoming in their answers. Ensuring anonymity in the research process is paramount for this openness.

Interview Question 8

Have you ever experienced a workplace injury? If so, do you believe fatigue was a factor in your injury?

Summary of Results

Eleven out of fifteen participants disclosed experiencing a workplace injury, ranging from minor sprains and strains that often went unreported to more severe injuries requiring long-term workman's compensation, surgeries, and extended time off work. Among these eleven participants, six individuals, constituting 55% of the total, identified fatigue as a contributing factor to their injuries.

Participant 13 emphasized that fatigue often leads to lapses in attention and focus, increasing the likelihood of accidents, stating, "Majority of the time you get injured because you're just not paying attention. Your focus is not there. You're tired." Participant 15 echoed this sentiment, highlighting how exhaustion can impair the proper execution of tasks, such as "throwing the ladder," leading to injury.

These workplace injuries result in time off work and trigger mandatory overtime to cover for the absence, consequently exacerbating exhaustion, and burnout among firefighters. The cyclical nature of injuries, time off, and mandatory overtime perpetuates a cycle of fatigue and burnout within the department.

Interview Question 9

Do you believe there is a generational preference for working more or fewer hours?

Summary of Results

The findings show that 80% of the participants, or eleven out of fifteen, perceived a generational preference regarding the desire to work more or fewer hours. Many respondents highlighted evolving generational norms characterized by a reduced emphasis on materialism and a greater prioritization of life experiences such as travel. Participant 1 noted shifts in family

dynamics, where dual-income households are becoming more common, thereby diminishing the younger generations' inclination towards working additional shifts.

Participant 13 observed that Generation Y and Z individuals prioritize achieving a work-life balance, reflecting a broader societal trend toward seeking harmony between professional and personal lives. However, Participants 4 and 5 expressed concerns regarding what they perceived as a lack of work ethic among younger members of the fire department.

Interestingly, all participants (4) who believed there was no correlation between the desire to work extra shifts hailed from Generation Z, the youngest cohort in the department. Participant 2 suggested that across all generations there exists a balance between those eager to take on additional work and those who are not. Similarly, Participants 11 and 14 echoed this sentiment, emphasizing individual preferences rather than generational differences as the driving force behind work ethic choices.

These findings underscore the complexity of factors influencing attitudes towards work hours within the department, including evolving societal norms, family dynamics, and individual preferences, which transcend generational boundaries.

Interview Question 10

What is the optimal number of work hours per week, in your view?

Summary of Results

The answers varied widely from the participants about how many hours of work per week they felt was optimal. However, the majority (9 participants) fell between 56-72 hours. The answers to this question were personal to each individual and depicted the number of “extra” work hours each person desired. Refer to Figure 5 for detailed results.

Figure 5

Desired Work Hours Per Week

Participant Number and (Generation)	Theme 1 Less than 55 Hours Per Week	Theme 2 56-72 Hours Per Week	Theme 3 Greater than 73 Hours Per Week
1 (X)		56	
2 (Z)	48		
3 (Y)		56	
4 (Z)		56	
5 (Z)		56	
6 (X)		68	
7 (Y)		56	
8 (X)			96
9 (Y)			80
10 (X)			96
11 (X)	48		
12 (X)		72	
13 (Y)		56	
14 (Z)	48		
15 (Y)		56	

Despite every participant acknowledging experiencing workplace fatigue and a significant majority attributing the increasing injury rate to the number of hours worked, it was surprising that many participants expressed a desire to work not only a 56-hour work week but often much more. Participant 8 exemplified this dedication, expressing a willingness to work

despite injuries, reflecting a strong commitment to fulfilling staffing requirements within the organization, even at personal expense.

Participant 11 proposed that a 48-hour work week is optimal for firefighters' health and well-being, suggesting that maintaining this schedule is the healthiest approach. Participant 8 expanded on this notion by emphasizing the importance of ensuring 96 hours off after working 48 hours to allow for adequate recovery and reset time.

These perspectives shed light on the organizational culture and the dedication of firefighters to their duties, even in the face of potential health risks. While acknowledging the physical toll of long work hours, participants also highlight the importance of balance and adequate rest periods to promote overall health and well-being.

Summary

This research employed qualitative interviews with 15 members of the CFD, ensuring representation from each of the three generations: X, Y, and Z, with five individuals from each to maintain fairness. Participants were drawn from all seven work locations within the organization and represented all operational ranks below management. The interview questions aimed to uncover perceptions regarding the causes of increasing injury rates, the factors driving mandatory overtime, and the connection to generational preferences regarding desired work amounts.

In conclusion, the integration of qualitative insights gleaned from interviews with the comprehensive analysis of existing literature represents a crucial step toward addressing the complex challenges faced by the Corona Fire Department. By synthesizing firsthand experiences with scholarly research, this study aims to offer nuanced and practical solutions to combat the escalating issues of increased injury time off and forced overtime.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Summary of the Results

The findings from the interviews addressed the qualitative research questions outlined at the study's outset, revealing the multifaceted and intricate nature of these issues. Many responses were deeply entrenched in organizational culture, suggesting that meaningful change will require considerable time and effort. As encapsulated by the quote attributed to Drucker (as cited in Foreman, 2016), "Culture eats strategy for breakfast," it became apparent that well-intentioned policies or procedures alone may not effectively address the challenges of rising injury rates and mandatory overtime without a fundamental shift in workforce attitudes and behaviors. Additionally, the interviews underscored the inevitability of employers adapting to the preferences and expectations of the younger generations entering the workforce. This insight highlights the need for organizations to remain agile and responsive to evolving generational dynamics to address contemporary workplace challenges effectively.

This research has investigated the potential causes for the increased mandatory overtime and injury rates among firefighters within the Corona Fire Department (CFD) over the past decade. Several key findings have emerged through a comprehensive examination of existing literature and interviews conducted with CFD employees. Firstly, the analysis indicates a significant correlation between mandatory overtime and increased injury rates among firefighters. This correlation underscores the importance of addressing the issue of excessive work hours within the CFD, as it directly impacts the well-being and safety of its personnel. The findings suggest that the rising trend of mandatory overtime within the CFD is a concerning phenomenon that requires continued attention. It contributes to heightened injury rates and leads to fatigue and burnout among firefighters, potentially jeopardizing their effectiveness and

performance on duty. Based on these insights, several recommendations can be made to mitigate the adverse effects of mandatory overtime and reduce injury rates within the CFD.

The CFD leadership must prioritize the well-being and safety of its firefighters by addressing the root causes of the stated issues and implementing targeted interventions. By doing so, the department can strive towards creating a safer and healthier work environment for its personnel, ultimately enhancing their overall effectiveness and service delivery to the community.

Conclusions Based Upon Results

The qualitative interviews and thorough literature review conducted in this research have been instrumental in identifying multiple recurring themes related to the stated issues. Through these methodologies, the researcher gained valuable insights into the challenges faced within the CFD and the broader context of similar problems in other industries. The literature review revealed parallels between the challenges observed in the CFD and those documented in various other sectors. This comparative analysis provided a valuable framework for understanding the complexities of mandatory overtime and its implications for injury rates, shedding light on potential solutions and best practices adopted elsewhere.

The qualitative interviews were crucial in delving into the CFD's specific organizational culture and dynamics. By engaging directly with CFD personnel, the researcher uncovered unique perspectives, attitudes, and behaviors that contribute to the challenges surrounding mandatory overtime and injury rates.

The qualitative interviews and literature review have collectively highlighted the complex landscape of issues faced by the CFD. Through a thorough examination of these varied data sources, the researcher has discovered-recurring themes. These-findings are derived from

empirical evidence as well as the firsthand experiences shared by CFD personnel. As we delve into the subsequent discussion, it is imperative to consider the key themes that have emerged from this comprehensive analysis.

1. The interplay between injuries and mandatory overtime exacerbates the challenges faced by employees. Mandatory overtime induces fatigue, diminishes work satisfaction, and escalates the risk of injuries among firefighters. Consequently, these injuries further exacerbate the need for mandatory overtime by depleting the available staffing pool. This cyclical relationship underscores the urgency of addressing both issues to break the cycle and promote a safer and more sustainable work environment for CFD firefighters.
2. The causes of both injury and mandatory overtime are often interconnected and multifaceted, encompassing factors such as burnout, fatigue, wellness deficiencies, aging, and staffing shortages within the department. These intertwined issues highlight the complexity of employees' challenges, necessitating a holistic approach to address their causes effectively. By recognizing and addressing these various contributing factors, organizations can strive to create a healthier and more sustainable work environment for their personnel.
3. Generational differences manifest within the workplace, leading to potential clashes between traditional business practices and the evolving desires of newer generations. As organizations experience turnover and welcome new generations into their workforce, it becomes imperative for CFD leadership to acknowledge and understand these differences. By doing so, leaders can effectively navigate their employees' diverse needs and preferences, fostering a safe and productive work environment.

Therefore, investing in education and developing proficiency in managing generational diversity is crucial to leveraging all employees' strengths and promoting workplace harmony.

In conclusion, the findings of this research provide valuable insights that can serve as a foundation for implementing a comprehensive strategy to mitigate injury-related absences and the necessity for mandatory overtime among firefighters. The perspectives and experiences shared by the interviewees are likely representative of those within firefighting organizations across the industry. It is, therefore, crucial that not only the CFD but for leadership throughout the fire service to take proactive measures to address the causes of injury-related time off and mandatory overtime. By adopting a collaborative and proactive approach, fire service leadership can work towards creating safer and more sustainable working conditions for firefighters, ultimately enhancing both employee well-being and operational efficiency.

Limitations

In discussing the limitations of this study, it's important to note the context of the City of Corona Fire Department, which comprises 110 sworn members distributed across eight different work locations within the city. The sample size for this qualitative study was 15 members, representing Generation X, Generation Y, and Generation Z. The selection process aimed to prevent biases by randomizing personnel lists. However, it resulted in an unequal representation of ranks, such as only one engineer participating. Consequently, the study's focus on age makes it inconclusive regarding whether rank influences respondents' answers.

Furthermore, each organization possesses its unique culture, and while this study concentrated on the Corona Fire Department, the sentiments and perceptions within other

organizations may differ. Fire service leadership must conduct similar investigations within their own organizations to ascertain if similar patterns exist.

Moreover, the interviewees' perspectives could be influenced by their current circumstances. Fluctuations in staffing levels and long-term injuries can significantly impact firefighters' perceptions regarding the causes of injuries and their attitudes toward mandatory overtime. Anecdotal evidence suggests that concerns and complaints tend to fluctuate with changes in staffing levels, indicating a potential bias in respondents' views. The interviews for this study were conducted during a period of adequate staffing, decreasing injuries, and minimal forced overtime. These factors are subject to seasonal variations, whereas the study's statistical data focused on long-term trends.

Acknowledging these limitations is crucial for interpreting the findings accurately and underscores the need for future research to address these factors comprehensively.

Implications and Recommendations to the Field

Based on the study's findings, there are several recommendations for reducing mandatory overtime and injury time off. These recommendations can be placed into three categories- easy, moderate, and complex.

The simplest remedies are as follows. These solutions would cause minimal to no cost to the organization and are unlikely to cause cultural strife.

1. Implement a maximum-hour worked policy regarding forced overtime. Based on the interviews, not forcing a firefighter into a shift greater than 72 hours would be a start.
2. Implement a system to track the hours firefighters work before the injury occurs. This tracking will reveal patterns and yield statistical insights into when injuries

are most likely to happen. Utilizing this data can assist in creating preventive measures that can be implemented to mitigate the occurrence of future injuries.

3. Provide continued training on health and wellness to fire department members while providing robust resources for mental health care. Focus on sleep deprivation avoidance and signs of fatigue should be included in such training.

Suggestions for implementation that would be moderate in difficulty. The difficulty is due to potential collective bargaining issues, memorandum of understanding restraints, budgetary concerns, and cultural challenges.

1. Implement an across-the-board maximum hours worked policy based on injury statistics within the CFD.
2. Change staffing levels to include minimum rather than constant staffing, allowing the CFD to hire additional personnel to fill in behind injuries, vacation time, and training. These additional personnel will drive hours worked down, which some will welcome; however, there will be significant dissent from those who desire overtime availability.
3. Phase in a decreased work week by hiring additional personnel to bring the work week down from a 56-hour schedule to 48 hours per week or less. Although reducing the hours worked per week will likely help to solve the issues, it will face extreme cultural challenges.

Lastly, long-term complex solutions are as follows. These solutions would affect the fire service as a whole and often necessitate local, state, and federal legislation. These solutions would also bring sweeping cultural change and would likely take years to implement. The following recommendations are derived from the theme that reduced working hours will assist in the battle to drive down injury time off and forced overtime. Both the literature review and

interviews show a trend of future generations desiring to work less. Achieving these following recommendations would potentially bolster employee happiness therefore driving down the stated issues.

1. Establish a 40-hour-per-week schedule to place newly hired firefighters onto. Through attrition, 56-hour employees would be phased out, decreasing work hours. This decrease should stabilize fatigue and burnout and reduce injuries and forced overtime.
2. Repeal the FLSA 7K exemption, allowing municipalities to only pay firefighters overtime after 53 work hours per week. This legislative change would require a fourth shift, driving the work week to 42 hours.
3. Create OSHA maximum hours worked mandates to ensure proper enforcement of work-rest cycles for fire department employees. These mandates exist in other industries, such as over-the-road trucking and the airline industry. This change would require legislation and robust scientific study to determine the work thresholds for the fire service.

These recommendations offer a comprehensive approach to address mandatory overtime and injury time off within the fire service, considering varying complexity levels and potential implementation challenges. Collaboration among stakeholders, including firefighters, unions, management, and policymakers, will be crucial in effectively implementing these measures to promote firefighter well-being and organizational efficiency.

Recommendations for Future Research

The literature review has revealed a notable gap in decision-making research concerning firefighters experiencing fatigue and sleep deprivation. This Capstone project just scratched the surface of the effects of these issues. While sleep deprivation and fatigue studies exist, research specific to the fire service context is scarce. A deep dive into generational desires pertaining to

hours worked would be valuable to future fire service leaders. Understanding generational norms will assist in getting upstream of potential future issues.

This Capstone paper serves to validate the statistical data presented in Figure 1, which illustrates the pervasive nature of injury-related time off and mandatory overtime. It also underscores how these issues exacerbate each other, compounding the decrease in overall operational efficiency and firefighter well-being. Due to the statistical analysis used to unearth the stated problems, further quantitative research would be recommended to assess if these issues persist or if changes create a positive change.

The findings of this study offer valuable insights that can serve as a foundation for future researchers to delve deeper into the multifaceted causes and potential solutions for these complex challenges within the fire service. By building upon this research, scholars can explore nuanced approaches to mitigating the adverse effects of fatigue and sleep deprivation, ultimately enhancing the effectiveness and safety of firefighting operations.

Conclusion

The research paper aimed to investigate the perceptions of Corona Fire Department (CFD) members regarding the causes of increased injury time off and mandatory overtime within the past five years. This investigation was achieved through a comprehensive approach involving a literature review and interviews with CFD members representing different generations.

In the future, both CFD leadership and fire service leadership must recognize and address the detrimental effects of fatigue and burnout among firefighters. Understanding the unique desires and preferences of different generations within the workforce is essential for adapting policies and procedures accordingly. As the demand for emergency services continues to escalate in the coming years, it becomes increasingly crucial to confront these challenges proactively.

Safeguarding firefighters from fatigue and burnout ensures that the community receives assistance from healthy and competent fire service professionals who are adequately prepared and rested to make critical decisions during emergencies. This approach promotes the well-being of firefighters and enhances the effectiveness and reliability of emergency response services provided by the Corona Fire Department and similar organizations.

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APPENDICES

APPENDIX A

Interview Consent Form

Interview Consent Form

Identification of Investigators & Purpose of Study

You are being asked to participate in a research study conducted by Robert Peterson from the National Fire Academy (NFA) and Columbia Southern University. The purpose of this study is to develop a better understanding of a critical issue in the fire and emergency services. This study will contribute to the researcher's completion of their final project for the Executive Fire Officer program.

Research Procedures

Should you decide to participate in this research study, you will be asked to sign this consent form once all of your questions about the study have been answered to your satisfaction. The study consists of an interview that will be administered to individual participants. You will be asked to provide answers to a series of questions related to your experience within a particular community. **An audio recording of the interview will be taken for transcription purposes. The audio file will be deleted at the conclusion of the study and will not be shared with anyone other than the researcher.**

Time Required

Participation in this study will require approximately 60 minutes of your time.

Risks

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

The NFA, Columbia Southern University, and its contractors take no responsibility for the actions or outcomes of the research study.

Benefits

There are no direct benefits to the participant; however, information from this study may benefit your, and other communities, in the future.

Incentives

There are no incentives (financial or otherwise) associated with participation in this study.

Confidentiality

The results of this research will be presented to NFA and Columbia Southern University program faculty and students. The results of this project will be coded in such a way that the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. While individual responses are confidential, aggregate data will be presented representing averages or generalizations about the responses as a whole. All data will be stored in a secure location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers including audio will be destroyed. Final aggregate results will be made available to participants upon request.

Participation & Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind.

Questions about the Study

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

Robert Peterson
Student
National Fire Academy
Robert.peterson@coronaca.gov

Dr. Justin Heim
Course Manager
Columbia Southern University
Justin.Heim@columbiasouthern.edu

Giving of Consent

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

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

Interviewer Signature		**Date**:	

Interviewee Signature		**Date:**	
Interviewee Signature		**Date:**	

APPENDIX B

Semi-Structured Interview Guide and Questions

This interview is being conducted as part of a Capstone research project as required by the National Fire Academy's Executive Officer Program. The purpose of this interview is to acquire information from Corona Fire Department members about their thoughts and perceptions of causes of increasing injury time off and the increase in mandatory overtime that has occurred within the department. A table depicting the injury and forced overtime hours has been provided for your review.

Prior to conducting this interview, I would like you to read and sign this interview consent form. This interview is completely voluntary, and you have the right to not answer questions or withdraw from the interview at any time. This interview and your answers have no bearing on your employment status with the Corona Fire Department. Your answers will be completely confidential, and your name will not be present in the written document. If you have any questions or concerns regarding this interview, please contact the researcher, Robert Peterson, at (714)925-2520 or by email at robert.peterson@coronaca.gov.

Corona Fire Department Statistics

	Total Injury Hours Off	Overtime Hours Worked	Force Hire Hours Worked	Call Volume
2013	5169	85708.25	3355.75	10758
2014	2687	100130.75	7717.25	11358
2015	7370.75	108130.75	15086.50	1044
2016	6161.25	107463	13748.75	12658
2017	7419	103985	11950	12980
5 Year Totals:	28807	505418	51858	59798
2018	7373	116552.25	15605.25	13048
2019	11754.75	106213	12985.75	14098
2020	7646	108483.50	19219.75	13964
2021	13634.75	119034.50	29585.75	14927
2022	15147.25	116982.25	36259.50	15927
5 Year Totals:	55555.75	567265.50	113656.00	71964
Percentage Change In 5 Year Spans	93% Increase	12% Increase	119% Increase	20% Increase

Note: Two aggregate five-year groupings were examined to visualize long-term trends and reduce single-year abnormalities.

Interview Questions

1. What is your current assignment and rank within the Corona Fire Department?
2. How many years have you been employed with the Corona Fire Department?
3. Which of the following groups represents your birth year?
    a. 1965-1980
    b. 1981-1996
    c. 1997-2015
4. What do you believe is causing the increased injury rate?
5. In your opinion what do you believe is causing the increase in mandatory overtime?
6. Do you experience work-related fatigue?
7. Should the CFD institute a policy for maximum consecutive hours worked?
8. Have you ever experienced a workplace injury? If so, do you believe fatigue was a factor in your injury?
9. Do you believe there is a generational preference for working more or fewer hours?
10. What is the optimal number of work hours per week, in your view?

APPENDIX C

Summary of Questions 1-3

Participant	Rank	Years of Service	Generation
1	Captain	19	X
2	Firefighter	2	Z
3	Firefighter PM	7	Y
4	Firefighter PM	2	Z
5	Firefighter PM	4	Z
6	Engineer	25	X
7	Firefighter PM	4	Y
8	Fire Captain	21	X
9	Firefighter	2	Y
10	Captain	31	X
11	Firefighter PM	1.5	Z
12	Captain	19	X
13	Captain	17	Y
14	Firefighter	2	Z
15	Firefighter PM	3	Y
Note: Station assignment was omitted to ensure anonymity.			

Participant	Question 4/ Responses	Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6
	What do you believe is causing the increased injury rate?	Age of workforce	Mental Health Issues	Call Volume Increase	Lack of physical fitness / Self Care	Hours Worked causing fatigue	End of career injury claims
1	Injuries are form guys with longer tenure.	1	1				
2	Lack of quality physical fitness			1	1		
3	The hours worked and increased call volume is leading to more stress and fatigue.		1	1		1	
4	Older firefighters are getting hurt.	1		1		1	
5	People are not taking care of their bodies.				1		
6	After 15-20 years toll it taken to body, lack of work life balance.		1			1	
7	Age is a big factor for injuries.	1					
8	Lack of work life balance and to many hours.		1			1	1
9	People are not seeking mental health care early enough.		1		1		1
10	Excessive work and lack of people taking care of themselves.				1	1	
11	Hours worked and age.	1				1	
12	The focus or the shift of focus towards mental health, um, has made some of that stuff more accessible to guys.	1	1	1			
13	I feel like a lack of sleep, and I feel lack of physical activity				1	1	
14	We have a huge generational gap.	1				1	
15	Burnout is causing more injuries,			1	1	1	
Totals:		**6**	**6**	**5**	**6**	**9**	**2**

Participant	Question 5/ Responses	Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6
	In your opinion what do you believe is causing the increase in mandatory overtime?	Call Volume Increase	Increased Injuries	Generational Desires	Burnout	Manipulation	Employee retention
1	Call volume increase and staffing patterns with people out on injuries	1	1				
2	The short answer is that people don't want to work			1	1		
3	Increase in call volume and increase in exposure to more, exposure to more, more stress inducers,	1	1	1	1		
4	Long term injuries with individuals taking advantage of the injury to have time off.		1			1	
5	So specific stations obviously were up all night a lot of times and people maybe don't want to be on these long stretches of working three, four days or even more because of the lack of sleep.	1	1		1		
6	I think they're (employees) utilizing the workman's comp system to kind of reset.		1	1	1	1	
7	To much overtime. Kind of almost like the concept of you biting off more than you can chew. Like we were happy with the overtime and we were hardworking in the department and we worked a lot and it just... Wasn't sustainable.				1		
8	In my opinion, it's the inability to retain firefighters. I feel like we've had a huge turnover in the last, I'd say 10 years before our new contract.				1	1	1
9	Some of our younger generations or younger hires like that 48/ 96 schedule are not so much into working extra shifts. I think it just has to do with their quality of life and what they do is just different.			1			
10	There was definitely some purposeful, I would rather get mandatory than sign up.			1		1	
11	Demand for Fire Service members and responses have been going up for the past 10 years.	1	1		1		
12	I think a shift in culture of some of our younger guys We're seeing young guys show up and work the minimum.			1		1	

13	I feel like that is generational in my eyes. Because I feel like when I was first here, that was never really that much of an issue for the first five, six, seven years that I was here. I didn't really hear anybody complain about it.			1			
14	We all we want the overtime that we want like this is only in a certain amount or a certain point.			1	1		
15	The older generation, is, you live to work and this new generation is very, I work to live.			1			
Totals:		**4**	**6**	**9**	**8**	**5**	**1**

Participant	Question 6/ Responses	Theme 1	Theme 2
	Do you experience work-related fatigue?	Yes	No
1	Some of the stress of handling personnel and personnel issues is fatiguing.	1	
2	I've noticed once I get to the four five -day range in a row, that's when I start getting fatigued.	1	
3	Yeah, just being here because you're present, you're not sleeping as well as you would at home.	1	
4	Having multiple calls at night especially at the busy house having three or four wake -ups and only a couple hours of sleep I would definitely experience work fatigue.	1	
5	Not really getting any downtime at work.	1	
6	Sleep deprivation to me is probably the biggest cause	1	
7	Well, being at one of the busier houses, if we get wrecked the night before or coming home that next day, I'm not really worth anything to my wife or my family.	1	
8	You can really burn yourself out but if you learn the tools to, you know, still love the job but be able to balance that like homework life.	1	
9	We all experience that fatigue when we, you know, if we work at a busy house and we're up four or five times a night.	1	
10	At times, but some of it is my own fault.	1	
11	Fatigue after a 72-hour shift.	1	
12	So we're constantly training, doing all kinds of stuff. So all that adds up in 48 hours, days fly by, but when you don't spend a lot of time, kind of sitting down, catching a breath a little bit, it'll light up. And then couple that in with night calls. I'll go home tired for sure.	1	
13	Lack of sleep when you continue to work multiple days at a time, it continues to wear on you.	1	
14	Especially for some of those busier districts That call volume starts to catch up to you a little bit and so definitely days at home or like that first day,	1	
15	When you are forced to work you have no motivation and you get burnout.	1	
Totals:		**15**	

Participant	Question 7/ Responses	Theme 1	Theme 2	Theme 4
	Should the CFD institute a policy for maximum consecutive hours worked?	Yes	No	Hour limit
1	A day of rest to kind of help rejuvenate themselves and start over will be beneficial not only for personnel, but obviously from being at home whether if they have families or not it benefits them being at home and having a good family balance.	1		120
2	I don't think so because I feel like that's the employee's choice if they want to work that much.		1	Unlimited
3	Give individuals at least a break to be able to decompress and start to get back on track to coming back to work.	1		72
4	I still feel like its my decision. Capability and my attitude has kept up, so I don't feel like that would need to be put in place.		1	Unlimited
5	Obviously people are different. So if they feel that they're capable of working these long stretches then that's on them.		1	Unlimited
6	I think like because we need something to base it off of right like an NFP standard.	1		14 Days
7	It's their constitutional right to work how long they want.		1	Unlimited
8	Our culture is just saying like, sure, guys want to work 18 days in a row, let's do it.	1		120
9	You have to judge yourself and maybe you don't stay up in the chairs to one in the morning watching movies with everybody. Maybe you make an effort to go to bed at 10 and get that sleep when you can.		1	Unlimited
10	I can see the fatigue or the potential for error when you're not resting.	1		120
11	Guys are good at regulating what they can handle.		1	Unlimited
12	But like anything over 72 hours, and I'm kind of over it.	1		96
13	I can say for me personally, after 96, four or five days, I feel like you need a break	1		120
14	There should be the ability to work 72 hrs., you got forced on that 96 like there should be policy If you want it, then sure you could work that next fifth day.	1		96
15	I don't think anyone should really be working more than 96 hours at a time.	1		96
Totals:		**9**	**6**	

Participant	Question 8/ Responses	Theme 1	Theme 2	Theme 3	Theme 4
	Have you ever experienced a workplace injury? If so, do you believe fatigue was a factor in your injury?	No	Yes	Fatigue a Factor	Fatigue not a factor
1	What I was doing physically didn't seem, overexerting.		1		1
2	No, nothing incident related or that I considered an injury.	1			
3	I don't believe fatigue was a factor to it.		1		1
4	No injury reported	1			
5	I was fatigued that I wasn't thinking, I guess, clearly about doing the right movement or what not as far as lifting a patient.		1	1	
6	Stretching as you get older your body gets a little tighter You don't warm up in the morning, and we can't warm up on calls, right?		1	1	
7	No injury reported	1			
8	Fatigue not a factor in injuries.		1		1
9	No injury reported	1			
10	One of those seasons we were just getting pounded.		1	1	
11	Not at this department, but my previous department.		1		1
12	I mean, this is more of a wear and tear and that was something that I discussed with my doctor.		1		1
13	Majority of the time you get injured because You know, you're just not paying attention. Your focus is not there You're tired.		1	1	
14	I would say that was a call that we had that was a wake -up call So definitely could have played a factor and like looking back at it like okay, so it was in the middle of the night		1	1	
15	Throwing the ladder. You're just, not doing it the way you're supposed to be doing because you're exhausted.		1	1	
Totals:		**4**	**11**	**6**	**5**

Participant	Question 9 / Responses	Theme 1	Theme 2
	Do you believe there is a generational preference for working more or fewer hours?	Yes	No
1	A lot of the spouses stayed home where I think the generation now, lot more college educated with schooling, work, more spouses work, and I don't think the I think the newer generation doesn't feel the need to work as much.	1	
2	I'd say there's an even balance of both wanting to work and not wanting to work in the generations.		1
3	I would say that the younger generation prefers to work less than another generation with spouses and children.	1	
4	Even us younger generations, especially the guys on my crew right now, we're working quite a bit of overtime. So I'm not seeing a gap.		1
5	Its kind of their mindset. But I feel like as a whole of this newest generation of firefighters not wanting to work very much, especially helping out even guys that get mandatory on holidays or whatnot, different things like that.	1	
6	The younger generation not wanting to work as many hours	1	
7	I think the younger generation doesn't want to work as much and the older generation is used to and conditioned to working more whether It just be that's how they were brought up in the in the department or To fit their lifestyle or just who they are hard workers.	1	
8	I would say the newer generation just wants to come here and you know do their two shifts and go home for their four days and don't put in as much extra effort as we have in the past.	1	
9	Now with our with the younger generations it just Based on what I'm seeing and I haven't dug through all the data But I think a lot of our younger folks. (Don’t want to work)	1	
10	These guys and probably for the better of their own mental health like a better separation of like work -life balance.	1	
11	I don't think it's generational, because I think there's guys from my generation that want to work, you know, love to work and let the work nonstop, and then there's guys that don't, you know? And then I see that both in all the generations.		1
12	They have different priorities. They want to travel the world and experience all these things.	1	
13	I feel like the current generation, as far as now, they're more focused on that work -life balance.	1	
14	I think there's just guys that want to work and guys that don't.		1
15	Newer generation is more about working less to satisfy their home life or their private life.	1	
Totals:		**11**	**4**

Participant	Question 10/ Responses	Theme 1	Theme 2	Theme 3
	What is the optimal number of work hours per week, in your view?	< 55	56-72	73<
1	The second day is always a little more of a lackluster or less that those individuals seem less fresh the second day.		56	
2	Being able to have a life outside of work I would say 48 a week is a pretty reasonable number.	48		
3	I feel like 56 hours is manageable.		56	
4	I've been gone from home for extended amount of time and kind of miss my family and being with my friends and stuff.		56	
5	56 hour work week, as far as getting rest on your four day off, I would say the 56. I'm pretty happy with our current schedule.		56	
6	Working one over time every two weeks is not a hard. It's not. I don't feel it's like putting myself out, right? Like I'm being exhausted by working one extra day.		68	
7	Because of we do shift work. Its Okay.		56	
8	96. I'm not afraid to work. Even when I have an injury, I just want to come back to work.			96
9	I Would be happy with 80 hrs. per week.			80
10	No more than 96. You know, like two extra overtime shifts in a week,			96
11	I think 48 hours a week as a fire service member is pretty optimal if you can maintain that. I think that's the healthiest.	48		
12	So like my personal situation has changed to a point where my need and want to be home has changed as well.		72	
13	I think 56 hours is perfect as far as a week at a minimum with the days off in between.		56	
14	To have that ability to go home is nice, so 48 hours.	48		
15	The key part, is having 96 hours off, and then working those 48.		56	
Totals:		**3**	**9**	**3**

APPENDIX D

735 Public Safety Way • Corona, CA 92878 • (951) 2220 • FAX (951) 736

January 6, 2024

National Fire Academy,

I fully endorse Battalion Chief Robby Peterson's request to conduct voluntary interviews with Corona Fire Department employees as part of his National Fire Academy Capstone Research Paper.

The research maintains strict confidentiality and respects privacy. Granting access aligns with our commitment to continuous improvement as an agency. This research will not only benefit the Corona Fire Department but the entire fire service. Please contact me directly if additional information is required.

Sincerely,

Brian Young, Fire Chief
Brian.young@coronaca.gov
(951)520-6067

“ ”