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Walden University

College of Social and Behavioral Sciences

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Kayla Soohy

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Walden University
2022

Abstract

Anxiety, Depression, and Sexual Minority Identity Among First Responders

by

Kayla Soohy

MA, Walden University, 2020

BS, Indiana University of Pennsylvania, 2010

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Social Work

Walden University

November 2022

Abstract

Research indicates that first responders tend to experience high levels of anxiety and depression due to unique stressors associated with first responder employment. This increased risk level for mental health issues among first responders can be exacerbated by the addition of psychosocial stressors. The influence of interpersonal or intrapersonal factors, such as sexual minority identity, on the mental health issues experienced by first responders has remained relatively unexplored. The purpose of this research study was to explore the relationship between type of first responder, sexual identity, anxiety, and depression via a framework rooted in minority stress theory. Data were gathered from 202 research participants through a cross-sectional correlational survey design; the data were then analyzed via two-way ANOVA to assess the relationship between the key variables. A statistically significant relationship was observed between type of first responder, sexual minority identity, and anxiety. A statistically significant relationship was also found between type of first responder, sexual minority identity, and depression. In both models, sexual minority identity independently influenced the levels of anxiety and depression experienced by first responders. These findings could promote social change for first responders by providing scholar-practitioners with critical insight into the importance of preventing, identifying, and treating mental health issues within this unique population; the findings could also serve as a catalyst for the development of theories, interventions, and policies that specifically target this population.

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Dedication

I would like to dedicate the completion of this project to my family. To my son (Lucas), I appreciate your patience and adaptability throughout this process. I hope that watching me complete this project has taught you that, with determination and support, you truly can reach any goal you set – so dream big, Lukeyman. To my parents (Karen & Dave) and my sister (Nikki), I appreciate all of your assistance with reviewing and editing my dissertation. I am also thankful for your support and for all of the cheering you did for me after every academic milestone. Finally, to my grandma (Helen), thank you for instilling in me the importance of fighting for basic human rights in a compassionate yet untamed manner.

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I would like to thank Dr. Victoria Moore for recognizing my potential and for being the first person to refer to me as “Dr. Soohy” 16 years ago when I was an undergraduate freshman. Hearing the title sparked an interest that has finally become my reality. To Dr. Elizabeth Walker, thank you for encouraging me to further my education by recommending that I enroll in a doctoral program just when I thought I might settle after obtaining my MSW. Your support has been critical to my academic and personal success. I would also like to thank Lizzy for their constant validation, encouragement, and unconditional support. I appreciate the ongoing reminders to trust myself through every challenge and to celebrate myself after each accomplishment. Finally, I would like to thank my committee chair (Dr. Sean Hogan), my second committee member (Dr. Kenneth Larimore), and my university research reviewer (Dr. Alice Yick) for their continued guidance and support throughout the entire dissertation process.

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Chapter 1: Introduction to the Study

Twenty percent of adults residing within the United States will experience some type of mental illness within their lifetime (National Alliance on Mental Illness [NAMI], 2021). Among this population, the two most commonly reported mental health disorders are anxiety (19%) and depression (8%). The prevalence of both anxiety and depression has steadily increased over time, spiking considerably over the past 2 years (Centers for Disease Control and Prevention [CDC], 2021). Although these statistics are representative of the general population, there are specific sub-populations that are at an even higher risk level for developing symptoms of mental health disorders such as anxiety and depression; this includes first responders and sexual minorities (Healy & Vujanovic, 2021; Hruska & Barduhn, 2021; Marshall et al., 2021; Steele et al., 2017).

Approximately 30% of first responders report experiencing symptoms of mental health disorders including anxiety and depression (Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). This heightened risk of symptom development is reflective of first responders experiencing not only typical workplace stressors, but also the ongoing exposure to a multitude of severe occupational hazards (Lanza et al., 2018; SAMHSA, 2018; Van Hasselt et al., 2022). Other psychosocial stressors and personal characteristics, such as sexual minority identity, may further exacerbate the mental health issues experienced uniquely by first responders (Kyron et al., 2021). According to NAMI (2021), almost 40% of adults who self-report sexual minority identity report experiencing symptoms of mental illness. These statistics indicate that both first responders and sexual minority populations are independently at a

higher risk than the general population for experiencing mental health disorders. However, there is a lack of research regarding the mental health of first responders who identify as a sexual minority.

To bridge the current research gap, this study focused on exploring the relationship between first responder employment, sexual minority identity, anxiety, and depression via a theoretical framework rooted in minority stress theory. The results of this research could directly promote positive social change for first responders by providing scholar-practitioners with insight into preventing, identifying, and treating mental health issues within this unique population. This insight could then facilitate the development of theories and interventions that specifically target this population. The research findings might also provide first responders with more knowledge regarding their personal risk level for experiencing anxiety and depression.

This chapter will provide background information regarding anxiety, depression, typical employment-related stressors, occupational hazards specific to first responder employment, and multiple psychosocial stressors including family-related issues, relational challenges, self-stigma, societal stigma, and sexual minority identity. The research problem, purpose, nature of the study, research questions, hypotheses, and theoretical framework will also be addressed in this chapter. Additionally, information regarding this study's definitions, assumptions, scope, delimitations, limitations, significance, and social change implications will be provided; this will be followed by a succinct chapter summary.

Background

Anxiety

Anxiety is a mental health condition that affects almost 19% of adults (NAMI, 2021). Some of the most commonly reported psychiatric symptoms of anxiety include extreme worry, fear, apprehension, tension, and generalized uneasiness. These can be paired with a series of physical symptoms such as rapid heart rate, muscle tension, dizziness, or gastrointestinal issues (American Psychological Association, 2021). The cause of anxiety symptoms can vary and may occur in relation to a variety of biopsychosocial stressors including genetic predispositions, medical issues, environmental issues, employment-related stressors, and interpersonal/intrapersonal challenges (Smoller, 2020). Brief mild to moderate anxiety can, at times, be a typical response to increased stress. However, significant ongoing symptoms may qualify for a formal diagnosis (Stein & Craske, 2017).

Depression

Depression is a mental health disorder that affects approximately 8% of adults (NAMI, 2021). Some common symptoms associated with depression include extreme sadness, apathy, low motivation, social withdrawal, disinterest in preferred activities, self-esteem issues, lack of concentration, and appetite/sleep changes. Suicidal thoughts or behaviors may become a concern for individuals dealing with severe depression (American Psychiatric Association, 2020). These depressive symptoms may develop in response to multiple biopsychosocial issues including genetics, medical diagnoses or medications, exposure to trauma, employment-related stressors, or other social challenges

(Harvard Medical School, 2019). Similar to anxiety, brief mild to moderate depressive symptoms may be a typical response to challenging circumstances (Buqo et al., 2020). However, severe ongoing depressive symptoms warrant a formal diagnostic evaluation (Nussbaum, 2020).

Employment-Related Stressors

Certain employment-related stressors place individuals at high risk for developing symptoms of mental health disorders including both anxiety and depression (National Institute of Mental Health [NIMH], 2021). Regardless of the type of employment, most employees are exposed to a series of common work-related stressors throughout their careers. These stressors include job dissatisfaction, unmanageable work responsibilities, unsupportive or ineffective supervision, and some basic work-life balance issues (CDC, 2019; Mazzola & Disselhorst, 2019). Job dissatisfaction has been positively correlated with both anxiety and depression (Extremera et al., 2020). Employees who report unmanageable workloads also tend to report increased psychiatric symptoms (Griffiths et al., 2020). Lack of organizational and supervisory support has also been associated with increased mental health concerns (Macias-Velasquez et al., 2021). Additionally, increased depressive symptoms tend to be present in employees who report a strained work-life balance (Bergs et al., 2018).

First Responder Mental Health

Beyond these common employment-related stressors, employees from each occupation tend to experience a more specific set of stressors (World Health Organization, 2020). Due to the ongoing exposure to a series of unique occupational

hazards, levels of anxiety and depression are commonly increased for first responders (NAMI, 2021; SAMHSA, 2018). These occupational hazards include scene-related and client-related environmental safety concerns, primary and secondary exposure to traumatic events, shiftwork, sleep issues, compassion fatigue, and burnout (Agrawal & Singh, 2020; Chan & Andersen, 2020; Purba & Demou, 2019). Scene-related safety hazards have been cited by law enforcement officers as a factor that increases their depressive symptoms (Stogner et al., 2020). Patient-related issues such as severe psychosis and verbal/physical violence have also led to increased mental health symptoms in crisis clinicians, emergency medical technicians, and emergency department nurses/doctors (Berlanda et al., 2019; Muehsam, 2019; Setlack et al., 2021). Research studies have consistently indicated that first responders' exposure to both primary and secondary trauma is directly related to the development of anxiety and depression (Johnson et al., 2020; Roth et al., 2022). Some of the most common traumatic events experienced by this population involve witnessing or responding to homicides, suicides, violent crimes, automotive fatalities, large-scale disasters, and colleague deaths (McDevitt & McDevitt, 2020). Ongoing exposure to traumatic events without treatment or adequate time for processing between events can increase the symptoms of anxiety and depression experienced by first responders (Carleton et al., 2019; Mayer & Hamilton, 2018).

The anxiety and depression experienced by first responders can be further aggravated by this population's tendency to work unconventional shifts. Due to the emergency-focused nature of this employment, most first responders work rotating

schedules and 12+ hour shifts including overnight shifts (Cramm et al., 2021). This type of shiftwork often prevents first responders from being able to meet their basic needs for extended periods of time; it also does not allow them to maintain effective sleep schedules, the combination of which facilitates the development of mental health symptoms such as anxiety and depression (Feldman et al., 2021; Khan et al., 2020). These shift-related and sleep-related issues, combined with various occupational hazards, can lead to first responders experiencing compassion fatigue and burnout, both of which are associated with increased levels of anxiety and depression (MacDermid et al., 2021; Mayer & Hamilton, 2018).

Other psychosocial factors also known to further impact the levels of anxiety and depression experienced by first responders include family-related issues, relational challenges, self-stigma, and societal stigma. Law enforcement officers and firefighters have cited family-related stressors, demands, and commitments as factors that have contributed to their levels of anxiety and depression (Cramm et al., 2021; Santa Maria et al., 2017). First responders also tend to experience difficulties with work-home transitional issues. Emergency department nurses and doctors have reported anxiety regarding the process of "switching" from work to home modes after difficult shifts (Mayer & Hamilton, 2018). It is also common for first responders to experience mental health challenges regarding other relational issues. Firefighters and emergency department employees have reported feelings of hopelessness, overextension, and isolation, which have led to difficulty maintaining social relationships (Durand et al., 2019; Morman et al., 2019). These psychosocial stressors serve as a challenge because

positive social relationships often serve as mitigators of both anxiety and depression (Lanza et al., 2018).

Stigma is another psychosocial factor that influences the levels of anxiety and depression in first responders. First responders possess heightened levels of self-stigma, feeling like their mental health issues make them weak, vulnerable, and incapable (Jones et al., 2018). These internalized feelings are often perpetuated by the presence of an overarching societal stigma regarding the perceived incompetence and fear surrounding first responders who experience symptoms of mental illness (McDevitt & McDevitt, 2020). This combination of self-stigma and societal stigma serves as a reason for first responders to not report their mental health symptoms, which has led to a generalized hesitancy to seek treatment (Bell et al., 2021; Marshall et al., 2021).

Sexual minority identity is another factor that can serve as a psychosocial stressor for first responders, although minimal studies exist regarding the influence of this factor. Sexual minority firefighters and law enforcement officers have reported extreme hesitancy to disclose their sexual identity at work, even when they were fully open about this in other social settings (Galvin-White & O'Neal, 2015; Wright, 2008). Many of these individuals have reported making significant effort to ensure that their sexual minority identity was not discovered by their coworkers. This hesitancy stems from first responders fearing multiple negative consequences including employment termination, discrimination, and direct or indirect harassment (Galvin-White & O'Neal, 2015). Sexual minority first responders have also reported experiencing issues regarding feeling that their professional identity conflicted with their sexual minority identity; many felt

pressured to ensure that their sexual minority identity was perceived as being secondary to their professional identity (Giwa et al., 2021).

Sexual Minority First Responder Mental Health

The influence of sexual minority identity on the mental health of first responders is a concept that has remained relatively unstudied. I only located one study that explored the interaction between variables such as sexual minority identity, first responder employment, and mental health issues. Kyron et al. (2021) found that sexual minority emergency medical technicians, firefighters, and law enforcement officers reported higher levels of generalized psychological distress and more frequent suicidal thoughts/behaviors than their heterosexual coworkers. However, the researchers did not explore specific mental health issues such as anxiety and depression. This indicated the presence of a clear research gap.

Research Gap

Extensive research exists regarding the impact of common employment-related stressors on mental health issues such as anxiety and depression. There are also numerous research studies that have explored the manner in which first responders' levels of anxiety and depression are affected by the additional occupational hazards experienced uniquely by this population. Furthermore, several studies have focused on the impact that secondary psychosocial stressors have on the mental health of first responders. However, there is a distinct gap in the scholarly knowledge regarding the compounded effect of sexual minority identity on first responders' levels of anxiety and depression. This research study produced critical data and a series of associated findings regarding the

relationship that exists between first responder employment, sexual minority identity, anxiety, and depression. These findings established a baseline of scholarly information which can now serve as the foundation for future micro-, mezzo-, and macro-level social change.

Problem Statement

First responders are at high risk for developing mental health disorders such as anxiety and depression (Healy & Vujanovic, 2021; Hruska & Barduhn, 2021; Marshall et al., 2021). This increased risk is due to a variety of typical employment-related stressors paired with multiple unique occupational hazards including the ongoing exposure to both primary and secondary trauma, compassion fatigue, shiftwork, lack of sleep, and physical hardships (Lanza et al., 2018; SAMHSA, 2018; Van Hasselt et al., 2022). If these stressors are not identified and treated, they can lead to burnout, which facilitates the development of long-term physical and emotional issues (CDC, 2018).

Although the overall mental health of first responders is negatively affected by these occupational stressors, other psychosocial stressors in an individual's personal life may further serve as a catalyst for increased anxiety and depression; one such factor is sexual minority identity (Fulginiti et al., 2020; Lindquist et al., 2017). For the purpose of this study, sexual minority identity was operationally defined as individuals who self-report any variance from the sexual majority of heterosexual identification. During the most recent United States Census Bureau Household Pulse Survey, 11.7% of adults self-identified as sexual minorities (United States Census Bureau, 2021). In general, individuals who self-identify as sexual minorities are at a higher risk level than their

heterosexual peers for developing mental health problems such as anxiety and depression (Steele et al., 2017). This heightened risk level can be attributed to a variety of social stressors including social stigma, discrimination, hate crimes, microaggressions, isolation, and a general lack of access to specialty providers (Verrelli et al., 2019). The overarching issue is the lack of existing research regarding the compounded impact that sexual minority identity has on the levels of anxiety and depression experienced by first responders. This study bridged the research gap by specifically exploring the unique relationship that exists between first responder employment, sexual minority identity, anxiety, and depression.

This problem is relevant to social work because the lack of existing research regarding this phenomenon indicates that there is currently an entire population of individuals whose mental health risk factors have not been fully explored. This is significant to the realm of social work because one of the core tenets of this profession is to ensure that the biopsychosocial needs of diverse or complex populations are acknowledged and addressed (National Association of Social Workers [NASW], 2022). Without this research, the mental health-related needs of first responders cannot be fully appreciated.

Purpose of the Study

The purpose of this quantitative study was to explore the relationship that exists between first responder employment, sexual minority identity, anxiety, and depression. This study included two independent variables (type of first responder and sexual minority identity) and two dependent variables (anxiety and depression). Analyzing the

relationship that exists between these variables via two-way analysis of variance (ANOVA) testing allowed for statements to be made regarding the statistical significance of each independent variable's influence on the dependent variable in addition to the interactional influence observed between the variables. These results were then interpreted and can now be operationalized in a manner that could serve not only as the foundation for future research, but also as the basis for micro-, mezzo-, and macro-level social change as it pertains to the overarching mental health of sexual minority first responders.

Research Questions and Hypotheses

The following research questions were utilized to determine the relationship that exists between the independent and dependent variables:

Research Question 1: What is the relationship between type of first responder, sexual minority identity, and anxiety as assessed by the Generalized Anxiety Disorder (GAD)-7?

$H_0$1: There is no statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

H_a1: There is a statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

Research Question 2: What is the relationship between type of first responder, sexual minority identity, and depression as assessed by the Patient Health Questionnaire (PHQ)-9?

$H_0 2$: There is no statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

$H_a 2$: There is a statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

Theoretical Framework

The theoretical framework supporting this research study was Meyer's (2003) minority stress theory. This theory posits that sexual minorities possess a disproportionally high risk level for developing certain mental and physical issues as compared to their heterosexual peers (Fulginiti et al., 2020). This elevated risk level is believed to be the byproduct of sexual minorities' ongoing exposure to social stressors that are unique to this population's sexual orientation (Lindquist et al., 2017; Meyer, 2003). Social stressors such as discrimination, oppression, and marginalization tend to stem from society's prejudicial norms, beliefs, and expectations associated with the heterosexual majority's perceived superiority (American Psychological Association, 2012).

When individuals who identify with the sexual minority population experience ongoing exposure to these external social stressors, this can facilitate the development of a series of internal issues such as guilt, shame, self-stigma, internalized homophobia, and low self-worth (American Psychological Association, 2012; Fulginiti et al., 2020). One common response to the development of these internal issues involves the individual attempting to reconcile the differences that exist between their sexual minority identity and the sexual majority norms; this adaptation process often ends in the individual

experiencing symptoms of disequilibrium, which perpetuates increased mental health issues including both anxiety and depression (Lindquist et al., 2017; Meyer, 2003).

Approaching this research through a theoretical framework rooted in minority stress theory allowed for a theory-based connection to be made between the key variables. Essentially, first responders are already known to experience a variety of unique occupational stressors (Healy & Vujanovic, 2021; Hruska & Barduhn, 2021; Marshall et al., 2021). Analyzing these pre-existing stressors via minority stress theory provided critical insight into the manner in which the occupational stressors experienced specifically by first responders could be further complicated by the social stressors associated with sexual minority identity. The application of this theory provided partial insight into the reason that sexual minority first responders experience differential levels of anxiety and depression as compared to sexual majority first responders.

Nature of the Study

A cross-sectional correlational survey design was utilized within this quantitative study. Correlational designs allow researchers to make statements regarding the presence of a non-causal relationship between non-manipulated variables (Price et al., 2017). Cross-sectional designs involve researchers gathering data from their sample at a single point in time (Lau, 2017). A convenience sampling technique was utilized to recruit participants. An informational flyer regarding the research opportunity was posted in multiple public first responder Facebook groups. Interested participants accessed the link and completed the survey. Two hundred and two first responders completed the survey; 88 of these individuals self-reported sexual minority identity. Participants initially

completed a questionnaire that gathered basic demographic information including their age, sex, race/ethnicity, primary language, type of first responder employment, employment location, years of professional experience, engagement in mental health treatment, and their self-reported sexual identity. Participants then completed the GAD-7 and the PHQ-9, which provided a quantitative indication of each participant's current level of anxiety and depression, respectively. The data obtained from the initial demographic questionnaire and these screening tools were then analyzed via two-way ANOVA testing. This allowed for a quantitative exploration of the relationship between type of first responder employment, sexual minority identity, anxiety, and depression.

Definitions

The following definitions describe the subjective terms that were used in this study:

Anxiety: Feelings of extreme worry, fear, tension, apprehension, dread, or uneasiness (American Psychological Association, 2021). Ongoing anxiety that interferes with daily functioning can be diagnosed as a formal mental health disorder. For the purpose of this specific research study, anxiety was measured via the GAD-7.

Depression: Feelings of extreme sadness or apathy, often causing low motivation or a loss of interest in previously preferred activities (American Psychiatric Association, 2020). Ongoing depression that interferes with daily functioning can be diagnosed as a formal mental health disorder. For the purpose of this specific research study, depression was measured via the PHQ-9.

Employment-related stress: The negative biological, psychological, and emotional responses that occur after exposure to workplace-related challenges (CDC, 2019). Ongoing stress stemming from one's employment can lead to decreased physical health and increased mental health issues including the development of both anxiety and depression.

First responder: Adults who are professionally trained to provide specialized assistance during emergencies (Centers for Homeland Defense and Security, 2016). Regarding this study, this included five distinct categories: law enforcement officers, firefighters, doctors and nurses employed in an emergency department setting, emergency medical technicians/paramedics, and behavioral health crisis clinicians. This was self-reported by each participant during the initial demographic screening.

Psychosocial stressor: A direct or indirect experience, interaction, or perception that negatively impacts an individual's mental health or their sense of individual, dyadic, or group belonging (Gellman & Turner, 2013).

Sexual majority: Individuals who self-identify as heterosexual (Meyer, 2003).

Sexual minority: Individuals who self-identify with any sexual orientation other than heterosexual (Lindquist et al., 2017).

Assumptions

There were two major assumptions guiding this study. The first assumption was that all participants were honest when answering the initial screening questions related to the inclusion criteria such as participant age, location of employment, type of first responder employment, and primary language. It was also assumed that participants

provided accurate answers to all of the other survey questions including sex, sexual identity, years of professional experience, and engagement in treatment. The second assumption was that the research participants fully understood the survey questions and that they subsequently answered the GAD-7 and PHQ-9 questions in a manner that generated total scores that were representative of the participants' actual levels of anxiety and depression. Both of these assumptions were necessary within the context of the study because they established the notion that the collected data were accurate and representative of this population's experience with anxiety and depression. Since the data were assumed to be accurate and representative, it was also assumed that the findings reflected this same level of accuracy.

Scope and Delimitations

The scope of this study was limited to adult first responders who were employed in the United States and fluent in the English language. The first responders were all employed in one of five distinct categories: law enforcement officers, firefighters, doctors and nurses employed in an emergency department setting, emergency medical technicians/paramedics, and behavioral health crisis clinicians.

Although minority stress theory was utilized, several other common social theories were considered; these included intersectionality theory, stress and coping theory, and ecological systems theory. Intersectionality theory was not chosen because of the theory's focus on the influence of colliding oppressive characteristics (Fehrenbacher & Patel, 2020). Although sexual minority identity is an oppressive characteristic, first responder employment is not. Additionally, the core tenets of both stress and coping

theory and ecological systems theory were highly applicable as it pertained to this research. However, the utilization of minority stress theory allowed this social problem to be explored via a framework that was uniquely designed to explain the compounding influence of sexual minority identity on other psychosocial issues (Meyer, 2003; Pitonak, 2017).

There were several delimitations associated with this study. First, due to ethical challenges, only adults were allowed to serve as participants. Second, due to resource-related restrictions and other complications associated with translating the survey and screening tools into other languages, all participants had to be fluent in English. Third, due to accessibility issues, only first responders who were employed within the United States were able to serve as participants. This created some issues surrounding generalizability, as mental illness prevalence, perpetuators, mitigators, treatment options, and outcomes are known to vary by geographic location (Mental Health America, 2020). Thus, the findings associated with the data gathered solely from individuals employed within the United States were likely not accurately reflective of the levels of anxiety and depression experienced by first responders on a global scale.

Another delimitation was the notion that some participants reported they were engaging in mental health interventions (medication and/or therapy), which could have affected their experienced levels of anxiety and depression. Almost 40% of all first responders seek professional treatment for symptoms of mental health issues (Blue Line, 2019). Thus, using this factor as an exclusion criterion would have prevented a large portion of first responders from participating in the research study. Therefore, data

regarding engagement in mental health treatment were collected but not utilized as an exclusion criterion for participation in this study.

The final delimitation associated with this study involved the decision to utilize a survey design to collect the necessary data. Surveys are typically cost effective, require a minor time commitment from participants, allow for anonymous responses, and are easily distributed to populations that may otherwise be difficult to reach. However, surveys are sometimes known to produce data-related errors due to participants having to interpret the questions with no assistance or clarification, feeling that their responses do not fully align with any of the limited choices, or providing inaccurate answers out of disinterest or boredom (Creswell & Creswell, 2018).

Limitations

Despite the extreme level of caution exhibited by researchers during the research process, all studies contain limitations (University of Southern California, 2022). One major limitation associated with this research study was the possibility that participants may have been hesitant to self-identify as sexual minorities due to this being a socially oppressive, stigmatized characteristic. Mitigation efforts involved participants being assured in writing, prior to completing the initial demographic section of the survey, that all of their responses (including their sexual identity) would remain completely anonymous.

Another limitation was that participants may have been hesitant to provide sensitive information regarding their enrollment in treatment and their symptoms of anxiety and depression since mental health is another socially stigmatized topic

(American Psychiatric Association, 2019). This may have been exacerbated by the social desirability bias, which involves the tendency of individuals to underreport socially undesirable qualities (Latkin et al., 2017). Again, to alleviate this natural inclination to underreport mental health issues, there was a clear statement provided at the beginning of the survey which informed participants about the anonymity surrounding their reported levels of anxiety and depression.

Experimenter expectancy bias could have also been a limitation in this study. This bias refers to the occurrence of a researcher's personal expectations about the findings of their research unintentionally influencing some aspect of the research process (American Psychological Association, 2020a). To mitigate this, I spent time identifying, acknowledging, and addressing any personal biases that may have existed prior to conducting any portion of the research. This served as a way to ensure that the entire research process remained objective.

Finally, selection bias may have presented as a limitation. This occurs when data are not collected from a well-balanced, randomized portion of the target population (Hanley, 2017). It was initially identified as a concern that the survey associated with this study would not reach the intended balance of sexual majority first responders, sexual minority first responders, certain types of first responders, and first responders who were experiencing notable mental health concerns. As a way to partially mitigate the influence of selection bias, this survey was distributed then tracked until enough responses were obtained from participants in each group.

Significance

This research study is significant because of the micro-, mezzo-, and macro-level social change that it could facilitate as it pertains to sexual minority first responders. On the micro level, the research process and the associated findings could provide both sexual minority and sexual majority first responders with information that would allow them to understand, prevent, identify, and seek treatment for any symptoms of anxiety and/or depression. Gaining an understanding of one's personal risk factors for mental illness is one of the first steps to preventing symptoms from initially developing (Office of Disease Prevention and Health Promotion, 2020). Since prevention techniques are not infallible, individuals must still be able to identify symptoms of mental illness and understand when and where to seek professional intervention.

On the mezzo level, this research study and the subsequent findings could serve as the basis for positive social change because these findings could encourage first response agencies to make policy changes regarding the process of regularly screening employees for symptoms of common mental health issues such as anxiety and depression. This research (and future studies based on this study's findings) could elicit enough data to compel first response agencies to make inclusion-related policy changes such as mandating the incorporation of contact information for certain specialty agencies into their company resource list. This would include behavioral health agencies known to be sensitive to the unique needs of sexual minorities.

These research findings could also serve as the basis for mezzo-level social change because this could prompt first response agencies to conduct internal analyses of

their benefit packages, ensuring they are providing a level of coverage for employee mental health services equivalent to this population's elevated mental health needs. According to SAMHSA (2018), the provision of employer-sponsored employee assistance programs can improve the mental health of employees, which simultaneously improves the overall functionality of the agency. This continues to facilitate the process of positive social change because, when agencies possess an elevated level of internal functionality, this allows them to provide more effective services to the populations they serve (Northouse, 2018).

On the macro level, these research findings could facilitate positive social change by serving as evidence that justifies federal funding being allotted toward more in-depth, large-scale research opportunities that could further benefit sexual minority first responders; this includes research toward the development of new theories and interventions specific to this unique population. One of the main components of evidence-based practice involves the operationalization of the most current research findings (NASW, n.d.). Currently, there is a distinct lack of research regarding the relationship that exists between first responder employment, sexual minority identity, anxiety, and depression. Due to this lack of existing research, there is an associated lack of evidence-based interventions designed to improve the behavioral health outcomes of this unique population. Thus, the sexual minority first responders who do seek professional intervention are being treated via generalized evidence-based practices for anxiety and depression rather than specialized ones that take into consideration the impact of the first responder's sexual identity on their mental health symptoms. This

research study could essentially serve as the foundation for the development of future data-based theories and evidence-based interventions necessary to effectively address the mental health issues experienced by sexual minority first responders.

Summary

Certain populations, including first responders, possess a heightened risk level for developing symptoms of mental health issues such as anxiety and depression due to their exposure to common employment-related challenges paired with a series of unique occupational hazards (Healy & Vujanovic, 2021; Hruska & Barduhn, 2021; Marshall et al., 2021). The literature further indicates that the mental health of this population is affected by the presence of multiple psychosocial stressors (Johnson et al., 2020; Jones et al., 2018; Lanza et al., 2018; McDevitt & McDevitt, 2020). However, the existing research has not addressed the impact of sexual minority identity on the levels of anxiety and depression experienced by first responders. This study bridged the current research gap by quantitatively exploring the relationship between first responder employment, sexual minority identity, anxiety, and depression. The findings of this research study could serve as a catalyst for micro-, mezzo-, and macro-level social change.

In Chapter 2, I will discuss the search strategies used to locate the scholarly information referenced within this study. I will also provide a more in-depth explanation of the theoretical framework. I will then provide an exhaustive summary of the literature associated with this study’s key variables including anxiety, depression, and first responder employment. This chapter will also contain information regarding the known mental health impact of employment-related stressors, occupational hazards,

psychosocial stressors, and sexual minority identity as it pertains specifically to first responders.

Chapter 2: Literature Review

First responders are at high risk for developing mental health disorders such as anxiety and depression due to the combined influence of common employment-related stressors, unique occupational hazards, and a series of psychosocial stressors (Healy & Vujanovic, 2021; Hruska & Barduhn, 2021; Lanza et al., 2018; Marshall et al., 2021). Another factor that may influence this population's risk level for developing symptoms of anxiety and depression is their sexual minority identity (Kyron et al., 2021). Thus, the purpose of this quantitative study was to explore the relationship that exists between first responder employment, sexual minority identity, anxiety, and depression.

There is limited scholarly knowledge regarding the manner in which sexual minority identity is related to mental health issues in first responders. The minimal existing research indicates that sexual minority identity places first responders at a higher risk level than their heterosexual peers for experiencing generalized psychological distress and suicidal ideations (Kyron et al., 2021). However, the research has not explored the differential occurrences of specific mental health issues such as anxiety and depression in first responders based on their sexual majority or minority identity. Most of the current research regarding first responders focuses on the notion that typical employment-related stressors, combined with unique occupational hazards, facilitate the development of mental health issues including anxiety and depression within this population (Lanza et al., 2018; SAMHSA, 2018; Van Hasselt et al., 2022). The research further expands to include the influence of other psychosocial stressors such as work-home balance, relational issues, and stigma regarding mental health issues (Jones et al.,

2018; Mayer & Hamilton, 2018; McDevitt & McDevitt, 2020; Smith et al., 2018). Although the impact of these psychosocial factors is well established, the research regarding the influence of sexual identity on the mental health issues experienced by first responders in general is almost non-existent. This lack of research elicits questions about the manner in which sexual identity affects the levels of anxiety and depression in first responders.

This chapter will begin with an explanation of the literature search strategy utilized to obtain the information referenced within the literature review. This will be followed by a thorough review of the literature related to all key variables including anxiety, depression, common employment-related stressors, unique occupational hazards experienced by first responders, and other psychosocial issues known to impact this population's mental health. Information will then be presented regarding the known impact of sexual minority identity on the mental health of first responders. There will be a discussion regarding the limitations associated with the current research, followed by a succinct chapter summary.

Literature Search Strategy

To obtain access to all relevant literature, a thorough search of the literature was conducted via electronic methods. The primary search method was the Walden University Library; Google Scholar was also utilized to explore resources related to the most current statistics. Through the Walden University Library, the following databases were initially searched: Science Direct, MEDLINE, LGBT+ Source, Academic Search Complete, and APA PsycINFO. An expanded secondary search was then completed

through the CINAHL, APA PsycArticles, PsychiatryOnline, SAGE, Science Citation Index Expanded, Social Sciences Citation Index, and Directory of Open Access Journals databases. Key search terms and phrases included *anxiety, depression, first responder mental health, emergency responder mental health, first responder anxiety, first responder depression, law enforcement mental health, police mental health, firefighter mental health, EMT mental health, crisis clinician mental health, emergency doctor mental health, emergency nurse mental health, sexual minority mental health, LGB mental health, lesbian mental health, gay mental health, queer mental health, LGB depression, LGB anxiety, LGB first responder mental health, LGB first responder anxiety, LGB first responder depression, minority stress,* and *minority stress theory*.

Seminal works, peer-reviewed journal articles, and other related scholarly resources published between 2003 and 2022 were reviewed. Since limited scholarly information was located specifically regarding sexual minority first responder mental health, a Walden University librarian was contacted and the searches were re-conducted using more advanced search techniques. After this tertiary professional search method, the literature gap remained. This will be addressed within the limitations with current research section.

Theoretical Foundation

Minority Stress Theory

This research study was grounded by Meyer's (2003) minority stress theory. This theory was selected due to the manner in which it could be used to connect and explain the key variables associated with this study. Minority stress theory references the broad

notion that sexual minorities are more prone to experiencing certain mental and physical health disparities due to the overarching influence of unique social stressors that occur in response to this population's self-identification with any sexual orientation that does not align with the heterosexual majority (Fulginiti et al., 2020; Lindquist et al., 2017; Meyer, 2003). These stressors typically occur on a chronic, all-encompassing basis due to their macro-level roots (American Psychological Association, 2012).

Minority stress theory further posits that, in general, society tends to embrace a series of norms, beliefs, and expectations that both covertly and overtly perpetuate the discrimination, oppression, and marginalization of sexual minorities (American Psychological Association, 2012). The experiences that stem from living in a society that naturally discriminates against an entire population solely due to its sexual minority identity can eventually cause typical social stressors to become exacerbated (Meyer, 2003; Pitonak, 2017). This exacerbation of common social stressors can then lead to the eventual development and perpetuation of internal issues including self-stigma, guilt, shame, internalized homophobia, negative self-perception, expectations of societal rejection, and low self-worth (American Psychological Association, 2012; Fulginiti et al., 2020).

Once individuals begin to experience these negative internal issues, they often attempt to adapt to the external heterosexual social norms as a way to reconcile their sexual minority identity with the societally desired heterosexual majority identity (Lindquist et al., 2017). This reconciliation process can then inadvertently cause increased internal disequilibrium. The internal versus external or societal incongruity

makes an individual more vulnerable to developing mental health issues such as anxiety and depression (American Psychological Association, 2012; Meyer, 2003).

Minority Stress Theory in Prior Research

Scholars and researchers have previously applied minority stress theory as a means of understanding and explaining the manner in which common social stressors can become exacerbated by negative societal beliefs, norms, and expectations as it pertains to sexual minority populations. Convertino et al. (2021) applied minority stress theory to provide a potential explanation regarding the reason that sexual minority populations experienced higher rates of disordered eating than the sexual majority population. They explained that this discrepancy may have been related to a general lack of societal acceptance, which can lead to an internalized lack of personal acceptance. Binion and Gray (2020) applied this theory to understand the heightened rate of sexual assault yet decreased rate of formal disclosure among sexual minorities. They noted that the chronic stress associated with ongoing prejudice and discrimination against sexual minorities may explain this population's hesitancy to formally report sexual assault.

Researchers have also relied on minority stress theory as a way to understand the increased level of mental health issues faced by sexual minorities. Baams et al. (2018) implemented this theory when analyzing their study results, which indicated that there was a statistically significant relationship between perceived social burdensomeness and depressive symptoms in sexual minority youth. The researchers connected this finding to minority stress theory by referencing the theoretical notion that sexual minorities often experience perceived or actual rejection from society due to their sexual minority

identity. Timmins et al. (2020) conducted a cross-sectional correlational survey where they found that self-stigma, prejudice-based events, and expectations of social rejection led to rumination-based anxiety in lesbian, gay, and bisexual adults. They referenced minority stress theory as a way to explain that sexual orientation-based societal stressors can impact the levels of anxiety experienced by sexual minorities. Further, Fulginiti et al. (2020) utilized minority stress theory when explaining the notion that increased suicide risk in this population was associated with individuals reporting a lack of societal/personal belonging and perceiving themselves as burdensome to society due to their sexual orientation. All of these research studies referenced minority stress theory as a way to explain the influence that multiple stressors such as prejudice, perceived lack of belonging, burdensomeness, and social rejection had on sexual minority mental health.

Minority Stress Theory and Current Study

The key variables in this current research study included anxiety, depression, general occupational stressors, occupational stressors specific to first responder employment, first responder mental health, and sexual minority first responder mental health. One major goal of this study was to determine whether the additional social stressors associated with sexual minority identity exacerbated the occupational stressors experienced uniquely by first responders in a manner that potentially impacted the relationship that exists between first responder employment and mental health issues. One core principle of minority stress theory is that common stressors (such as occupational stressors) are exacerbated by society's negative beliefs/expectations regarding sexual minority populations. Thus, applying this theory allowed for a better

understanding and explanation of the relationship that exists between sexual minority identity, first responder employment, and the mental health issues experienced by first responders.

Literature Review Related to Key Study Variables

Anxiety

Anxiety is the most commonly reported mental health condition, currently affecting almost 19% of the general adult population (NAMI, 2021). Anxiety is a mental health condition that is characterized by feelings of extreme worry, fear, tension, apprehension, dread, or uneasiness. There can also be a physical component to anxiety that may be observable through symptoms including rapid heart rate, dizziness, nausea, or muscle tension (American Psychological Association, 2021). At times, a certain level of temporary anxiety can be considered a normal response to a stressful situation or event. However, if symptoms of anxiety become pervasive and begin to significantly affect an individual's overall level of executive functioning, this can then potentially be classified by a qualified diagnostic professional as a mental health disorder (Stein & Craske, 2017).

Symptoms and Risk Factors

Symptoms of anxiety often initially develop in response to environmental issues such as employment-related stressors, other personal or social stressors, traumatic experiences, and other unpredictable or challenging life circumstances (NIMH, 2021). However, certain biological issues including genetic predispositions, hormonal imbalances, thyroid problems, adrenal issues, and other medical conditions are also

known to be perpetuators of anxiety (Cleveland Clinic, 2018; Maron & Nutt, 2018; Smoller, 2020). Some medications, chemicals, and illicit substances can also be associated with individuals developing symptoms of mild to severe anxiety (Psychiatric Database, 2021). If left untreated, chronic anxiety can lead to the development of multiple biopsychosocial issues such as suicidality, social isolation, and raised cortisol levels which can alter responses within the immune, digestive, cardiac, and reproductive systems (Lutz et al., 2019; Mayo Clinic, 2021; O'Connor et al., 2021).

Screening and Diagnostics

One common initial point of contact for individuals presenting with symptoms of anxiety is their primary care physician (Brahmbhatt et al., 2021). Thus, multiple screening tools have been developed as a way for general practitioners to screen individuals for potential symptoms of anxiety. Three of the most commonly utilized rapid screening tools include the Beck Anxiety Inventory, the Penn State Worry Questionnaire, and the GAD-7 (Kim et al., 2018). On all three of these screening tools, individuals self-report symptoms and receive a corresponding total score that indicates the potential presence of anxiety. Based on the categorical severity associated with the total score, it may be recommended that individuals seek more in-depth diagnostics or treatment (Hinz et al., 2017; Lemos et al., 2019; Voegtline et al., 2021).

Depression

Depression is the second most commonly reported mental health condition among adults, affecting approximately 8% of the general population (NAMI, 2021). Depression is a mental health condition characterized by a range of behavioral and physical

symptoms including ongoing feelings of extreme sadness or apathy, low motivation, loss of interest in previously preferred activities, low self-esteem, difficulty concentrating, loss of appetite, and changes in sleep patterns/energy levels; severe depression can also lead to thoughts of suicide (American Psychiatric Association, 2020). Mild to moderate depressive symptoms can sometimes occur temporarily in response to challenging life circumstances such as pain or grief/loss (Buqo et al., 2020). However, if symptoms of depression increase to the point where they begin causing significant impairment as it relates to an individual's daily functioning, this may then meet diagnostic criteria for formal classification as a mental health disorder (Nussbaum, 2020).

Symptoms and Risk Factors

Symptoms of depression can initially stem from a variety of biopsychosocial factors including genetics, brain chemical imbalances, medical problems, medications, substance use, traumatic life experiences, employment-related stressors, and other personal or social stressors (Harvard Medical School, 2019). The independent presence of each of these factors can heighten an individual's risk level for experiencing symptoms of depression. However, it is also common for individuals to experience more significant depressive symptoms in response to the interaction of multiple biopsychosocial factors (Malhi & Mann, 2018). If untreated, depression can lead to a variety of biopsychosocial issues including changes in brain function, increased or decreased appetite, decreased energy levels, difficulty concentrating, insomnia, social isolation, low self-esteem/self-worth, or suicidal thoughts/behaviors (Cui & Fiske, 2020; Mills et al., 2019).

Screening and Diagnostics

Individuals experiencing symptoms of depression often seek initial access to care through a general practitioner rather than a specialty provider (University of Washington, 2021). Therefore, researchers have developed a series of screening tools that allow primary care physicians to rapidly screen their patients for potential symptoms of depression (Christensen et al., 2019). Some of the most commonly utilized brief screening tools include the Beck Depression Inventory, the Major Depression Inventory, the Hamilton Rating Scale for Depression, and the PHQ-9 (Christensen et al., 2019; Maurer, 2020; Rabinowitz, 2022). Each of these screening tools require individuals to answer a series of scored questions, the total of which indicates whether the individual may be experiencing symptoms of depression. Based on the total score, individuals may be encouraged to seek more specialized depression-related services.

Employment-Related Stressors

As previously noted, multiple biopsychosocial factors place an individual at a high risk level for developing mental health issues such as anxiety and depression (Harvard Medical School, 2019; NIMH, 2021). One social factor that is commonly responsible for facilitating both anxiety and depression stems from stressors associated with an individual's employment (Bianchi & Schonfeld, 2018; Kshtriya et al., 2020). Some of the most common employment-related stressors include a lack of job satisfaction, unmanageable work responsibilities, management issues such as a lack of supervisory support, and work-life balance issues (CDC, 2019; Mazzola & Disselhorst, 2019).

According to a meta-analysis conducted by Extremera et al. (2020), it is common for research findings to indicate that job dissatisfaction is positively correlated with a variety of mental health concerns including anxiety, depression, and generally increased stress levels. Regarding unmanageable work responsibilities, research indicates that employees report heightened biopsychosocial concerns based on their perception of workload unmanageability (Griffiths et al., 2020; Meier & Kim, 2022). Although, supervisory support has been cited as a significant mitigating factor as it pertains to employees experiencing biopsychosocial concerns in response to perceived workload issues (Chung et al., 2021). In contrast, when employees feel unsupported by their coworkers, supervisors, and organizations, this facilitates heightened stress levels and the associated mental health concerns (Aldamman et al., 2019; Macias-Velasquez et al., 2021). Work-life balance issues also generally place individuals at a high risk level for developing symptoms of mental health issues such as anxiety and depression (Barnett et al., 2018). Additionally, individuals who report poor work-life balance are more likely to report the presence of depressive symptoms (Bergs et al., 2018; Nigatu & Wang, 2018).

The previously discussed employment-related stressors are commonly experienced by individuals who are employed in a wide range of occupations; however, there are also multiple different stressors associated with each occupation. This is often dependent on the specific features of each occupation (World Health Organization, 2020). For example, one distinct pattern that repeatedly presents itself within the literature is the notion that first responders' ongoing exposure to unique occupational

hazards places them at high risk for developing symptoms of mental health disorders over time (Hruska & Barduhn, 2021; Lanza et al., 2018).

First Responder Mental Health

There are approximately 3.5 million individuals within the United States who are currently employed as first responders (United States Bureau of Labor Statistics, 2021). The Centers for Homeland Defense and Security (2016) defines first responders as professionals who have obtained specialized training to provide immediate assistance during mental health, medical, and environmental emergencies. These individuals serve in positions such as law enforcement officers, firefighters, emergency department doctors and nurses, emergency medical technicians/paramedics, and behavioral health crisis clinicians.

According to a 2017 research study conducted by the University of Phoenix, 85% of first responders reported experiencing symptoms of mental health issues at some point during their careers. Specifically, 46% reported a personal history of anxiety symptoms and 27% reported historical symptoms of depression (Blue Line, 2019; Kaiser Permanente, 2020). Approximately 30% of first responders report experiencing current/ongoing symptoms of common mental health disorders such as anxiety and depression; this is compared to 20% of the general population (NAMI, 2021; SAMHSA, 2018). The heightened levels of anxiety and depression experienced by this population are often related to a series of occupational stressors typically experienced by first responders including environmental hazards, exposure to traumatic situations, shiftwork

and the associated sleep-related issues, and compassion fatigue/burnout (Agrawal & Singh, 2020; Chan & Andersen, 2020; Purba & Demou, 2019).

Environmental Hazards and Physical Health

First responders are frequently exposed to a variety of serious environmental hazards while performing their job duties. Law enforcement officers, firefighters, emergency medical technicians/paramedics, and crisis clinicians are all expected to provide professional services in community-based settings despite the presence of known or unknown safety hazards (Jones et al., 2018; Muehsam, 2019; Stogner et al., 2020). At times, these hazards are related to the physical scene of the emergency. For example, firefighters are at risk for serious burns, smoke inhalation, knee injuries, and head injuries (Johnson et al., 2020; MacDermid et al., 2021). Firefighters who experience work-related head injuries are more likely to report increased levels of depression (Strack et al., 2021). Law enforcement officers also tend to cite physical scene safety issues as a factor that increases depressive symptoms (Stogner et al., 2020).

Safety hazards can also stem from the individuals who are the recipients of the emergency care provided by first responders. Crisis clinicians are frequently exposed to individuals who are experiencing suicidal ideations, homicidal ideations, drug or alcohol intoxication, or severe psychosis (Muehsam, 2019). A study conducted by Bailey et al. (2021) found that 26.9% of all crisis evaluations ended in crisis clinicians having to facilitate emergency involuntary inpatient treatment on behalf of the client, which can put these clinicians at high risk for safety issues such as threatened or actual physical violence. Emergency department nurses/doctors and emergency medical

technicians/paramedics all reported exposure to increasing levels of patient-related violence (Berlanda et al., 2019; Dafny & Beccaria, 2020; Olschowka & Mockel, 2021). Recent research conducted by Olschowka and Mockel (2021) indicated that 60% of emergency medical technicians reported direct exposure to physical aggression while 75% reported receiving violent threats. Additionally, heightened levels of workplace violence have been associated with increased symptoms of multiple mental health disorders in first responders (Setlack et al., 2021).

These scene-related and patient-related safety hazards can also have a lasting effect on a first responder's physical health, which is directly related to increased mental health issues. Firefighters are frequently diagnosed with cardiac issues, hypertension, and specific cancers including brain, testicular, and prostate; they are also three times more likely than any other occupation to die in the line of duty (Van Hasselt et al., 2022). Law enforcement officers are at a higher risk than the general working population for experiencing sudden, fatal cardiac issues (Trombka et al., 2018). Additionally, law enforcement officers who report mental health issues such as anxiety and depression are likely to experience elevated diastolic blood pressure levels (Stevelink et al., 2020).

In summary, research indicates that a variety of environmental factors can negatively influence the physical and mental health of first responders; this includes both scene-related and patient-related safety issues. This knowledge is critical as it pertains to my research study because it provides some initial insight into one of the most basic components of the multi-faceted experience that places this population at a heightened risk level for the development of mental health issues. It establishes a baseline of

knowledge indicating that simply being employed as a first responder is enough of a risk factor to facilitate the development of anxiety and depression.

Traumatic Events

Another major occupational stressor experienced uniquely by first responders is the ongoing exposure to trauma (Jones et al., 2018). This exposure can occur either primarily (directly) or secondarily (indirectly), often depending on the specific profession and the individual's exact role. To various degrees, law enforcement officers, emergency medical technicians/paramedics, emergency department nurses and doctors, firefighters, and behavioral health crisis clinicians are frequently exposed to traumatic situations including homicides, suicides, assaults, violent crime scenes, fatal car accidents, natural/manmade disasters, and the on-duty injury or death of their own colleagues (McDevitt & McDevitt, 2020; Muehsam, 2019).

Researchers have consistently observed a direct correlation between traumatic exposures and the development of mental health issues such as anxiety and depression in first responders (Johnson et al., 2020; Mayer & Hamilton, 2018; Regehr et al., 2019; Roth et al., 2022; Wagner et al., 2021). Teoh et al. (2019) found that ongoing occupational trauma was predictive of psychiatric issues including both anxiety and depression as well as specific phobias in firefighters. In an interpretive phenomenological study conducted by Bentz et al. (2022), multiple emergency department nurses reported experiencing extreme emotional responses after exposure to traumatic events such as having to engage in pediatric resuscitations.

Exposure to suicide was noted as being particularly difficult for first responders, leading to the development of both short-term and long-term mental health issues (Lyra et al., 2021). Cerel et al. (2019) found that 95% of law enforcement officers had responded to the scene of a suicide. On average, law enforcement officers reported responding to 30 suicide scenes over the course of their career. Almost 25% of the study participants cited exposure to suicide as a factor in the development of their mental health symptoms including anxiety and depression. Similarly, emergency medical technicians reported increased mental health symptoms after exposure to suicides, sudden violent deaths, or events that involved lengthy human suffering (Carleton et al., 2019).

Effects of Time and Compounded Exposure. Another common research finding is that compounded trauma can lead to long-term mental health conditions such as anxiety and depression; this often occurs when first responders are exposed to multiple traumatic events without having time for cognitive processing between exposures or without having access to the recommended therapeutic interventions (Mayer & Hamilton, 2018). For example, emergency medical technicians were more likely to report the presence of concerning mental health symptoms either when they felt that not enough time had passed between traumatic exposures or when a formal critical incident debriefing was not conducted after the occurrence of an extreme event (Carleton et al., 2019). Similarly, prior unresolved trauma increased emergency medical technicians' risk level for developing mental health issues after the occurrence of another traumatic exposure (Roth et al., 2022).

It is also common for individuals who have been employed in first response positions for longer periods of time to report higher levels of anxiety and depression than their newly employed peers (Jones et al., 2018; Wagner & Pasca, 2019). A longitudinal research study conducted by Gulliver et al. (2021) found that newly recruited firefighters were less likely to experience symptoms of mental health issues during their first 3 years of employment as compared to seasoned firefighters. The researchers noted that these findings supported the general consensus that compounded trauma significantly affects the ongoing mental health of first responders. Conversely, emergency department nurses with more years of trauma-specific practice reported lower levels of anxiety as measured by the GAD-7 in comparison to their colleagues who had served fewer years in this same role (Cook et al., 2021).

In summary, research indicates that exposure to trauma places first responders at a high risk level for developing symptoms of both anxiety and depression. The initial exposure to either primary or secondary trauma can be exacerbated by ongoing traumatic re-exposures, particularly when the first responder lacks a reasonable recovery period or when they are employed in a role associated with ongoing re-exposures. Research also indicates that each first responder can be exposed to different types of trauma depending on their unique role. This information was relevant regarding my research study because it indicated that I could potentially conduct a more accurate analysis of the influence of other factors, including sexual minority identity, on the levels of anxiety and depression experienced by first responders if I separated the first responders by type of employment.

Shiftwork and Sleep

The mental health issues experienced by first responders are frequently exacerbated by this profession's unconventional work schedules and the associated sleep-related problems (Healy & Vujanovic, 2021; McDevitt & McDevitt, 2020). According to research conducted by Cramm et al. (2021), 69% of firefighters reported less than ideal sleep and increased levels of depression due to working overnight shifts, rotating schedules, and extended hours. Similarly, law enforcement officers commonly report ongoing sleep issues associated with working lengthy shifts; these officers are often unable to meet their basic needs for extended periods of time, which leads to increased symptoms of mental health disorders (Lees et al., 2019). This research was expanded upon by Holst et al. (2021) who found that law enforcement officers working overnight shifts were more likely to report higher total depressive scores (as measured by the Beck's Depression Inventory) in comparison to their dayshift coworkers. Similarly, overnight shiftwork was found to be predictive of sleep disturbances and heightened levels of both anxiety and depression in paramedics (Feldman et al., 2021; Khan et al., 2020; Ogeil et al., 2020).

According to research conducted by Ferguson et al. (2019), overnight emergency department doctors reported sleeping an average of 5.3 hours per night, which is equivalent to 14 fewer hours of sleep per week than their dayshift coworkers. In a similar research study, Al-Abdallah and Malak (2019) found that most emergency department nurses reported working at least 12-hour shifts, which reduced their ability to maintain sufficient sleep patterns. The majority of these individuals reported experiencing

symptoms of psychological distress including anxiety and depression, which they perceived as being the result of limited physical/emotional rest. Conversely, levels of anxiety and depression in emergency department nurses, although heightened in general, did not vary based on the type of shifts worked (Ezin et al., 2018).

In summary, research indicates that first responders are at high risk for developing mental health issues including both anxiety and depression due to working multiple lengthy shifts, especially overnight ones. This shiftwork-type schedule often prevents first responders from being able to meet their basic needs, which can lead to increased psychological distress; it also affects their ability to establish and maintain functional sleep patterns, which further increases levels of both anxiety and depression. This information is important as it relates to my research study because it establishes a baseline understanding of the concept that first responders are already more likely to be in a compromised physical and psychological position where other factors, such as sexual minority identity, could potentially have a more significant impact on their levels of anxiety and depression.

Compassion Fatigue and Burnout

When the previously discussed occupational risk factors are not identified and mitigated, this can lead to first responders experiencing symptoms of compassion fatigue and eventually burnout (MacDermid et al., 2021; Mayer & Hamilton, 2018). Compassion fatigue is a condition that can occur in response to an individual being exposed to both primary and secondary trauma without adequate processing occurring between events. According to the American Psychological Association (2020b), symptoms of compassion

fatigue can be physical (exhaustion, insomnia, headaches, appetite/digestive changes), emotional (anxiety, depression, apathy, guilt, self-doubt), or behavioral (substance abuse, difficulty concentrating, decreased work productivity). If identified and addressed rapidly, symptoms of compassion fatigue can be reversed relatively easily; this is not the case for burnout (Southeast Missouri State University, n.d.). Burnout is a condition that develops over time in response to significant unaddressed occupational stressors. The symptoms are similar to compassion fatigue, but are typically longer lasting and more difficult to recover from due to the notion that they likely developed over a longer period of time (Cleveland Clinic, 2022).

Both compassion fatigue and burnout are commonly reported by first responders. Rural emergency department nurses reported heightened levels of both compassion fatigue and burnout when they felt they were having to provide emergency services that were beyond their scope of practice and that required more resources/equipment than they had access to (Dekeseredy et al., 2019). Petrie et al. (2022) conducted a meta-analysis with data collected from 9,518 paramedics, the results of which indicated that 65% of these individuals reported experiencing ongoing symptoms of burnout including anxiety and depression. Similarly, law enforcement officers were more likely to report depression as a symptom of compassion fatigue after being directly involved in or witnessing work-related events that did not align with their personal morals (Tuttle et al., 2019).

Essentially, research indicates that compassion fatigue and burnout can stem from first responders experiencing employment-related stressors over time that remain

unaddressed. The compassion fatigue and burnout experienced by first responders can present in the form of mental health symptoms including both anxiety and depression. This knowledge is imperative as it relates to my research study because it solidifies the concept that the mental health issues experienced by first responders commonly stem from multiple compounded factors rather than one specific factor. This notion serves as a foundation for questions regarding how other unexplored factors, such as sexual minority identity, can further influence the levels of anxiety and depression experienced by first responders.

Additional Psychosocial Stressors

As previously established, common employment-related stressors and the ongoing exposure to unique occupational hazards both serve a major role in the development of mental health issues such as anxiety and depression in first responders (Agrawal & Singh, 2020; Chan & Andersen, 2020; Purba & Demou, 2019). These primary stressors and the associated mental health issues can be further complicated by a series of secondary psychosocial stressors including family-related issues, relational challenges, self-stigma, and the overarchingly negative societal perception of first responders who experience mental health issues (Johnson et al., 2020; Jones et al., 2018; Lanza et al., 2018; McDevitt & McDevitt, 2020).

Work-Home Balance

One common interpersonal issue reported by first responders involves the development of a strained work-home balance. Multiple researchers have found an association between work-home imbalance and symptoms of both anxiety and

depression. Santa Maria et al. (2017) found that high occupational stress paired with low perceived personal life balance was predictive of heightened levels of both anxiety and depression in law enforcement officers. Similarly, firefighters who reported high employment demands that interfered with personal/family commitments were more likely to report the presence of depressive symptoms (Cramm et al., 2021). This same population also reported significant anxiety regarding the impact of their employment on their families (MacDermid et al., 2021).

In research studies conducted by Mausz et al. (2022) and Jones et al. (2018), several emergency medical technicians reported the commonality of hypervigilance issues surrounding their own family due to anxiety stemming from employment-related experiences in addition to challenges with having to function "normally" when they returned home from work despite their hazardous/traumatic exposures. The overarching theme of "it comes home with us" also emerged from research regarding the anxiety emergency department doctors and nurses faced when they experienced an inability to "switch" from work to home modes (Mayer & Hamilton, 2018).

In summary, research indicates that strained work-life balance issues, including employment-related demands interfering with personal commitments and having to minimize negative employment-related experiences upon returning home, can lead to first responders experiencing symptoms of both anxiety and depression. This is applicable as it relates to my research study because this serves as further evidence that the anxiety and depression experienced by first responders typically stems from a series of compounded factors. In this situation, the research references a pattern where

employment-related issues affect the quality of home life, which then affects the mental health of first responders. This established pattern leaves questions about the manner in which other personal factors, such as sexual minority identity, might further influence the presence of anxiety and depression within this population.

Relational Issues

The interpersonal issues experienced by first responders are not only in relation to their primary family units. Although limited information exists regarding this phenomenon, researchers have found that a variety of other social relationships are bi-directionally associated with mental health challenges in first responders. It is common for firefighters to struggle with maintaining social connections due to the influence that their occupational stressors have on their biopsychosocial wellbeing (Morman et al., 2019). Similarly, firefighters commonly experience emotional issues such as feeling hopeless or over-extended, which can lead to increased social withdrawal (Smith et al. 2018). Durand et al. (2019) found interpersonal conflict to be positively correlated with reported levels of burnout in emergency department employees. These research studies indicate that, while occupational stressors can influence first responders' mental health and ability to maintain healthy relationships, their interpersonal relationships can also influence the psychosocial outcomes of their work-related experiences.

Although the previously referenced research studies all highlighted the negative components of first responder relationships, multiple research studies indicated that positive interpersonal relationships and the associated social support served as mitigators of psychosocial issues in first responders. Social support has been cited as a factor that

significantly mitigated the trauma-related mental health symptoms experienced by numerous types of first responders (Lanza et al., 2018). Similarly, when firefighters reported stable social relationships, especially camaraderie-type friendships with other firefighters, this decreased the adverse psychosocial effects associated with their primary occupational stressors (Morman et al., 2019). Conversely, although increased family support was found to be predictive of positive post-traumatic growth and psychosocial health in first responders, coworker support did not have a significant influence on this variable (Guilaran et al., 2020).

To summarize, research indicates that unaddressed employment-related stressors can lead to increased relational challenges for first responders. This lack of relationship-based social support can then lead to an increased risk of first responders developing mental health issues such as anxiety and depression. It is important to understand this concept within the context of my research study because this relational component could serve as a way to partially explain any differences that exist within the levels of anxiety and depression experienced by first responders based on other characteristics, such as sexual identity, which could be associated with decreased relational support.

Societal Perception and Self-Stigma

Beyond the previously noted interpersonal factors, the mental health issues experienced by first responders are also exacerbated by a series of intrapersonal challenges including self-stigma and the fear of society's perception of professionals who experience mental illness (Lanza et al., 2018). First responders have reported feeling that their mental health issues were indicative of personal weakness or vulnerability; they also

felt that their mental health issues would be viewed by society as making them incapable of rendering emergency assistance to others (Jones et al., 2018). Similarly, law enforcement officers have reported internalized feelings of shame and guilt in response to their symptoms of mental illness. They also reported experiencing fear that their colleagues, supervisors, and the general public would perceive it as dangerous for a law enforcement officer with mental health symptoms to be carrying a firearm (McDevitt & McDevitt, 2020).

Reporting of Symptoms. Because of this combination of internal and societal stigma, first responders have a tendency to underreport symptoms of mental health conditions including both anxiety and depression. Almost 25% of law enforcement officers failed to report symptoms of mental illness when completing screening tools administered by their employers (Marshall et al., 2021). Similarly, nurses experiencing symptoms of severe depression (such as suicidal ideation) were reluctant to report this due to stigma-related concerns (Kelsey et al., 2021). Conversely, firefighters were more likely to report the presence of mild to severe mental health symptoms when they internalized positive qualities such as self-forgiveness and self-acceptance (Carpenter et al., 2020).

Seeking Treatment. The same self-stigma and fear of the societal perception regarding professionals who experience mental illness that leads to a lack of symptom disclosure also prevents first responders from seeking access to the recommended treatment/interventions. Law enforcement officers reported rarely seeking treatment because they felt that the disclosure of their mental health issues could be “career

destroying" (Bell et al., 2021). Similarly, law enforcement officers declined to seek any type of formal intervention because they did not trust the confidentiality process and feared the loss of their employment (McDevitt & McDevitt, 2020). First responders also failed to seek treatment because they feared they would receive a judgmental or discriminatory response from their colleagues and supervisors (Lanza et al., 2018). Finally, first responders tended to hold the personal belief that they should be more self-reliant in their ability to address their own mental health symptoms, which prevented them from seeking professional intervention (Jones et al., 2018).

In summary, research indicates that intrapersonal factors such as self-stigma and fear of societal stigma can increase the anxiety and depression experienced by first responders, particularly when these factors are complicated by an overarching concern of reporting symptoms and seeking treatment. This information is relevant as it pertains to my research study because it establishes the notion that, beyond employment-related stressors and interpersonal issues, intrapersonal factors also affect the mental health concerns experienced by this population. This knowledge served as a way to further justify an exploration into the influence of additional personal factors, such as sexual minority identity, on the levels of anxiety and depression experienced by first responders. This information was also critical because it emphasized the need to ensure that I conducted my research in a manner that provided participants with absolute confidence that their responses would remain anonymous. This anonymity possibly served as a way to increase the likelihood of received responses being accurately representative of the actual levels of anxiety and depression experienced by this population.

Sexual Minority Identity

Another factor that can serve as a psychosocial stressor for first responders is their sexual minority identity. Although, this is where the current research begins to significantly narrow. Very few studies discuss the impact of sexual minority identity as a stressor experienced by first responders; the research that does exist is somewhat outdated. However, this outdated research is supported by a handful of recent small-scale studies that focused heavily on the influence of sexual minority identity in specific first response populations including firefighters and law enforcement officers.

One common finding across research studies involved first responders' hesitancy to disclose their sexual minority identity to other professionals in their field. Wright (2008) found that lesbian firefighters reported high levels of hesitancy to disclose their sexual minority identity to colleagues. A more current qualitative research study conducted by Galvin-White and O'Neal (2015) produced similar findings, indicating that lesbian and bisexual law enforcement officers were intentional about not acknowledging their sexual minority identity at work. Despite 14 out of 15 research participants being open about their sexual minority identity in other social settings, 11 of these participants reported extreme hesitancy about their coworkers and supervisors becoming aware of their sexual minority identity. The majority of the research participants went to what they would consider "great lengths" to avoid their sexuality being "outed" at work. Some stated they created stories about non-existent boyfriends or husbands to discuss with coworkers; others noted they intentionally avoided conversations about significant others due to fear of not being accepted by colleagues and supervisors.

The hesitancy of disclosing one's sexual minority identity tends to stem from first responders experiencing concern regarding how this disclosure could affect their employment and how it could increase their exposure to both indirect and blatant discrimination. Some of the sexual minority law enforcement officers who participated in the study conducted by Galvin-White and O'Neal (2015) indicated they feared loss of employment due to a supervisor's prior homophobic statements/actions. They noted that their colleagues and supervisors often openly discussed their homophobic views while at work, which created an environment of personal discomfort. Several lesbian law enforcement officers reported that they intentionally avoided interacting with other known lesbians in the presence of their colleagues because they felt they would be viewed by their colleagues as "guilty by association." The majority of lesbian, gay, and bisexual law enforcement officers who did disclose their sexual minority identity experienced significant discrimination and harassment at work (Rennstam & Sullivan, 2018). They were exposed to sexually explicit homophobic jokes/statements, told that they could be "converted" by the right person, referred to as being a "cancer on society," mocked for voluntarily walking in a community-based gay pride parade, and had posters taken down that promoted sexual minority acceptance/inclusion in the workplace.

Sexual minority first responders also tend to experience issues associated with the overarching perspective that their sexual minority identity conflicts with their first responder identity. Lesbian and bisexual female law enforcement officers have reported the shared experience of feeling they had to ensure that community members viewed them primarily as a law enforcement officer and secondarily as a sexual minority; they

noted that these two identities could not comfortably coexist on the same level (Giwa et al., 2021). Similarly, sexual minority law enforcement officers have reported feeling the need to primarily identify as being part of the “blue line” or “blue lives” groups (Galvin-White & O’Neal, 2015). They feared that, if this was not conveyed as their primary public identity, they would be discriminatorily labeled as identifying with the “rainbow coalition” or being part of the “lesbian mafia.”

In summary, the existing research establishes the notion that sexual minority first responders experience increased employment-related challenges due to their sexual identity. This information was important within the context of my research study because it provided a research-based connection between several of my study’s key variables. However, the current research still left questions about the manner in which a first responder’s sexual identity influences their experience with mental health issues, specifically anxiety and depression.

Sexual Minority First Responder Mental Health

The research continues to dwindle as it pertains to the manner in which all of the stressors, fear, discrimination, and harassment associated with first responders’ sexual minority identity affect this population’s mental health, particularly their levels of anxiety and depression. Limited research exists regarding the association between sexual minority identity and first responder mental health issues in general. However, it is broadly known that sexual minorities possess a higher level of risk than their heterosexual peers for developing both anxiety and depression due to the presence of multiple psychosocial stressors stemming from society’s tendency to devalue individuals

who do not identify as part of the sexual majority (Steele et al., 2017; Verrelli et al., 2019).

Although there have been numerous personal accounts, news stories, and lawsuits describing experiences where a first responder's mental health was allegedly affected by work-related issues directly associated with their sexual minority identity, there is only a single scholarly research study that explores the influence of sexual minority identity on the mental health of first responders. Kyron et al. (2021) conducted a quantitative research study with the intention of analyzing the suicidal thoughts/behaviors, substance use, and levels of psychological distress experienced by emergency medical technicians, firefighters, and law enforcement officers. The researchers had participants self-identify as heterosexual, gay, lesbian, bisexual, pansexual, queer, asexual/aromantic, unsure, or other. They then conducted several multivariate logistic regressions to analyze the associations between sexual orientation and the various behavioral health concerns.

Kyron et al. (2021) found that sexual minority emergency medical technicians were significantly more likely than their heterosexual colleagues to experience psychological distress. Analysis results also indicated that sexual minority first responders from all three categories were significantly more likely than their heterosexual colleagues to experience suicidal thoughts/behaviors. Finally, the findings indicated that sexual minority firefighters experienced significantly higher rates of substance use than their heterosexual colleagues. Although this research study provides a baseline for the notion that there are some general mental health disparities existing between sexual minority and sexual majority first responders, there is no research analyzing the potential

differences in levels of specific mental health symptoms including anxiety and depression. This lack of research clearly established the need for a study to be conducted regarding the relationship between first responder employment, sexual minority identity, anxiety, and depression.

Limitations with Current Research

Several critical limitations exist regarding the current research. As previously noted, the research regarding the mental health issues experienced by first responders in general is sparse. The research regarding the differential impact of sexual minority identity as it pertains to this population's mental health issues is even more limited. A large percentage of the existing research regarding the mental health of first responders was conducted outside of the United States. Thus, several of the research studies referenced within the literature review occurred in Canada, Australia, United Kingdom, and China. Also, a few of the research studies were conducted primarily in relation to the COVID-19 pandemic; these articles were referenced because the findings were still applicable. Finally, most of the existing research articles focused on the mental health of law enforcement officers, firefighters, emergency medical technicians, and emergency department nurses. The research regarding crisis clinicians and emergency department doctors was minimal, meaning that the impact of certain occupational and psychosocial stressors remains unknown as it pertains to these specific populations.

Summary

The literature reviewed within this chapter established the initial fact that first responders are at high risk for developing symptoms of common mental health disorders

including both anxiety and depression (NAMI, 2021; SAMHSA, 2018). The research-based consensus is that this increased risk is due to first responders being exposed to not only common employment-related stressors, but also to a variety of serious occupational hazards including environmental dangers, traumatic situations, shiftwork and the associated sleep issues, and the development of compassion fatigue and/or burnout (Johnson et al., 2020; Jones et al., 2018; Khan et al., 2020; Mayer & Hamilton, 2018). The literature references the notion that a variety of psychosocial stressors further influence the risk level for first responders developing symptoms of mental illness. These psychosocial stressors include family-related issues, relational challenges, self-stigma, and societal stigma (Johnson et al., 2020; Jones et al., 2018; Lanza et al., 2018; McDevitt & McDevitt, 2020). The literature also indicates that the influence of more specific psychosocial stressors, such as sexual minority identity, can negatively affect first responders. Research indicates that sexual minority first responders are hesitant to disclose their sexual minority identity to their colleagues and supervisors due to fear of job loss, discrimination, or harassment (Galvin-White & O'Neal, 2015). They also tend to report issues associated with conflicting identities, believing that their sexual minority identity must not appear as being more prominent than their professional identity (Giwa et al., 2021).

A clear research gap emerged regarding the influence of sexual minority identity on the mental health issues experienced by first responders. A single research study assessed the impact of this relationship, finding that certain types of first responders were at a higher level of risk than their heterosexual peers for developing symptoms of

generalized psychological distress (Kyron et al., 2021). No studies explored the differential occurrence of specific mental illnesses such as anxiety and depression, thus, the research gap was located. The present study bridged this research gap by analyzing the relationship that exists between first responder employment, sexual minority identity, anxiety, and depression. The research findings extended the knowledge within the discipline of social work and could serve as the basis for the development of theories and interventions that could explain and treat the mental health issues experienced by sexual minority first responders. In Chapter 3, I will discuss the research design and rationale, methodology, population, sampling/recruitment procedures, instrumentation, key variables, data analysis plan, validity, and ethical considerations.

Chapter 3: Research Method

The purpose of this quantitative study was to explore the impact that sexual minority identity has on the differential levels of anxiety and depression experienced by first responders. I accomplished this goal by quantitatively examining the relationship that exists between type of first responder employment, sexual minority identity, anxiety, and depression. This chapter will provide a summary of the selected research design and the associated rationale. Methodological concepts will be explained including the population selection, sampling and recruitment procedures, data collection technique, and instrumentation. The data analysis plan will also be addressed, which will include information regarding the selected software, data cleaning/screening, research questions, hypotheses, statistical analyses, and interpretation of results. This chapter will conclude with an exploration of the threats to validity and a summary of the ethical considerations associated with this research study.

Research Design and Rationale

A cross-sectional correlational survey design was utilized to explore the relationship that exists between the variables within this quantitative research study. This study contained two independent variables (type of first responder and sexual minority identity), both of which were self-reported categorical variables. The two dependent variables (anxiety and depression) were both continuous variables, measured via the GAD-7 and the PHQ-9, respectively. The correlational aspect of this design indicates that the non-causal relationship between the variables was studied without any type of control or manipulation being implemented by the researcher (Lau, 2017). The cross-sectional

nature of this design allowed for data to be collected from the target population at a single point in time (Wang & Cheng, 2020). This produced a dataset that was reflective of the levels of anxiety and depression that were being experienced by first responders at the time of the survey.

The survey component of this research design allowed the necessary quantitative data to be gathered directly from the participants with minimal resources required (Brenner, 2020). This cross-sectional correlational survey design allowed for an advancement within the current knowledge surrounding this research topic because it paired well with the selected data analysis method of two-way ANOVA testing. Thus, this specific research design, methodology, and data analysis combination provided critical information regarding the statistical significance of the mean-based relationship that exists between the key variables (Laerd Statistics, 2018). These findings then allowed for both research questions to be clearly answered. The answers could be operationalized in a manner that promotes positive social change within this population.

Methodology

Target Population

The target population for this research study included United States-based first responders who were actively serving in any of the following distinct roles: law enforcement officers, firefighters, doctors or nurses employed in an emergency department setting, emergency medical technicians/paramedics, or crisis clinicians. There are currently 696,644 law enforcement officers, 1,080,800 firefighters, 39,547 emergency department doctors, 90,000 emergency department nurses, 1,030,760 emergency medical

technicians/paramedics, and 8,373 crisis clinicians employed within the United States (Nurse Source, 2020; United States Bureau of Labor Statistics, 2021; Zippia, 2022a).

Sampling and Sampling Procedure

Convenience sampling was used for this research study. Convenience sampling is a non-probability sampling method that allows researchers to easily access the most readily available portion of a target population (Etikan et al., 2016). Non-probability techniques such as convenience sampling are commonly utilized within quantitative studies when researchers are not attempting to produce findings that are generalizable to entire populations; these sampling techniques are often utilized within quantitative pilot studies or in initial research studies designed to serve as the general basis for more in-depth future research opportunities (Frey, 2018; Stratton, 2021). Within this current research study, a convenience sampling method allowed data to be gathered from readily available first responders who actively desired to participate in the research process; this also allowed for limited recruiting-related resources to be expended.

To reach the target population, a flyer containing basic information about the research opportunity and a link to the survey was posted in several national Facebook groups (First Responders Network–24k members, First Responders First–3.6k members, First Responders Helping First Responders–11k members, First Responder/EMT/ Paramedics on Facebook–24k members, First Responder Nation–7.7k members, Firefighter Nation–5.8k members, ER Nurses Only–20k members, Emergency Medicine Doctors–1.6k members, and PISTLE–2.3k members). These groups were selected because they were likely to contain members of the target population who could meet

inclusion criteria. For this study, the inclusion criteria included English fluent adults who were currently employed in one of the five previously noted first response positions within the United States. Individuals were only excluded from participating in this research study if they did not meet the inclusion criteria.

Responses from eligible participants were tracked until the desired sample size was reached. For this study, the sample size was 202 first responders, 88 of which identified as sexual minorities. To ensure that enough responses were received from sexual minority participants, I was prepared to over-sample beyond the desired sample size. Researchers can choose to over-sample in order to ensure that the data are sufficient for the statistical analysis to produce results that are accurately representative of the low-prevalence portion of the target population (Vaughan, 2017). In this case, the low-prevalence portion was expected to be first responders who identified as sexual minorities, as 11.7% of adults currently residing within the United States self-report sexual minority identity (United States Census Bureau, 2021). However, this issue did not materialize, as 43.6% of participants reported sexual minority identity.

Quantitative researchers must ensure that their sample size will allow for adequate statistical testing to produce accurate results; this can be ensured via the conduction of a power analysis (McDonald, 2015). The four components comprising a power analysis include sample size, statistical power, significance level, and effect size; researchers can set three of these components to determine the fourth (Serdar et al., 2021). Quantitative researchers often utilize a power analysis software such as G*Power to calculate sample size when this is the missing component (Kang, 2021). Therefore, I utilized G*Power to

determine the recommended sample size for this study. I began the power analysis process by selecting "*F* tests" for the test family and "ANOVA: fixed effects, special, main effects, and interactions" for the statistical test. I then selected "a priori: compute required sample size" for the type of power analysis. I entered "3" for the numerator degrees of freedom and "8" for the number of groups. This accounted for the four different types of first response groups and the two categories of sexual minority identity (yes/no). By convention, I set the statistical power to .80 (Barnes & Forde, 2021). I set the significance level to .05, which indicated there would only be a 5% chance of a type I error occurring. Type I errors occur when researchers reject a null hypothesis that is actually true (Shreffler & Huecker, 2022). I estimated Cohen's f^2 to be .25, as this aligned with a moderate effect size (Selya et al., 2012). Based on these specific components, the power analysis resulted in a recommended minimum sample size of 196.

If the desired sample size was not reached within a reasonable amount of time, I planned to re-post the flyer in the original Facebook groups to allow other first responders to access it who may have initially missed the opportunity. I also planned to post the link in other first responder social media groups where I would be able to recruit additional participants. However, this was not an issue.

Recruitment, Participation, and Data Collection Procedures

After obtaining approval from Walden University's Institutional Review Board (IRB), I began the process of recruiting participants from the target population. I posted an informational flyer that discussed this research opportunity in the previously noted Facebook groups (see Appendix A). The flyer contained a basic explanation of the

study's purpose and general inclusion parameters; it also contained a link that directed potential participants to a secured website (SurveyMonkey). On this website, participants were able to view a consent form that provided a more detailed description of the research study's purpose and procedures. They were able to read a statement regarding the anonymous nature of the study. They were also made aware of the potential risks and benefits associated with participating in the research study. On this same page, they were provided contact information for free resources regarding anxiety and depression. My contact information was provided in the event that potential participants had any questions pertaining to the research. The potential participants were made aware that they were able to discontinue their participation in the research at any time without penalty. They were then instructed to click "continue" to indicate that they fully understood the research purpose, procedures, risks, and benefits. This served as a way for individuals to provide informed consent.

After providing informed consent, potential research participants completed a series of screening questions to ensure they met inclusion criteria. They were asked to provide information regarding their primary language, age, and type of current first responder employment. There was a drop-down menu for participants to select the state in which they were currently employed. If participants did not meet criteria based on any of these initial screening questions, SurveyMonkey immediately provided them with a statement thanking them for their participation. These individuals were not considered for participation and were not able to further access any portion of the survey. If participants met all the required inclusion criteria, they were directed to a series of questions that

obtained information regarding their years of professional experience, sex, race/ethnicity, engagement in mental health treatment, and sexual identity. A clear definition was provided outlining the parameters of what was considered to be a sexual minority for the purpose of this research study. Once this demographic information was obtained, research participants completed the GAD-7 and the PHQ-9. The entire survey process, from beginning to end, was predicted to take less than 10 minutes. After completing the survey, participants were directed to a closure screen where they were thanked for their participation.

Instrumentation

A demographic questionnaire and two instruments (GAD-7 and PHQ-9) were utilized in order to collect the data necessary for this research study. The questionnaire and the two instruments were self-administered via a three-part online survey that I created through SurveyMonkey.

Demographic Questionnaire and Operationalization

Initial demographic information was collected from each potential participant before they were able to proceed with any other part of the survey. I designed this questionnaire to collect data regarding each potential participant's primary language, age, sex, race/ethnicity, location of employment, type of first responder employment, years of professional experience, engagement in treatment, and sexual identity (see Appendix B). It was estimated that it would take potential participants approximately 2 minutes to complete this initial questionnaire. As previously noted, I formatted the demographic indicators of primary language, age, type of current first responder employment, and

location of employment as inclusion-based screening questions. Responses outside of the set parameters disqualified ineligible individuals from completing the next two sections of the survey. Potential participants whose demographics met all inclusion criteria were able to complete the rest of the demographic questionnaire so data could be gathered regarding each participant's sex, race/ethnicity, years of professional experience, engagement in mental health treatment, and sexual identity.

For primary language, participants were asked, "Is English your primary language?" They were prompted to respond by selecting "yes" or "no." For age, participants were asked, "What is your age?" They responded by selecting a number from a continuous slide bar of ages that ranged between 18–100. For type of first responder employment, participants were asked, "What is your current type of first responder employment?" They responded by selecting from the categories of "law enforcement officer," "firefighter," "doctor or nurse employed in an emergency department setting," "emergency medical technician or paramedic," "crisis clinician," or "other." For employment location, participants were asked, "In what state are you currently employed?" They responded by selecting their state from a drop-down menu. For years of experience, participants were asked, "How many years of experience do you have as a first responder?" They responded by selecting a number from a continuous slide bar of years that ranged between 0–80. For sex, participants were asked, "What is your sex?" They responded by selecting from the categories of "male," "female," or "other." For race/ethnicity, participants were asked, "What is your race/ethnicity?" They responded by selecting from the categories of "American Indian or Alaskan Native," "Asian," "Black

or African American," "Hispanic or Latino," "Native Hawaiian or Pacific Islander," "White," or "other." For mental health treatment, participants were asked, "Are you currently engaging in any formal treatment with the specific intention of addressing anxiety or depression (such as attending therapy/counseling or taking psychiatric medications)?" They responded by selecting "yes" or "no." For sexual identity, participants were asked, "Do you identify as a sexual minority? This includes identifying as homosexual, gay, lesbian, bisexual, pansexual, asexual, or identifying with any sexual orientation other than heterosexual?" Participants responded by selecting "yes" or "no." After the demographic data were collected, qualifying participants completed the GAD-7 (see Appendix C).

GAD-7

The GAD-7 is a self-administered quantitative screening tool designed to rapidly assess teenagers and adults for the presence of generalized anxiety based on symptoms that have occurred over the most current two-week period (Locke et al., 2015; Williams, 2014). To complete the GAD-7, individuals are asked, "Over the last two weeks, how often have you been bothered by the following problems?" The individuals provide answers to a series of seven items; each item describes a specific symptom or cluster of symptoms (ex: not being able to stop or control worrying). Each question is answered on a scale of 0 to 3 based on the frequency of each symptom's occurrence (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day). The scores from the seven items are then added up to provide a total score ranging from 0 to 21. The total score corresponds with levels that indicate the severity of the current anxiety (0–4 =

minimal anxiety, 5–9 = mild anxiety, 10–14 = moderate anxiety, 15–21 = severe anxiety). It typically takes individuals approximately two minutes to complete the GAD-7 (Mossman et al., 2017).

The GAD-7 was initially published in 2006 after being developed by Spitzer, Kroenke, Williams, and Lowe to assess for symptoms of generalized anxiety disorder as defined by the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV; Williams, 2014). These researchers gathered data from almost 3,000 participants between 2004–2005 with the intention of designing a screening tool that would rapidly and accurately detect symptoms associated with generalized anxiety disorder (Spitzer et al., 2006). After establishing diagnostic validity by gathering and analyzing the initial participant data, the researchers conducted follow-up psychiatric interviews via telephone to test the effectiveness of the self-administration nature of this tool as compared to the typical clinician-led screening technique; this also allowed the researchers to establish criterion validity.

Prior to publishing the GAD-7 for free clinical, medical, and research-based use, the researchers found this tool to possess high reliability and construct validity (Spitzer et al., 2006). The researchers established reliability by analyzing Cronbach's alpha, which was .895. They established construct validity by implementing multiple statistical analyses including an exploratory factor analysis, the Bartlett test of sphericity, the Kaiser-Meyer-Olkin test of sampling adequacy, and principal component factoring. Post-publishing critiques have confirmed this tool's high levels of reliability and validity. However, one limitation associated with the GAD-7 is that its high level of sensitivity

can, at times, incorrectly indicate the presence of mild anxiety when clinical symptoms of the disorder are not necessarily present (Johnson et al., 2019).

In prior research, the GAD-7 has been utilized for the basic assessment of common anxiety symptoms experienced by diverse individuals across multiple settings. This screening tool has specifically been utilized to assess first responders for symptoms of anxiety within several recent research studies. Carleton et al. (2019) assessed law enforcement officers, firefighters, and paramedics for symptoms of anxiety via the GAD-7. Jones et al. (2018) utilized the GAD-7 to assess the levels of anxiety experienced by firefighters, emergency medical technicians, and paramedics. Guerrini et al. (2021) utilized this screening tool to explore the anxiety-related symptoms experienced by first responders employed in the field of health care. All three of these studies reported findings indicating they were able to successfully obtain the desired type of data from first responders regarding their levels of anxiety by implementing the GAD-7. This established pattern indicated that the GAD-7 could also serve as a functional data collection tool as it pertained to this current research study. After the individuals participating in this research study completed the GAD-7, they were then directed to complete the PHQ-9 (see Appendix D).

PHQ-9

The PHQ-9 is a self-administered quantitative inventory designed to quickly screen adults for the presence of any depressive symptoms that have occurred over the past two weeks (American Psychological Association, 2020c). When completing the PHQ-9, individuals are asked, “Over the last two weeks, how often have you been

bothered by any of the following problems?" The individuals provide answers to a series of nine items; each item includes a description of a specific depressive symptom (ex: little interest or pleasure in doing things). Each question is answered on a scale of 0 to 3 based on the frequency of each symptom's occurrence (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day). The scores from the nine items are then added together to provide a total score ranging from 0 to 27. The total score corresponds with levels that indicate the severity of the current depression (1–4 = minimal depression, 5–9 = mild depression, 10–14 = moderate depression, 15–19 = moderately severe depression, 20–27 = severe depression). It typically takes individuals less than five minutes to complete the PHQ-9 (Fann et al., 2009).

The PHQ-9 was initially published in 2001 after being developed by Kroenke, Spitzer, and Williams to assess for symptoms of depression as characterized by the DSM-IV (Kroenke et al., 2001; Levis et al., 2019). Between 1997 and 1999, the researchers established diagnostic validity by implementing the newly developed PHQ-9 in a primary care setting, screening 3,000 individuals for symptoms of depression; they then screened 3,000 additional individuals in an outpatient obstetrics-gynecological setting. The researchers established criterion validity by following up with 580 participants and having them formally assessed for depressive symptoms by a mental health diagnostic professional to ensure that the PHQ-9 was accurately identifying symptoms as designed. Based on this, minor changes were made to the tool, raising the sensitivity level from 37% to 73% (Kroenke et al., 2001).

Before authorizing the PHQ-9 for free clinical, medical, and research-based use, the researchers found the PHQ-9 to demonstrate high levels of reliability as well as construct validity (Kroenke et al., 2001). The researchers established reliability by analyzing Cronbach's alpha, which was .89 in the primary care setting and .86 in the obstetrics-gynecological setting. They established construct validity by comparing the association that existed between increasing PHQ-9 scores and increasing functioning issues as measured by the 20-Item Short Form Survey, which assesses six different aspects of health-related functioning. The PHQ-9's high levels of reliability and validity have been confirmed in further independent examinations of the screening tool (American Psychological Association, 2020c; Kroenke et al., 2001). Although, similar to the GAD-7, the PHQ-9's sensitivity level was found to serve as a potential limitation for individuals who screened extremely low for depressive symptoms but did not actually possess clinical symptoms of depression (Zuithoff et al., 2010).

Researchers have previously utilized the PHQ-9 in order to rapidly assess a variety of diverse populations for depressive symptoms; this screening tool has also been utilized in multiple studies involving first responders. Jones et al. (2018) implemented the PHQ-9 as a way to assess the levels of depressive symptoms experienced by firefighters, emergency medical technicians, and paramedics. Lentz et al. (2020) screened law enforcement officers and civilians employed in the law enforcement field for symptoms of depression by utilizing the PHQ-9. Konopko et al. (2018) also utilized the PHQ-9 to assess the prevalence of depressive symptoms in firefighters. These researchers all analyzed the data obtained via the PHQ-9 in a manner that allowed for the reporting of

specific depression-related findings in first responders. Thus, this indicated that the PHQ-9 would be an appropriate screening tool to implement within this current research study.

Data Analysis Plan

Software

The data for this research study was exported directly from SurveyMonkey into Statistical Package for the Social Sciences (SPSS) version 28. SPSS is a statistical software platform that allows for the in-depth analysis of quantitative datasets; this software is offered to students at no cost (Walden University, n.d.-b). Directly exporting the data from SurveyMonkey prevented any researcher-related data entry errors from occurring. This was critical because data entry errors can lead to incorrect analysis results, skewed reported findings, and inaccurate interpretations (Barchard & Pace, 2011). This direct export of complete data from SurveyMonkey to SPSS also removed the need for extensive data cleaning and screening procedures. Although, as a secondary precaution, I thoroughly reviewed the data to ensure no errors existed prior to conducting any analyses. I did this by removing all incomplete/disqualified survey responses then checking the variable frequencies including the minimum and maximum dispersions. I also tested all recommended assumptions for any violations and addressed any data-related issues that arose.

Research Questions and Hypotheses

Research Question 1: What is the relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7?

$H_0$1: There is no statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

H_a1: There is a statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

Research Question 2: What is the relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9?

$H_0$2: There is no statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

H_a2: There is a statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

Statistical Analysis and Interpretation of Results

Two-way ANOVA testing is a statistical analysis technique that can be implemented when researchers are interested in examining the quantitative relationship that exists between one dependent variable (measured on a continuous scale) and two independent variables, both of which are measured categorically (Laerd Statistics, 2018). Regarding the first research question, the dependent variable (anxiety) was measured on a continuous scale of 0–21 (Spitzer et al., 2006). Both independent variables (type of first responder and sexual minority identity) were nominal and measured categorically. Regarding the second research question, the dependent variable (depression) was measured on a continuous scale of 0–27 (Kroenke et al., 2001). Again, the two primary independent variables (type of first responder and sexual minority identity) were both nominal and measured categorically. Therefore, two-way ANOVA testing was

implemented as a way to analyze the relationship that exists between the variables in both research questions.

The interpretation of results for both research questions followed the same pattern to determine the individual influence of each independent variable on the dependent variables, the interaction-based influence, the effect size, and the simple main effects. First, the assumptions were tested and addressed. Next, the two-way ANOVA was conducted. The statistical significance of each independent variable and the variable interaction were assessed. Because the *p* value of the interaction ($p < .001$) was less than the alpha value ($\alpha = .05$) for both models, the null hypotheses were rejected for both research questions and it was stated that there is a statistically significant relationship between the variables. The effect sizes of the statistically significant influences and interactions were assessed and reported. Finally, post hoc testing was done to determine where the simple main effects existed within both models.

Threats to Validity

External Validity

Every research study has the potential to face threats related to both external and internal validity (Patino & Ferreira, 2018). External validity refers to the study's applicability as it pertains to other settings, populations, or situations; this is also referred to as generalizability (Creswell & Creswell, 2018). The three main potential threats to external validity associated with this research study included selection bias, social desirability bias, and generalizability issues. Selection bias may have served as a threat to the external validity of this study due to the convenience sampling technique that was

utilized. According to Andrade (2020), this sampling technique can lead to issues with generalizability due to the non-randomized nature of selecting easily accessible participants, as their experiences may not be representative of the experiences of the entire target population. In this current study, potential participants were accessed via a series of first responder-based Facebook groups. The first responders who were actively involved in these social groups could have been connected to more supports. Therefore, they may have experienced different levels of anxiety and depression than first responders who were isolated and disconnected from social groups or supports. I attempted to limit the influence of selection bias by ensuring that the flyer and survey link were posted in a variety of first responder groups including some smaller, less support-driven ones.

The social desirability bias may have also served as a threat to this study's external validity. The social desirability bias refers to the notion that research participants have a tendency to underreport qualities perceived to be socially undesirable while overreporting qualities believed to be socially desirable (Latkin et al., 2017). As it pertains to this current study, research participants may have been hesitant to accurately report levels of both anxiety and depression; they may have also been hesitant to self-identify as being a sexual minority. This is because mental health issues and sexual minority identity are both stigmatized by society (American Psychiatric Association, 2019; Meyer, 2003). I attempted to minimize the influence of the social desirability bias by providing a clear explanation of the anonymous nature of this research opportunity within the survey's initial consent statement.

Another issue that occurred regarding the external validity of this research study involved some generalizability-related issues associated specifically with the participant demographics. Certain participant demographics were highly underrepresented within the research study, indicating that the findings could not be applied to specific sub-populations of first responders. This issue is addressed in greater detail within the limitations section of Chapter 5.

Internal Validity

Internal validity refers to the confidence that the changes in the dependent variables were influenced solely by the independent variables (Creswell & Creswell, 2018). Issues such as confounding variables and sample size may have served as threats to this study's internal validity. Confounding variables include any extraneous factors that affect the study's key variables; since any external factor can serve as a confounding variable, it can be difficult to account for and control for every potential influence (Flannelly et al., 2020). In this study, factors such as prior mental health diagnoses, medications, therapy, or recent traumatic exposures may have served as confounding variables. These issues could have directly affected the accuracy of the relationship produced by the data analysis. Since it was impossible to control for every potential confounding variable, this issue was noted within the assumptions section of Chapter 1 and the limitations section of Chapter 5. Issues with internal validity can also arise as it relates to sample size; this can occur when the sample is either too large or too small to accurately account for the true relationship that exists between the variables (Blackford,

2017). Utilizing G*Power to determine the appropriate sample size helped to prevent this issue from having major effects on the internal validity of my study.

Construct Validity and Statistical Conclusion Validity

Since the GAD-7 and the PHQ-9 both demonstrate high levels of construct validity, this was not an issue as it pertained to this current research study. Steps were taken to mitigate the potential issues associated with statistical conclusion validity. Statistical conclusion validity refers to the notion that the data analyses, results, and the associated interpretation of findings are based on statistically sound research characteristics (Garcia-Perez, 2012). To limit this occurrence, all levels and values (alpha, power level, and estimated effect size) were set based on the most current recommendations and other similar research studies. Also, all assumptions (variable types, independence of observations, outliers, normal distribution, and homogeneity of variances) were assessed prior to the data analyses occurring. All potential concerns were addressed as per the guidelines recommended by Laerd Statistics (2018).

Ethical Considerations

Prior to recruiting participants or collecting any type of data, full approval was obtained from Walden University's IRB. This approval process ensured that all aspects of the research met the criteria required for the conduction of ethical research with human subjects (Walden University, n.d.-a). Regarding the participant recruitment process, an informational flyer containing a link to the research opportunity was posted in multiple public Facebook groups. Walden University considers this to be a low-risk recruitment technique. When potential participants accessed the link, they were directed to the

SurveyMonkey website where they were able to read a more in-depth explanation of the research purpose and procedures. They received information about the potential risks and benefits associated with participating in the research study. They were informed of the anonymous nature of the survey. They were notified that participation was voluntary and that, at any point, they could exit the survey without penalty. My contact information was provided for any questions or concerns. Due to the potentially sensitive nature of this research study, information regarding free mental health resources was provided to all potential participants. Before accessing the survey, all participants needed to click "continue" to acknowledge that they read through the informed consent statement, that they fully understood and agreed to the conditions, and that they wanted to proceed with the research participation.

To ensure participant anonymity, no personally identifying information was collected. Each participant was automatically assigned an ID number by SurveyMonkey. The non-identifying demographic data and GAD-7/PHQ-9 scores were collected directly through SurveyMonkey, which meets international data-encryption compliance mandates and stores information on secure servers, only allowing survey creators to access the password-protected data (SurveyMonkey, 2022). For analysis purposes, the data were directly exported from SurveyMonkey into an SPSS file, which will be stored in a password-protected document on a flash drive for five years then destroyed in accordance with Walden University's IRB guidelines (Walden University, n.d.-a).

Summary

This chapter contained information about the current study including the selected research design and rationale. Information was presented regarding the study's methodology including the population selection, sampling, recruitment, data collection, and instrumentation. The data analysis plan, threats to validity, and ethical considerations were also addressed. Chapter 4 will include an in-depth discussion of the study's results, which were obtained through a quantitative analysis of the collected data.

Chapter 4: Results

The purpose of this study was to analyze the relationship between first responder employment, sexual minority identity, anxiety, and depression. To explore the relationship that exists between the independent and dependent variables, the following research questions and hypotheses were developed:

Research Question 1: What is the relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7?

$H_0$1: There is no statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

H_a1: There is a statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

Research Question 2: What is the relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9?

$H_0$2: There is no statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

H_a2: There is a statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

This chapter will contain information regarding the data collection, analysis, and results. I will provide an in-depth summary of the participant demographics and research findings via a combination of descriptive statistics and data tables. I will include an explanation of how each research question was answered and why each hypothesis was

accepted or rejected. I will conclude this chapter by highlighting and summarizing the most critical components of the data analysis results.

Data Collection

Data Collection Time Frame and Response Rates

IRB approval was received on August 2, 2022 (approval number 08-02-22-0660473). Data collection occurred from August 3, 2022 through August 10, 2022. During this time, survey responses were received from 271 individuals. Out of the 271 responses, 27 individuals were disqualified from serving as research participants due to not meeting inclusion criteria. Survey responses from 42 individuals were incomplete. Responses from 202 participants were complete and valid; these were the responses utilized within the data analysis.

Descriptive Statistics

Although participant ages ranged from 18–66 years, most participants (53.9%) were between the ages of 22–32 years. The majority of first responders employed within the United States are between 20–30 years of age (Zippia, 2022b). Approximately 84.2% of participants identified as female followed by 14.9% male and 1.0% other. In general, 61.4% of first responders identify as male while 38.6% identify as female (Zippia, 2022b). No statistics could be located regarding first responders who do not identify exclusively as male or female. Regarding sexual identity, 88 participants (43.6%) reported sexual minority identity. Current statistics regarding first responder sexual identity could not be located for comparison purposes. Finally, although all previously listed racial/ethnic groups were represented, most participants (81.2%) reported White as

their race/ethnicity. Black or African American was the most underrepresented at 0.5%. A more detailed visual breakdown of participant race/ethnicity, including a comparison to the most current United States-based first responder race/ethnicity statistics, is provided in Table 1.

Table 1

Participant Race/Ethnicity

Race/Ethnicity Categories	*N*	%	2019 First Responder Races/Ethnicities (%)
American Indian/Alaskan Native	7	3.5	0.8
Asian	4	2.0	3.5
Black or African American	1	0.5	6.9
Hispanic or Latino	22	10.9	14.5
White	164	81.2	71.8
Other	4	2.0	2.5
Total	202	100.0	100.0

Participants were employed across each of the five first responder employment types. The sample was comprised mostly of emergency medical technicians/paramedics (62.4%) followed by firefighters (14.4%), law enforcement officers (10.9%), emergency department doctors and nurses (7.9%), and crisis clinicians (4.5%). According to Zippia (2022b), the most current breakdown of first responder by type includes firefighters

(36.5%), emergency medical technicians/paramedics (35.0%), law enforcement officers (23.6%), emergency department doctors and nurses (4.4%), and crisis clinicians (0.3%).

Employment location was spread across 42 states, only missing representation from Alaska, Florida, Hawaii, Idaho, Iowa, Kentucky, Rhode Island, and Vermont. Participants were primarily employed in Arizona (8.9%), Pennsylvania (6.9%), Texas (6.4%), and North Carolina (5.0%). Although years of professional experience ranged from 0–41, 41.1% of participants reported between 2–5 years of experience. According to the most current statistics, 60% of first responders have between 2–7 years of professional experience (Zippia, 2022b). The number of participants who reported actively seeking any type of mental health intervention was 50%. Approximately 40% of first responders typically report seeking formal mental health intervention (Blue Line, 2019).

Data Cleaning and Screening

All 271 of the participant responses were initially exported directly from SurveyMonkey into an SPSS file. The 27 disqualified and 42 incomplete responses were removed from the dataset prior to the conduction of the data analysis. Additionally, I manually examined the remaining data to ensure that all the survey responses accurately transferred from SurveyMonkey to SPSS. I added the appropriate labels and assigned the variable categories. Finally, since the frequency of the “crisis clinician” employment type was low, I combined this category with the “emergency department doctor or nurse” employment category. This led to the creation of a new category, which was labeled “crisis clinician or emergency department doctor or nurse.”

Research Question 1 Results

Descriptive Statistics

Regarding levels of anxiety, participants' total scores on the GAD-7 ranged from 0–21. The mean was 9.86 (*SD* = 6.39). In the original research introducing the GAD-7, the mean GAD-7 score of individuals who did not meet criteria for generalized anxiety disorder was 4.9 (*SD* = 4.8); the mean GAD-7 score for individuals who did meet criteria for a formal diagnosis of generalized anxiety disorder was 14.4 (*SD* = 4.7; Spitzer et al., 2006).

Assumption Testing

Prior to analyzing the data regarding research question 1 via a two-way ANOVA, I tested each of the required assumptions based on the current model. Six assumptions must be tested prior to conducting a two-way ANOVA (Laerd Statistics, 2018). The first assumption is that the model's dependent variable must be measured continuously. In this model, the dependent variable was anxiety, which was measured on a continuous scale ranging from 0–21. Therefore, this assumption was met. The second assumption is that the model's two independent variables each consist of two or more independent, categorical groups. The first independent variable (employment type) contained four independent categories (1 = law enforcement officer, 2 = firefighter, 3 = crisis clinician or emergency department doctor or nurse, 4 = EMT or paramedic). The second independent variable (sexual minority identity) contained two independent categories (0 = no, 1 = yes). This indicated that the second assumption was met.

The third assumption is that the model demonstrates an independence of observations, indicating that the measurement of variables for one participant or group does not influence the measurement of variables for any other participant or group (Laerd Statistics, 2018). In this model, individual participant responses were non-influential on other participant responses. Additionally, participants were required to select exactly one response per variable, so their responses were not counted in more than one category per variable. This allowed the model to demonstrate an independence of observations.

The fourth assumption is that there are no significant outliers within the model (Laerd Statistics, 2018). This was tested via a visual boxplot inspection. Seven cases were observed in this model to be more than three standard deviations from the mean, although it was difficult to consider these cases to genuinely be outliers because they were all acceptable values within the small-range scale that was utilized to measure anxiety. However, the presence of outliers within a model is potentially an issue because this can cause a type I error to occur, leading to an inaccurate rejection of the null hypothesis (Liao et al., 2016). To address this assumption violation, I manually re-examined each of the seven participant responses that were identified as outliers. I found no evidence of data recording errors and there was no known motivation for participants to provide inaccurate responses in an attempt to alter the influence of their total GAD-7 scores. After the data were re-examined, I temporarily removed the seven cases from the model and re-ran the two-way ANOVA. The removal of these cases did not affect the statistical significance of the overall model or the independent variable interaction. Removing these cases only changed the non-significant independent influence of type of first responder

on anxiety from .142 to .141. Thus, the seven cases were added back into the model and I continued the data analysis with the values identified as outliers present.

The fifth assumption is that the dependent variable is approximately normally distributed across each of the independent variable groups (Laerd Statistics, 2018). I assessed this assumption by following the skewness and kurtosis testing guidelines as explained by Mishra et al. (2019). These researchers recommended testing for normality by dividing each independent group's skewness and kurtosis values by their respective standard errors, creating a z value. The researchers noted that, in sample sizes ranging between 50–300, z values $\pm$ 3.29 are considered to be within normal distribution limits. In this current research study, the z values for all of the six independent variable groups were within the $\pm$ 3.29 parameter. A visual summary of the z values is provided within Table 2.

The final assumption is that each combination of groups from the two independent variables demonstrates homogeneity of variances (Laerd Statistics, 2018). This assumption was assessed via Levene's test for equality of variances. When the Levene statistic is non-significant ($p > .05$), this suggests that equal variances are not assumed, indicating the assumption for homogeneity of variances is met. In this model, the Levene statistic was non-significant ($p = .267$). Thus, this assumption was met. After ensuring all of the assumptions were tested, I proceeded with running the two-way ANOVA.

Table 2

Skewness and Kurtosis Values (GAD-7)

Independent Group	Skewness *Z* Value	Kurtosis *Z* Value
Law Enforcement Officer	1.89	-1.96
Firefighter	0.47	-1.29
Emergency Department Doctor or Nurse or Crisis Clinician	0.64	-1.99
EMT/Paramedic	1.49	-1.65
Sexual Minority – No	1.94	-1.30
Sexual Minority – Yes	0.45	-2.59

Two-way ANOVA Results

A 2 (sexual minority identity) x 4 (type of first responder) between-subjects two-way ANOVA was calculated, comparing levels of anxiety as measured via the GAD-7. A significant main effect for sexual minority identity was found (F (1,194) = 32.937, $p < .001$). First responders who reported sexual minority identity had higher total GAD-7 scores (M = 11.62, SD = 6.67) than first responders who did not report sexual minority identity (M = 8.50, SD = 5.85). The effect size (partial η^2 = .145) indicated that sexual minority identity explained 14.5% of the variation in the GAD-7 scores. According to SPSS Statistics (n.d.), a partial η^2 greater than .14 is considered to be a large effect size. The main effect for type of first responder was not statistically significant (F (3,194) =

1.835, $p = .142$). The effect size (partial $\eta^2 = .028$) was small and indicated that type of first responder explained 2.8% of the variation in the GAD-7 scores.

There was a statistically significant interaction between the effects of sexual minority identity and type of first responder on anxiety (F (3,194) = 9.723, $p < .001$). The effect size (partial $\eta^2 = .131$) indicated that the interaction between sexual minority identity and type of first responder explained 13.1% of the variation in the GAD-7 scores. Based on the SPSS Statistics (n.d.) guidelines, this was considered to be a moderate effect size. Based on the results of this data analysis, I answered the research question; I rejected the null hypothesis and accepted the alternative hypothesis, stating that there is a statistically significant relationship between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7.

After answering the research question, I further analyzed the data, utilizing post hoc testing to assess the simple main effects. The post hoc testing revealed there was a statistically significant difference in mean GAD-7 total scores between sexual majority and sexual minority first responders who were employed as firefighters (F (1,194) = 8.733, $p = .004$). Post hoc testing also revealed there was a statistically significant difference in mean GAD-7 total scores between sexual majority and sexual minority first responders who were employed as crisis clinicians or emergency department doctors or nurses (F (1,194) = 34.166, $p < .001$). Post hoc testing indicated there was not a statistically significant difference in mean GAD-7 total scores between sexual majority and sexual minority law enforcement officers (F (1,194) = 1.922, $p = .167$). There was also not a statistically significant difference in mean GAD-7 total scores between sexual

majority and sexual minority emergency medical technicians/paramedics (F (1,194) = 7.800, p = .633). A visual summary of the mean GAD-7 total score pairwise comparisons between groups is provided within Table 3.

Table 3

Pairwise Comparisons (GAD-7)

Employment Type	Sexual Minority Yes	Sexual Minority No	Mean Difference (Yes – No)	*SE*	Sig.	95% CI	
						Lower Bound	Upper Bound
Law Enforcement Officer	10.16	6.70	3.46	2.50	.167	-1.46	8.39
Firefighter	15.77	8.85	6.92	2.34	.004	2.30	11.55
Crisis Clinician or Emergency Department Doctor or Nurse	16.66	3.00	13.66	2.33	< .001	9.05	18.27
EMT or Paramedic	10.16	9.66	.500	1.04	.633	-1.56	2.57

Research Question 2 Results

Descriptive Statistics

Regarding levels of depression, participants' total scores on the PHQ-9 ranged from 0–27. The mean was 11.80 (SD = 7.72). In the original research introducing the PHQ-9, the mean PHQ-9 score of individuals who did not meet criteria for any type of depressive disorder was 3.3 (SD = 3.8); the mean PHQ-9 score for individuals who did meet criteria for a depressive disorder diagnosis was 10.4 (SD = 10.4; Kroenke et al. 2001).

Assumption Testing

Prior to analyzing the data regarding research question 2 via a two-way ANOVA, I again tested each of the six assumptions based on the current model. The first assumption is that the model's dependent variable is measured continuously (Laerd Statistics, 2018). This model's dependent variable was depression, which was measured on a continuous scale ranging from 0–27. Thus, this assumption was met. The second assumption is that the model's two independent variables each consist of at least two independent groups that are measured categorically. The first independent variable (employment type) contained four independent categories (1 = law enforcement officer, 2 = firefighter, 3 = crisis clinician or emergency department doctor or nurse, 4 = EMT or paramedic). The second independent variable (sexual minority identity) contained two independent categories (0 = no, 1 = yes). This indicated that the second assumption was met.

The third assumption is that the model demonstrates an independence of observations (Laerd Statistics, 2018). In this model, responses from one participant did not affect the responses from any other participants. Also, there was no overlap in responses per variable; each participant had to select a single response per question, which was converted into a single category or score per variable. Therefore, the independence of observations assumption was met.

The fourth assumption is that the model contains no significant outliers (Laerd Statistics, 2018). To test this assumption, I conducted a visual inspection of the boxplots associated with this model. Two cases were observed in this model to be more than three

standard deviations from the mean. Again, it was difficult to classify these cases as being outliers because they were acceptable values within the small-range scale that was utilized to measure depression. However, as previously noted, outliers can be a reason for concern because they can potentially cause an increase in the likelihood of a type I error occurring (Liao et al., 2016). To lessen the chances of this occurring, I re-inspected both cases that were identified as outliers to ensure that no data recording errors had occurred. I also re-evaluated the data collection process as a whole and confirmed that the participants had no known motivation to inaccurately influence the data analysis results. I temporarily removed both cases from the model and re-ran the two-way ANOVA. The removal of these cases did not affect the statistical significance of the overall model or the independent variable interaction. Removing the cases only changed the non-significant independent influence of first responder employment type on depression from .257 to .261. Therefore, both cases were added back into the model and I continued the data analysis with both outliers present.

The fifth assumption is that the dependent variable is approximately normally distributed across each of the independent variable groups (Laerd Statistics, 2018). I assessed this assumption by following the skewness and kurtosis testing guidelines as established by Mishra et al. (2019) which indicate that, in moderately sized samples, z values $\pm$ 3.29 demonstrate normality. In this current research study, the z values for all of the six independent variable groups were within the $\pm$ 3.29 parameter. A visual summary of the z values is provided within Table 4.

Table 4

Skewness and Kurtosis Values (PHQ-9)

Independent Group	Skewness *Z* Value	Kurtosis *Z* Value
Law Enforcement Officer	1.73	-0.45
Firefighter	0.85	-0.88
Emergency Department Doctor or Nurse or Crisis Clinician	0.71	-1.79
EMT/Paramedic	1.18	-1.92
Sexual Minority - No	1.43	-1.90
Sexual Minority - Yes	0.44	-2.43

The final assumption is that each combination of groups from the two independent variables demonstrates homogeneity of variances (Laerd Statistics, 2018). This assumption was assessed via Levene's test for equality of variances. When the Levene statistic is non-significant ($p > .05$), this indicates that equal variances are not assumed, meaning that the model is assumed to demonstrate a homogeneity of variances. In this model, the Levene statistic was non-significant ($p = .075$). Thus, this assumption was met. After testing each assumption, I proceeded with running the two-way ANOVA.

Two-way ANOVA Results

A 2 (sexual minority identity) x 4 (type of first responder) between-subjects two-way ANOVA was calculated, comparing levels of depression as measured via the PHQ-

9. A significant main effect for sexual minority identity was found (F (1,194) = 31.622, p < .001). First responders who reported sexual minority identity had higher total PHQ-9 scores (M = 14.03, SD = 8.23) than first responders who did not report sexual minority identity (M = 10.08, SD = 6.87). The effect size (partial η^2 = .140) indicated that sexual minority identity explained 14.0% of the variation in the PHQ-9 scores. According to SPSS Statistics (n.d.), this is considered to be a large effect size. The main effect for type of first responder was not significant (F (3,194) = 1.359, p = .257). The effect size (partial η^2 = .021) was small and indicated that type of first responder explained 2.1% of the variation in the PHQ-9 scores.

There was a statistically significant interaction between the effects of sexual minority identity and type of first responder on depression (F (3,194) = 8.058, p < .001). The effect size (partial η^2 = .111) indicated that the interaction between sexual minority identity and type of first responder explained 11.1% of the variation in the PHQ-9 scores; this was considered to be a moderate effect size (SPSS Statistics, n.d.). Based on the results of this data analysis, I answered the research question; I rejected the null hypothesis and accepted the alternative hypothesis, stating that there is a statistically significant relationship between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9.

After answering the research question, I utilized post hoc testing to analyze the data for simple main effects. The post hoc testing revealed there was a statistically significant difference in mean PHQ-9 total scores between sexual majority and sexual minority law enforcement officers (F (1,194) = 4.026, p = .046). There was also a

statistically significant difference in mean PHQ-9 total scores between sexual majority and sexual minority firefighters (F (1,194) = 4.548, p = .034). Post hoc testing also revealed a statistically significant difference in mean PHQ-9 total scores between sexual majority and sexual minority crisis clinicians or emergency department doctors or nurses (F (1,194) = 31.765, p < .001). There was not a statistically significant difference in mean PHQ-9 total scores between sexual majority and sexual minority emergency medical technicians/paramedics (F (1,194) = .692, p = .407). A visual summary of the mean PHQ-9 total score pairwise comparisons between groups is provided within Table 5.

Table 5

Pairwise Comparisons (PHQ-9)

Employment Type	Sexual Minority Yes	Sexual Minority No	Mean Difference (Yes – No)	*SE*	Sig.	95% CI	
						Lower Bound	Upper Bound
Law Enforcement Officer	13.41	7.30	6.11	3.04	.046	.104	12.12
Firefighter	17.44	11.35	6.09	2.85	.034	.458	11.73
Crisis Clinician or Emergency Department Doctor or Nurse	19.83	3.76	16.07	2.85	< .001	10.44	21.68
EMT or Paramedic	12.34	11.28	1.06	1.27	.407	-1.45	3.58

Note. Adjustment for multiple comparisons: Bonferroni post hoc test.

Summary

Regarding the first research question, the results of the two-way ANOVA indicated that the interaction between type of first responder and sexual minority identity had a statistically significant influence on the levels of anxiety experienced by first responders. This information prompted me to reject the null hypothesis and accept the alternative hypothesis, which allowed me to state that a statistically significant relationship exists between type of first responder, sexual minority identity, and anxiety as assessed by the GAD-7. Regarding the individual influence of each independent variable on the dependent variable, the data analysis indicated that sexual minority identity had a large, statistically significant effect on the levels of anxiety experienced by first responders. Type of first responder did not have a statistically significant effect on anxiety levels. Post hoc testing indicated a statistically significant difference between levels of anxiety in sexual minority and sexual majority firefighters, as sexual minority firefighters scored an average of 6.92 points higher than sexual majority firefighters on the GAD-7 scale. This was also true for the category of crisis clinicians or emergency department doctors or nurses, as sexual minority participants from this category scored an average of 13.66 points higher than sexual majority crisis clinicians or emergency department doctors or nurses scored on the GAD-7 scale.

As for the second research question, the results of the two-way ANOVA indicated that the interaction between type of first responder and sexual minority identity had a statistically significant influence on the levels of depression experienced by first responders. This information prompted me to reject the null hypothesis and accept the

alternative hypothesis, which allowed me to state that a statistically significant relationship exists between type of first responder, sexual minority identity, and depression as assessed by the PHQ-9. Regarding the individual influence of each independent variable on the dependent variable, the data analysis indicated that sexual minority identity had a large, statistically significant effect on the levels of depression experienced by first responders. Type of first responder did not have a statistically significant effect on depression levels. Post hoc testing indicated a statistically significant difference between levels of depression in sexual minority and sexual majority law enforcement officers, firefighters, and crisis clinicians or emergency department doctors or nurses. Sexual minority law enforcement officers scored an average of 6.11 points higher than sexual majority law enforcement officers on the PHQ-9 scale. Similarly, sexual minority firefighters scored an average of 6.09 points higher than sexual majority firefighters on this same scale. Sexual minority crisis clinicians or emergency department doctors or nurses scored an average of 16.07 points higher than participants in this employment category who identified with the sexual majority. Chapter 5 will include a detailed interpretation of my research findings, an assessment of the study limitations, recommendations for future research, and information regarding social change implications.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to explore the impact that sexual minority identity has on the levels of anxiety and depression experienced by different types of first responders. To answer both research questions, I utilized two-way ANOVA testing. Regarding the first research question, the results of the data analysis indicated that there is a statistically significant relationship between type of first responder, sexual minority identity, and anxiety as measured by the GAD-7. The interaction between the independent variables explained 13.1% of the variance in GAD-7 scores. Although type of first responder did not independently have a statistically significant influence on GAD-7 scores, sexual minority identity did. Sexual minority identity independently explained 14.5% of the variance in GAD-7 scores. Post hoc testing indicated that sexual minority identity had a statistically significant influence on levels of anxiety in firefighters and crisis clinicians or emergency department doctors or nurses.

Regarding the second research question, the data analysis indicated that a statistically significant relationship exists between type of first responder, sexual minority identity, and depression as measured by the PHQ-9. The interaction between the independent variables explained 11.1% of the variance in PHQ-9 scores. Type of first responder did not independently have a statistically significant influence on PHQ-9 scores, however, sexual minority identity independently explained 14.0% of the variance in the PHQ-9 scores. Post hoc testing indicated that sexual minority identity had a statistically significant influence on levels of depression in law enforcement officers, firefighters, and crisis clinicians or emergency department doctors or nurses.

In this chapter, I will provide a detailed interpretation of the research findings. I will also discuss the limitations associated with the research study. I will discuss a series of recommendations for future research and will address the social change implications of the findings. I will then provide a succinct conclusion emphasizing the key points of the study.

Interpretation of Findings

Type of First Responder

Regarding both anxiety and depression, the independent influence of type of first responder was found to be non-significant. Type of first responder explained 2.8% and 2.1% of the variance in the levels of anxiety and depression experienced by first responders, respectively. This finding was not consistent with the research studies that I referenced in Chapter 2. Most of the research studies that I located suggested that mental health issues in first responders were connected to specific roles and their associated stressors. For example, Teoh et al. (2019) found that firefighters developed symptoms of anxiety, depression, and specific phobias related directly to their exposure to fire-related injuries, severe burns, and loss of human life. Cerel et al. (2019) indicated that law enforcement officers cited exposure to suicide as a factor in the development of their mental health symptoms including both anxiety and depression. Berlanda et al. (2019) found that emergency department doctors and nurses reported that exposure to patient-related violence increased their levels of generalized mental health issues. Carleton et al. (2019) explained that emergency medical technicians reported increased mental health

symptoms such as anxiety and depression after exposure to sudden violent deaths or critical events involving lengthy human suffering.

The prior research studies emphasized the concept that different types of first responders are exposed to different stressors associated with their specific roles; this was what prompted me to separate first responders by type of employment within my research study. However, my research findings might better align with the overarching notion that, regardless of specific employment type, first responders are continually exposed to dangerous environments and traumatic situations. These ongoing exposures have been found to increase levels of both anxiety and depression in first responders (Jones et al., 2018; Mayer & Hamilton, 2018). These dangerous or traumatic experiences may have been enough of a commonality to negate the presence of a statistically significant difference in levels of anxiety and depression based solely on type of first responder employment. Essentially, my research findings confirmed the heightened, trauma-based levels of anxiety and depression in first responders as an entire population.

Sexual Minority Identity

Regarding both anxiety and depression, the independent influence of sexual minority identity was found to be statistically significant. Sexual minority identity explained 14.5% and 14.0% of the variance in the levels of anxiety and depression experienced by first responders, respectively. My research results confirmed the findings from the single research study that exists regarding the influence of sexual minority identity on the general mental health issues experienced by first responders. Kyron et al. (2021) found that sexual minority emergency medical technicians experienced higher

levels of generalized psychological distress than their heterosexual colleagues. Another key finding of this research study was that sexual minority emergency medical technicians, firefighters, and law enforcement officers all experienced higher rates of suicidal thoughts/behaviors than heterosexual first responders employed in these same positions.

My research study not only confirmed but also extended the findings associated with the research conducted by Kyron et al. (2021). Since no research had previously been conducted regarding the specific influence of sexual minority identity on the levels of anxiety and depression in first responders, my study served as a way to bridge this critical gap in scholarly knowledge. It can now be stated that sexual minority identity affects not only levels of generalized mental health issues in first responders, but also levels of the two most commonly occurring mental health disorders–anxiety and depression.

Interactional Influence

Within my research study, there was a statistically significant interaction found between the effects of sexual minority identity and type of first responder on both anxiety and depression. This interaction accounted for 13.1% of the variation in GAD-7 scores and 11.1% of the variation in PHQ-9 scores. This confirmed the prior research findings that the heightened levels of anxiety and depression experienced by first responders tend to not stem from the influence of a single factor; rather, symptoms of these mental health disorders are frequently the byproduct of the interaction of multiple stressors (Mazzola & Disselhorst, 2019). The most common employment-related stressors cited by first

responders as factors that exacerbate both anxiety and depression included environmental hazards, exposure to traumatic situations, shiftwork and the associated sleep-related issues, and compassion fatigue/burnout (Agrawal & Singh, 2020; Chan & Andersen, 2020; Purba & Demou, 2019). Researchers found that, in addition to these employment-related stressors, other psychosocial stressors also influenced the levels of anxiety and depression experienced by first responders. These psychosocial stressors included work-home balance issues, relational challenges, self-stigma, and societal stigma (Johnson et al., 2020; Jones et al., 2018; Lanza et al., 2018; McDevitt & McDevitt, 2020).

The research conducted by Kyron et al. (2021) regarding the effects of sexual minority identity on the levels of psychological distress and suicidality experienced by first responders created a plausibility that sexual minority identity could potentially serve as a variable that also increased first responders' risk level for developing symptoms of more specific mental health disorders including anxiety and depression. My research findings confirmed this hypothesis, extending the knowledge surrounding the notion that the levels of anxiety and depression experienced by this population are the result of the interaction of a variety of factors, including the interaction of sexual minority identity and type of first responder.

This same interaction-based concept could explain the reason that, in my research study, different types of first responders experienced increased levels of anxiety and depression based on their sexual minority identity. As previously noted, type of first responder alone did not significantly affect levels of anxiety and depression; however, the interaction between sexual minority identity and type of first responder did significantly

influence these levels in certain groups. In my research study, sexual minority identity was associated with significantly increased GAD-7 scores in firefighters and crisis clinicians or emergency department doctors or nurses. Sexual minority identity was also associated with significantly increased PHQ-9 scores in law enforcement officers, firefighters, and crisis clinicians or emergency department doctors or nurses. These findings confirmed the outcomes of the research studies conducted by McDevitt and McDevitt (2020) and Kelsey et al. (2021), both of which found that personal characteristics, when exacerbated by pre-existing workplace stressors, can lead to increased mental health symptoms in law enforcement officers and nurses. My research findings extended this knowledge to include first responders employed as firefighters and crisis clinicians or emergency department doctors.

Minority Stress Theory

Minority stress theory posits that sexual minorities possess a higher risk level for developing both physical and mental health issues as compared to their heterosexual peers due to the overarchingly negative influence of multiple societal stressors that can lead to discrimination, oppression, and marginalization (Fulginiti et al., 2020; Lindquist et al., 2017; Meyer 2003). Once sexual minorities experience the effects of these social stressors paired with ongoing societal stigmatization, these individuals tend to develop internal issues including guilt, shame, self-stigma, internalized homophobia, low self-worth, and low self-esteem (American Psychological Association, 2012). Some individuals attempt to reconcile their sexual minority identity with the heterosexual majority identity as a way to decrease the presence of these social stressors and stigma.

However, this often leads to a sense of internal disequilibrium, which increases the mental health issues experienced by sexual minorities.

Multiple research studies have been conducted applying minority stress theory as a way to explain the differential impact of sexual minority identity on mental health issues. Baams et al. (2018) cited minority stress theory when analyzing the impact of perceived social burdensomeness on heightened depressive symptoms in sexual minority youth. Timmins et al. (2020) referenced this theory when discussing their findings that self-stigma, prejudice, and expectations of social rejection led to increased rumination-based anxiety in sexual minority populations. Fulginiti et al. (2020) used this theory to explain the differential suicide rates in sexual minority versus sexual majority youth. My research confirmed the findings from all three of these prior research studies. Within my research study, sexual minority identity had a large, statistically significant effect on the levels of anxiety and depression experienced by first responders. This aligns with Meyer's (2003) theoretical stance that sexual minority populations experience differential levels of mental health issues compared to their sexual majority peers. Based on minority stress theory, this could be explained by a multitude of factors, all of which are potentially connected to the interacting effects of societal stigma, self-stigma, cognitive dissonance, discrimination, oppression, and marginalization.

Study Limitations

As with any study, my research contained several limitations. First, there was a limitation associated with the external validity of my findings based on sample-related demographic issues. These generalizability-related issues were associated specifically

with research participants' sex, race/ethnicity, employment type, and employment location. In my research study, 84.2% of participants identified as female. This indicated that male and non-binary first responders were not adequately represented. Regarding race/ethnicity, Black or African American participants were highly underrepresented. Emergency medical technicians/paramedics were overrepresented within my sample while firefighters and law enforcement officers were underrepresented. Also, there was no first responder representation from eight different states. When certain demographics are underrepresented within a research study, it is not necessarily appropriate to apply the research findings to these populations (Yegidis et al., 2018).

As noted within Chapter 3, selection bias may have also served as a factor that affected the external validity of my research study. Selection bias can occur when non-randomized sampling techniques are utilized. Andrade (2020) recommended that researchers consider the possibility that their findings may not be adequately representative of the experiences of all members of a population when each member did not have the same chance of serving as a research participant. To limit the potential effect of selection bias, I posted the flyer and link to my research opportunity in a multitude of first responder Facebook groups rather than in a single group. This allowed a variety of first responders to be represented within the sample.

The social desirability bias may have also served as a factor affecting the external validity of my research study. This concept references the tendency of individuals to underreport socially undesirable qualities and overreport socially desirable ones (Latkin et al., 2017). Prior to collecting data, I was aware that this could lead to potential issues

with obtaining accurate levels of anxiety and depression as well as accurate reports of sexual minority identity from participants. I attempted to mitigate this issue by clearly explaining the anonymous nature of the research opportunity before participants were able to access any of the survey questions. Based on the high mean levels for both the GAD-7 and the PHQ-9 as well as the high percentage of first responders who identified as sexual minorities, it did not appear that the social desirability bias was a major issue.

One issue regarding internal validity was also present within my research study. This issue was associated with the unknown influence of confounding variables. Confounding variables are factors, outside of the variables that are being tested, that potentially affect the relationship between the independent and dependent variables (Flannelly et al., 2020). As noted within Chapter 3, several factors may have served as confounding variables within my research study (e.g., prior mental health diagnoses, medications, therapy, and recent traumatic exposures). Because it would limit the number of first responders who could serve as research participants, and because it would be impossible to account for all confounding variables, I decided not to exclude participants based on any of these factors. This decision is further discussed within the next section on recommendations for future research.

Recommendations

One recommendation for future research would be for this study to be re-conducted on a larger scale. A larger study could potentially mitigate the generalizability issues that occurred within my research study associated with multiple underrepresented participant demographics. A larger study could also possibly allow for a more in-depth

analysis of the impact that sexual minority identity has on the levels of anxiety and depression experienced by more specific first responder types. This could permit the creation of groups such as “urban law enforcement officer,” “rural law enforcement officer,” “structural firefighter,” “wildland firefighter,” “emergency medical technician,” “paramedic,” “emergency department doctor,” “emergency department nurse,” and “crisis clinician.” More specific groups might also affect the statistical significance of the independent influence of first responder employment type on levels of anxiety and depression.

Another recommendation for future research would be for researchers to attempt to account for a variety of confounding variables. Questions could specifically be asked about prior mental health diagnoses, current medications, enrollment/participation in therapeutic interventions, and recent traumatic exposures. If these questions were asked and converted into quantitative variables, future researchers could then implement a different data analysis technique, such as multiple linear regression, that would allow them to analyze the influence of multiple independent variables on the dependent variables of anxiety and depression.

The findings associated with my research could also be expanded upon in the future if researchers applied this same research design and methodology to other mental/behavioral health disorders experienced by first responders beyond anxiety and depression; this might include mood disorders, psychotic disorders, and eating disorders. This would provide researchers with information regarding the manner in which sexual

minority identity influences a multitude of mental health issues experienced by first responders rather than just the two most common ones.

Finally, this research study could be further expanded upon if future researchers added another independent variable to account for the manner in which first responders' gender identity influences their levels of anxiety and depression. Sexual minority identity and gender identity are both associated with higher rates of mental health disorders within the general population (Anxiety and Depression Association of America, 2018). Studying the influence of gender identity on the levels of mental health symptoms experienced by first responders could further narrow the research gap regarding the impact of additional personal characteristics on the differential levels of anxiety and depression that occur within this population.

Implications for Social Change

The findings associated with this research study could facilitate positive social change on the micro, mezzo, and macro levels. On the micro level, the findings could be applied preventatively. When individuals possess an awareness of the degree to which their personal factors can influence their risk level for developing mental illnesses, they become better able to monitor themselves for early symptoms (Office of Disease Prevention and Health Promotion, 2020). When individuals are able to identify early signs of mental illness, they are then able to rapidly access therapeutic interventions if/when symptoms occur. The research findings from this study indicated that sexual minority identity has a statistically significant influence on levels of both anxiety and depression in first responders. Therefore, if sexual minority first responders are aware of

the influence of this personal characteristic on their likelihood of developing symptoms of anxiety and depression, they can monitor themselves and seek early professional intervention as appropriate.

On the mezzo level, these findings could facilitate positive agency-wide social change. When agencies are aware of the mental health-related challenges that their employees commonly experience, they are ethically responsible for providing employees with access to reasonable intervention options; this often occurs in the form of agencies creating benefit packages that include access to mental health treatment services (Hoefer & Watson, 2020). The findings of my research study confirmed the generally high risk level of first responders experiencing both anxiety and depression. Furthermore, the findings provided critical insight into the differential levels of anxiety and depression experienced uniquely by sexual minority first responders. First responder agencies could utilize this information as the basis for contracting with mental health treatment providers who are skilled at providing services to sexual minority populations. This intentional action could also facilitate positive social change for the populations served by the sexual minority first responders. When agencies actively take measures to acknowledge and address the biopsychosocial needs of their employees, this commonly leads to a higher level of overall employee-related and agency-related functionality; this then benefits the communities and individuals served by the agency and its employees (Northouse, 2018).

These findings could also have macro-level social change implications. Because no prior scholarly findings exist regarding the impact of sexual minority identity on the anxiety and depression levels experienced by first responders, no specific evidence-based

best practice techniques exist. Sexual minority first responders experiencing anxiety and depression are currently being treated via mental health professionals applying a culturally sensitive lens to generalized treatment approaches. This research study provided a baseline of scholarly information that can now serve as justification for researchers obtaining future funding to promote the development of new theories regarding this phenomenon. The development of new theories could then facilitate the development of evidence-based interventions, which could serve as the basis for the creation of more inclusive policies surrounding the specialized treatment of sexual minority first responders. When individuals are treated by specific evidence-based mental health interventions, this can promote more holistic mental wellness; when entire populations are better able to address their mental health issues, this eventually leads to the development of healthier, more functional societies (Kirst-Ashman & Hull, 2020).

Conclusion

Prior to the conduction of this research study, there was a major gap in the scholarly knowledge surrounding the impact of sexual minority identity on the levels of anxiety and depression experienced by first responders. This research study produced critical findings, indicating that sexual minority identity has a statistically significant impact on both anxiety and depression in first responders. It can now be stated that first responders who identify as sexual minorities are more likely than their heterosexual peers to experience heightened levels of anxiety and depression. Additionally, the findings indicated that the interaction between type of first responder and sexual minority identity had a statistically significant effect on the levels of anxiety and depression within this

population. This information can now be operationalized in a manner that promotes positive micro-, mezzo-, and macro-level social change.

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Appendix A: Informational Flyer

Are you a....?

- **Law Enforcement Officer**
- **Firefighter**
- **Emergency Medical Technician/Paramedic**
- **Emergency Department Doctor or Nurse**
- **Crisis Clinician**

Are you interested in serving as a research participant in an online study that explores the relationship between first responder employment, sexual identity, and mental health (anxiety/depression)?

If interested:

1. Visit the following link https://www.surveymonkey.com/r/FR08032022

2. Complete a brief online survey

All participants must be United States residents and at least 18 years of age. All responses are anonymous. There is no penalty for discontinuing the survey at any point.

For questions or concerns: kayla.soohy@waldenu.edu

Appendix B: Demographic Questionnaire

Please read through each demographic question carefully then provide accurate answers. No personally identifying information will be included in the research results.

1. Is English your primary language?

   ___Yes

   ___No

2. What is your age? _________ years

3. What is your current type of first responder employment?

   ___Law enforcement officer

   ___Firefighter

   ___Doctor or nurse employed in an emergency department setting

   ___Emergency medical technician or paramedic

   ___Crisis clinician

   ___None of the above

4. In what state are you currently employed? _________

5. How many years of experience do you have as a first responder? _________

6. What is your sex?

   ___Male

   ___Female

   ___Other

7. What is your race/ethnicity?

   ___American Indian or Alaskan Native

   ___Asian

   ___Black or African American

   ___Hispanic or Latino

   ___Native Hawaiian or Pacific Islander

   ___White

   ___Other

8. Do you identify as a sexual minority? This includes identifying as homosexual, gay, lesbian, bisexual, pansexual, asexual, or identifying with any sexual orientation other than heterosexual.

   ___Yes

   ___No

9. Are you currently engaging in any formal treatment with the specific intention of addressing anxiety or depression (such as attending therapy/counseling or taking psychiatric medications)?

   ___Yes

   ___No

Appendix C: Generalized Anxiety Disorder-7 (GAD-7)

Over the last two weeks, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge?	0	1	2	3
2. Not being able to stop or control worrying?	0	1	2	3
3. Worrying too much about different things?	0	1	2	3
4. Trouble relaxing?	0	1	2	3
5. Being so restless that it is hard to sit still?	0	1	2	3
6. Becoming easily annoyed or irritable?	0	1	2	3
7. Feeling afraid, as if something awful might happen?	0	1	2	3
Column totals	_____ +	_____ +	_____ +	_____ =

Total score _____

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

___Not difficult at all
___Somewhat difficult
___Very difficult
___Extremely difficult

Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of “not at all,” “several days,” “more than half the days,” and “nearly every day.” GAD-7 total score for the seven items ranges from 0 to 21.

0-4: Minimal anxiety
5-9: Mild anxiety
10-14: Moderate anxiety
15-21: Severe anxiety

Appendix D: Patient Health Questionnaire-9 (PHQ-9)

Over the last two weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things?	0	1	2	3
2. Feeling down, depressed, or hopeless?	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much?	0	1	2	3
4. Feeling tired or having little energy?	0	1	2	3
5. Poor appetite or overeating?	0	1	2	3
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down?	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television?	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual?	0	1	2	3
9. Thoughts that you would be better off dead or hurting yourself in some way?	0	1	2	3

For office coding _____ + _____ + _____ + _____

= Total score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

___Not difficult at all
___Somewhat difficult
___Very difficult
___Extremely difficult

Scoring: Add up all checked boxes on PHQ-9

1-4: Minimal depression
5-9: Mild depression
10-14: Moderate depression
15-19: Moderately severe depression
20-27: Severe depression